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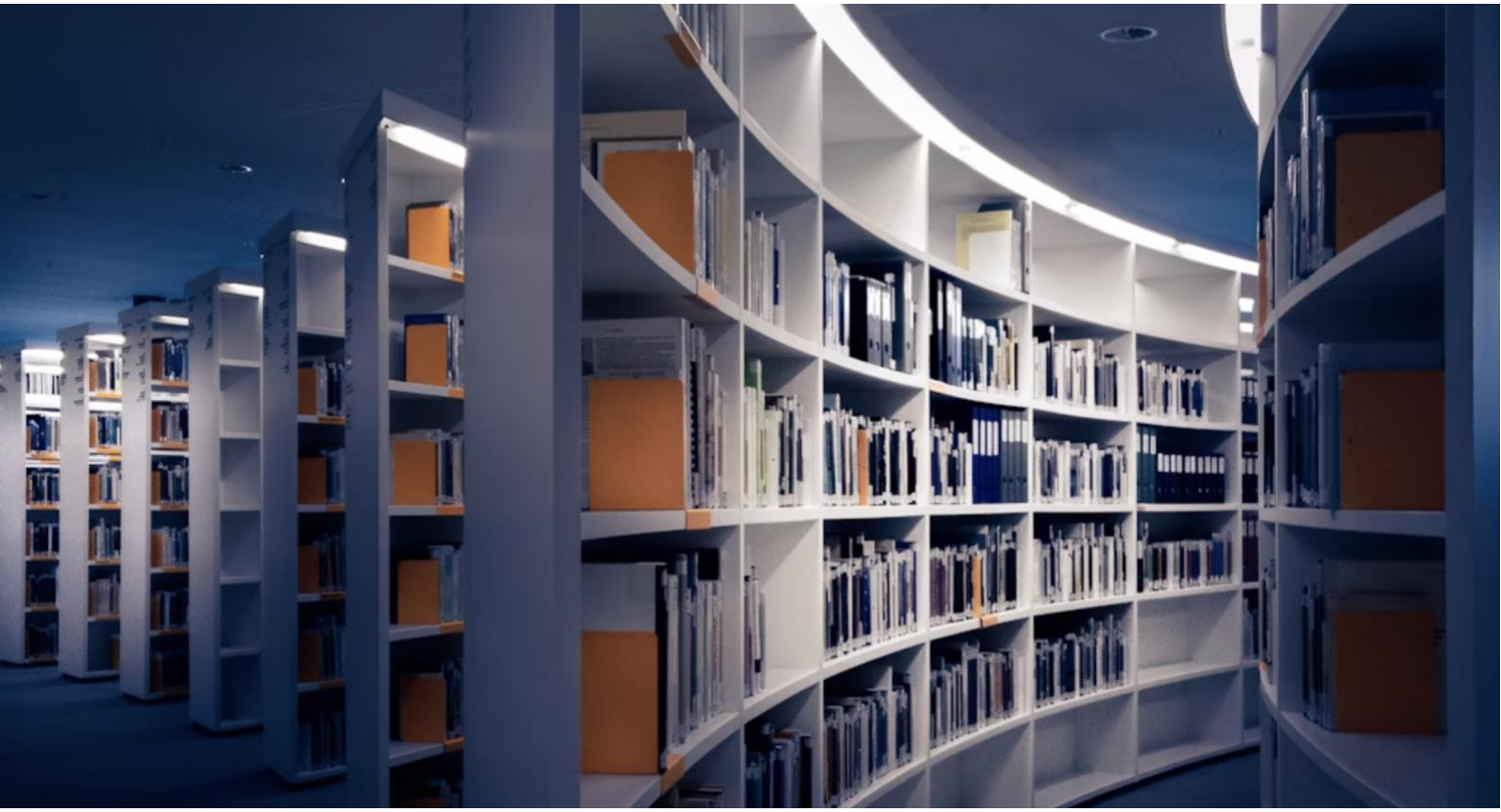

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Female-Headed Households and Educational Participation in Indonesia: Exploring Gender and District-Level Disparities

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Abstract
This study examines the relationship between household headship and children's school participation in Indonesia, with a particular focus on gender disparities and the district-level educational context. Using six waves of nationally representative SUSENAS data (2019–2024), the analysis investigates how household structure, child gender, and district mean years of schooling shape participation across primary, junior secondary, and senior secondary levels. The findings show that children in female-headed households are significantly more likely to attend school than those in male-headed households, even after controlling for demographic, economic, and contextual factors. This effect is especially pronounced at the junior secondary level, suggesting that female-headed households may serve as protective environments during periods of heightened risk of dropout. While girls generally have higher school participation rates than boys, the interaction between child gender and household headship is not statistically significant overall, indicating that the gender gap does not vary systematically by household headship. However, a modest advantage for girls in female-headed households emerges during the junior secondary stage. Although the three-way interaction with district-level educational context is not significant, two-way interactions reveal that girls benefit more from living in better-educated districts, while the positive effect of female headship is more evident in less-educated areas. These results highlight how household dynamics and local educational environments jointly shape children's schooling trajectories.

Keywords: Female-Headed Household, Gender Disparity, Indonesia, Logistic Model, School Participation

1. Introduction

1.1 Background

Educational inequality remains a pressing challenge in low- and middle-income countries, shaped by intersecting structural disadvantages—including gender, household composition, and regional disparities. While global efforts have expanded access to primary education, disparities widen significantly at the secondary level, particularly during adolescence (UNESCO, 2020). For youth aged 16–18, economic pressures, gender norms, caregiving

responsibilities, and limited institutional support often contribute to school dropout (World Bank, 2020). Adolescent girls face compounded vulnerabilities, including early marriage, domestic labor burdens, and restrictive cultural expectations (UNESCO, 2022).

Household-level factors, especially the gender of the household head, play a key role in shaping children's school participation. Female-headed households (FHHs) are commonly perceived as economically vulnerable; however, the evidence is mixed and increasingly nuanced (Zhang et al., 2024). While some studies associate FHHs with poverty, others suggest they may allocate resources more equitably and prioritize education—particularly for daughters (Bammeke, 2010). These effects are often context-dependent and mediated by broader institutional and cultural environments (Chant, 2004; Quisumbing et al., 2001).

In Indonesia, where household structures are shifting and gender norms are evolving, these dynamics merit closer attention. According to PEKKA and SMERU (2014), 23% of households are female-headed—a figure significantly higher than national estimates from SUSENAS. Despite their growing prevalence, FHHs are frequently viewed through a deficit lens, linked to economic precarity and exclusion (Pujiwati et al., 2025; Soseco et al., 2022). Nevertheless, they may also represent adaptive strategies and greater maternal agency, with positive implications for children's schooling.

Nonetheless, few studies in Indonesia have examined how female headship interacts with child gender and district-level context to shape school participation. This study addresses that gap using six waves of nationally representative data to explore how gender and household structure jointly influence schooling across diverse districts.

1.2 Purpose of the Study and Research Questions

Building on the preceding discussion, this study addresses an important gap in the literature by examining how household headship influences children's school participation in Indonesia, with a particular focus on gender disparities and district-level educational context. Using six waves of nationally representative data from the National Socioeconomic Survey (SUSENAS), covering the years 2019 to 2024, the analysis includes children aged 7 to 18—capturing variation across primary, junior secondary, and senior secondary education levels.

Specifically, the study explores three interrelated issues. First, it investigates whether children living in female-headed households differ in their likelihood of attending school compared to those in male-headed households. Second, it assesses whether the gender gap in school participation is moderated by household headship—evaluating whether girls and boys are affected differently depending on the gender of the household head. Third, it examines how these patterns vary across district-level educational contexts, as proxied by average years of schooling. By addressing these objectives, the study aims to shed light on how gender and family structure interact with broader contextual environments to shape educational inequality.

The following research questions guide the study:

- **RQ1:** To what extent is the gender of the household head associated with children's school participation in Indonesia?
- **RQ2:** How does the gender gap in school participation vary by household headship in Indonesia?
- **RQ3:** How does the gender gap in school participation across household headships vary by district-level educational context in Indonesia?

1.3 Importance and Contribution of the Study

This study makes three key contributions to the literature on educational inequality in Indonesia. First, it presents empirical evidence based on six waves of nationally representative SUSENAS data (2019–2024) to examine how children's school participation is shaped by household headship, gender, and district-level educational context. By focusing on children aged 7–18 across various educational levels, the study addresses a critical yet underexplored dimension of inequality within the Indonesian education system.

Second, it deepens understanding of female-headed households by moving beyond generalized assumptions and highlighting the diverse ways in which household structure interacts with children's gender and local educational conditions. The study reveals that the influence of female headship on school participation is not uniform but instead varies across contexts and educational stages—particularly during adolescence when dropout risks increase.

Third, the study emphasizes the value of situating household-level characteristics within broader structural environments. By examining how gender disparities in school participation are shaped by both family dynamics and district-level education indicators, the analysis contributes a more comprehensive view of the factors driving school attendance. The findings offer policy-relevant insights for targeting support to children in vulnerable household settings and underserved districts, particularly in efforts to reduce dropout and promote equitable access to education.

2. Materials and Methods

2.1 Rethinking Female-Headed Households: Structural Inequality and Educational Outcomes

Female-headed households (FHHs) are often perceived as structurally disadvantaged in low- and middle-income countries, including Indonesia (Nugraha & Widyasthika, 2018). This perception is rooted in overlapping social and economic constraints, such as reliance on a single income source, limited access to secure employment, and reduced control over productive assets (UN Women, 2019). However, recent scholarship cautions against treating FHHs as a homogenous and uniformly vulnerable group (AlAzzawi et al., 2024; Espinoza-Delgado & Klasen, 2018). Their socioeconomic conditions vary widely, shaped by factors such as location, education, access to remittances, and public support systems. In many cases, FHHs demonstrate strong investments in education, particularly for daughters, driven by the head's own experiences with gender inequality and a desire to disrupt intergenerational cycles of disadvantage (Quisumbing, 2004). Moreover, female headship can provide greater decision-making autonomy, including in matters related to children's schooling (Chant, 2004).

Empirical evidence from diverse contexts reinforces this perspective. In Mozambique, Manhisse and Ogawa (2024) find that children in FHHs—especially girls—are more likely to complete primary school, with no gender gap in attendance. Similarly, Singh et al. (2013) report that in India, children in FHHs perform as well as or better than those in male-headed households (MHHs), with no disparities in academic scores—an outcome linked to more equitable educational spending within the household. In Ghana, Asiedu et al. (2024) show that FHHs allocate 31% to 38% more of their income to education than MHHs, despite earning 20% less, suggesting a strong prioritization of schooling.

Differentiation within FHHs is also important. Joshi (2004), for instance, finds that in Bangladesh, children in households headed by married women outperform their peers in MHHs, while those in widow-headed households often face worse outcomes, including child labor. In India, Chudgar (2011) observes that widow-headed households perform comparably to others but are particularly responsive to even modest improvements in household conditions. These findings suggest that marital status, rather than headship alone, can shape household vulnerability. Evidence from the United States (Wang et al., 2004) and Hong Kong (Cheung & Park, 2016) further shows that children in single-mother households perform comparably to peers, reinforcing the idea that caregiving quality and prioritization—not household structure per se—matter most for educational outcomes.

These global insights underscore the importance of reassessing assumptions about female headship in the Indonesian context, where the links between household structure, gender, and child outcomes remain relatively underexplored. Recent data from BPS (2024) reinforce this need. In both 2022 and 2023, the proportion of FHHs was consistently higher among non-poor households than among poor ones—12.89% vs. 10.66% in 2022 and 12.84% vs. 11.29% in 2023. These figures challenge the common assumption that FHHs are inherently economically vulnerable. Instead, they highlight the heterogeneity of FHHs and show that using headship status

alone to identify disadvantage can obscure more complex dynamics of gender, household composition, and socioeconomic well-being.

Building on this perspective, the present study does not assume that FHHs are uniformly disadvantaged. Instead, it investigates whether and how household headship influences children's school participation—specifically, whether outcomes differ for boys and girls and how these patterns vary across district-level educational contexts. In doing so, the study contributes to a more nuanced understanding of how gender and family structure interact with broader structural conditions to shape educational inequality.

2.2 Methodology

This study employs a logistic regression model to analyze the factors influencing school participation among children aged 7–18 in Indonesia. The model includes explanatory variables at three levels: individual characteristics, household attributes, and district-level contextual factors. The primary independent variable of interest is participation in tertiary education.

The Main Model is specified within a latent response framework to establish the baseline relationships between individual, household, and district-level predictors and school participation. Let y_{ij}^{*} represent the unobserved propensity for individual *i* in district *j* to participate in school. This latent variable is modeled as:

$$y_{ij}^{*} = x1_{ij}\beta 1 + x2_{j}\beta 2 + \epsilon_{ij}$$

where $x1_{ij}$ represents individual- and household-level covariates; $x2_{j}$ denotes district-level contextual variables; and ϵ_{ij} is the individual-level error term, assumed to follow a standard logistic distribution with mean 0 and variance $\pi^{2}/3$.

The relationship between the observed binary outcome y_{ij} and the unobserved latent variable y_{ij}^{*} is defined through the following threshold rule:

$$y_{ij} = \begin{cases} 0 \; if \; y_{ij}^{*} > 0 \\ 1 \; if \; y_{ij}^{*} \leq 0 \end{cases}$$

2.3 Data

This study utilizes data from the National Socioeconomic Survey (*Survei Sosial Ekonomi Nasional*, SUSENAS), an annual household survey conducted by Indonesia's Central Statistics Agency (*Badan Pusat Statistik*, BPS). SUSENAS is one of the country's most comprehensive sources of socioeconomic data, designed to produce representative estimates at both the national and subnational levels, covering all 514 districts (regencies/*kabupaten* and municipalities/*kota*). It employs a stratified two-stage sampling design: in the first stage, census blocks are selected based on probability proportional to size, using household counts; in the second stage, a fixed number of households are randomly selected within each block. Each year, approximately 320 000 households are surveyed, generating data on about 1.2 million individuals—enabling robust disaggregation at the provincial and district levels.

The analysis draws on pooled data from six consecutive SUSENAS waves, spanning the years 2019 to 2024. It focuses on a subset of 1 683 902 individuals aged 7 to 18, which corresponds to the official age range for primary (7–12), junior secondary (13–15), and senior secondary (16–18) education levels in Indonesia.

In SUSENAS, a female-headed household is identified based on self-reported information. The household head is the individual recognized by household members as holding that role. If this person is a woman, the household is

classified as female-headed. This recognition-based approach does not impose objective criteria such as income contribution, decision-making authority, or marital status. Instead, it relies on the household's perception of who serves as its head. While this definition is straightforward and widely used, its practical and analytical implications merit consideration. It respects local norms by allowing households to self-identify their head, is easy to implement, and ensures consistency across survey waves. However, it also has limitations. It may obscure intra-household power dynamics, as women might be listed as heads in the absence of a male partner while decision-making authority lies elsewhere. Moreover, it does not distinguish between *de jure* (e.g., widows) and *de facto* (e.g., due to male migration) female headship, which may reflect different forms of vulnerability. As such, while useful for large-scale monitoring, this variable should not be interpreted as a direct proxy for female autonomy or disadvantage without supporting contextual data.

School participation in this study is based on a question asked in SUSENAS to all household members aged five and above: "Does [name of respondent] go to school? (including participation in the A/B/C Package program)." The response options are: (1) not/never attended school, (2) still attending school, and (3) no longer attending school. For analytical purposes, a binary school participation variable is constructed, coded as 1 if the respondent is still attending school and 0 otherwise (i.e., if they have never attended or have left school). The A/B/C Package program refers to Indonesia's non-formal equivalency education, where Package A is equivalent to primary education, Package B to junior secondary education, and Package C to senior secondary education. School participation rates for children aged 7–18 are summarized in Table 1.

Table 1: School Participation Rates of Children Aged 7–18 by Gender and Household Headship, 2019–2024

Year	All Observations			Male-Headed Households			Female-Headed Households		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
2019	0.913	0.930	0.921	0.916	0.932	0.924	0.889	0.914	0.901
2020	0.916	0.930	0.922	0.918	0.932	0.925	0.895	0.911	0.903
2021	0.913	0.928	0.920	0.916	0.930	0.923	0.888	0.905	0.896
2022	0.913	0.929	0.921	0.917	0.931	0.924	0.877	0.906	0.891
2023	0.914	0.930	0.922	0.916	0.933	0.924	0.886	0.903	0.894
2024	0.914	0.934	0.923	0.917	0.937	0.926	0.881	0.907	0.893
Average	0.914	0.930	0.922	0.917	0.932	0.924	0.886	0.908	0.897

Source: Author's calculation

Over the six years from 2019 to 2024, the average school participation rate among children aged 7–18 in Indonesia was 92.2%, with a clear gender gap favoring girls (93.0%) over boys (91.4%). When disaggregated by household headship, children from male-headed households consistently demonstrated higher participation rates (92.4%) compared to those from female-headed households (89.7%). The gender gap persists within both household types: in male-headed households, girls' participation (93.2%) surpassed that of boys (91.7%), while in female-headed households, girls also outperformed boys (90.8% vs. 88.6%). These findings suggest both a gender advantage for girls in school participation and a structural disadvantage for children living in female-headed households.

Table 2 presents the descriptive statistics of the variables used in this study, including means and standard deviations by year, which serve to complement and complete the description of the data.

Table 2: Summary Statistics of Key Variables, 2019–2024

Variable	2019		2020		2021		2022		2023		2024		All Observations	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Individual Characteristics														
School Participation	0.921	0.269	0.922	0.268	0.920	0.271	0.921	0.270	0.922	0.269	0.923	0.266	0.922	0.269
Female	0.480	0.500	0.480	0.500	0.483	0.500	0.482	0.500	0.481	0.500	0.481	0.500	0.481	0.500
Age	12.32	3.39	12.31	3.39	12.36	3.43	12.37	3.41	12.34	3.39	12.37	3.37	12.34	3.40
Received Government Programs	0.238	0.426	0.228	0.420	0.226	0.418	0.209	0.406	0.209	0.407	0.225	0.418	0.223	0.416
Household Head Characteristics														
Female-Headed Household (FHH)	0.101	0.302	0.103	0.304	0.095	0.293	0.092	0.290	0.090	0.286	0.090	0.286	0.095	0.294
Age	46.49	9.70	46.59	9.71	45.98	9.46	45.73	9.14	45.82	9.00	46.00	8.92	46.10	9.33
Married	0.889	0.314	0.886	0.318	0.896	0.305	0.897	0.304	0.898	0.303	0.898	0.303	0.894	0.308
Completed Years of Schooling	8.33	4.15	8.46	4.21	8.65	4.09	8.74	4.21	8.88	4.17	9.01	4.02	8.68	4.15
Household Characteristics														
Urban	0.387	0.487	0.388	0.487	0.395	0.489	0.397	0.489	0.401	0.490	0.406	0.491	0.395	0.489
Log (Per Capita Expenditures)	13.59	0.61	13.65	0.60	13.66	0.60	13.74	0.59	13.83	0.59	13.89	0.58	13.72	0.60
Household members aged 0-4	0.37	0.59	0.36	0.58	0.35	0.58	0.32	0.55	0.31	0.54	0.29	0.53	0.33	0.56
Housheold members aged 60+	0.21	0.49	0.21	0.50	0.21	0.50	0.18	0.46	0.18	0.46	0.18	0.46	0.19	0.48
District Contextual														
Mean Years of Schooling (MYS)	8.22	1.65	8.34	1.63	8.44	1.63	8.55	1.62	8.65	1.62	8.74	1.61	8.49	1.64
Observations	276 375		286 091		286 007		280 279		279 200		275 950		1 683 902	

Notes: All means and standard deviations are calculated at the individual level, except for Mean Years of Schooling (MYS), which is calculated at the district level. Individual school participation, gender, receipt of government programs, household head's gender, marital status, and urban residence are expressed as proportions. Individual age, household head's age, completed years of schooling, and district-level MYS are measured in years. Household composition variables (number of members aged 0–4 and 60+) are expressed in persons. Per capita household expenditure is expressed in natural logarithmic form.

Source: Author's calculation

3. Estimation Results

While a multilevel mixed-effects logistic regression was initially considered to account for the hierarchical structure of the data—specifically, the nesting of individuals within districts—the model failed to converge due to infeasible initial values. Such convergence issues are common in cases of sparse data within clusters, quasi-complete separation, or strong multicollinearity, all of which can hinder the reliable estimation of random effects (Rabe-Hesketh & Skrondal, 2021). As a statistically robust and widely accepted alternative, this study employs a population-averaged logistic regression with standard errors clustered at the district level. This approach adjusts for intra-cluster correlation and yields consistent standard errors in the presence of group-level dependence (Angrist & Pischke, 2009). While it does not estimate between-cluster variance components as multilevel models do, it is well-suited for analyzing average marginal effects—especially in large-scale survey data, where model stability and computational feasibility are critical.

Three logistic regression models were estimated to examine the determinants of school attendance among children in Indonesia, and the resulting estimates are presented in Table 3. Model [1], the main specification, includes individual-level variables (gender, age, government program receipt), household head characteristics (sex, age, marital status, education), and additional controls such as urban residence, household consumption (log per capita expenditure), household composition (number of young children and elderly), district-level mean years of schooling (MYS), and year fixed effects. The district-level MYS variable is derived from the education sub-index of the Human Development Index (HDI), providing a standardized measure of educational attainment at the district level. Model [2] extends this by introducing a two-way interaction between the child's gender and whether the household is headed by a female to test whether gender disparities in school attendance vary by household headship. Model [3] builds further by including a three-way interaction, allowing the gender–headship effect to vary across districts with different average schooling levels, thus introducing a contextual moderation component.

Table 3: Logistic Regression Estimates of School Participation

	Main Model [1]		Interaction Model 1 [2]		Interaction Model 2 [3]	
Individual Characteristics						
Female	1.250	(0.014) ***	1.248	(0.015) ***	1.018	(0.072)
Age	0.639	(0.011) ***	0.639	(0.011) ***	0.638	(0.011) ***
Received Government Programs	4.968	(0.201) ***	4.968	(0.201) ***	4.976	(0.20) ***
Household Head Characteristics						
Female-Headed Household (FHH)	1.193	(0.024) ***	1.185	(0.027) ***	2.941	(0.572) ***
Age	1.008	(0.001) ***	1.008	(0.001) ***	1.008	(0.001) ***
Married	1.392	(0.026) ***	1.392	(0.026) ***	1.382	(0.026) ***
Completed Years of Schooling	1.094	(0.003) ***	1.094	(0.003) ***	1.094	(0.003) ***
Household Characteristics						
Urban	0.986	(0.030)	0.986	(0.030)	0.988	(0.030)
Log (Per Capita Expenditures)	1.328	(0.050) ***	1.328	(0.050) ***	1.329	(0.049) ***
Household members aged 0-4	0.892	(0.012) ***	0.892	(0.012) ***	0.892	(0.012) ***
Housheold members aged 60+	1.018	(0.013)	1.018	(0.013)	1.018	(0.013)
District Contextual						
Mean Years of Schooling (MYS)	1.283	(0.044) ***	1.283	(0.044) ***	1.285	(0.044) ***
Interaction terms						
Female x FHH			1.017	(0.022)	0.998	(0.122)
FHH x MYS					0.894	(0.021) ***
Female x MYS					1.026	(0.009) ***
Female x FHH x MYS					1.002	(0.014)
Year						
2020	0.946	(0.012) ***	0.946	(0.012) ***	0.946	(0.012) ***
2021	0.919	(0.013) ***	0.919	(0.013) ***	0.919	(0.013) ***
2022	0.903	(0.017) ***	0.903	(0.017) ***	0.903	(0.017) ***
2023	0.835	(0.018) ***	0.835	(0.018) ***	0.835	(0.018) ***
2024	0.811	(0.019) ***	0.811	(0.019) ***	0.810	(0.019) ***
Constant	3.704	(1.905) **	3.707	(1.906) **	3.632	(1.807) ***
Pseudo R2	0.264		0.264		0.264	
AIC	681 674		681 675		681 293	
BIC	681 896		681 909		681 564	
Observations	1 683 902		1 683 902		1 683 902	

Notes: Odds ratios are reported. Robust standard errors, clustered at the district level, are shown in parentheses. *** statistically significant at the 1% level, ** 5%, * 10%

Source: Author's calculation

The three logistic regression models produce identical Pseudo R^2 values of 0.264, indicating that each explains the same proportion of variance in children's school attendance. This suggests that, at a basic level, the inclusion of interaction terms—whether the two-way interaction in Model [2] or the three-way interaction in Model [3]—does not improve the model's explanatory power in terms of variance captured. However, a closer look at the model fit statistics provides a clearer picture of their comparative performance. The Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC), which account for both model fit and complexity, point to meaningful differences. Models [1] and [2] have nearly identical AIC (681,674–681,675) and BIC (681,896–681,909) values, indicating that adding the two-way interaction does not meaningfully enhance the model. In contrast, Model [3],

which introduces a three-way interaction between gender, female-headed households, and district-level education, substantially reduces both AIC (681,293) and BIC (681,564). These improvements suggest that Model [3] fits the data better while maintaining a more favorable balance between complexity and explanatory value, particularly under the stricter penalty for complexity imposed by the BIC.

The presence of multicollinearity among the explanatory variables was assessed using a variance inflation factor (VIF) test. An ordinary least squares regression was estimated using the same set of covariates specified in the Main Model. The results indicate that all independent variables have VIF scores below 2.5, suggesting a low risk of multicollinearity. This supports the reliability of the coefficient estimates in the subsequent logistic regression analysis (Kutner et al., 2004).

3.1. The Role of Household Head Gender in Shaping School Participation

The estimation results from Model [1] show that the gender of the household head is significantly associated with children's school participation. Children residing in female-headed households are approximately 19.3% more likely to attend school compared to those in male-headed households (OR = 1.193, $p < 0.001$). This association remains robust after controlling for individual characteristics, household demographics, economic status, and district-level educational context. The results suggest that living in a female-headed household is not inherently disadvantageous and may even be associated with a greater prioritization of children's education.

This finding contrasts with the descriptive patterns presented earlier, in which children in female-headed households exhibited lower average school participation rates. The divergence underscores the importance of accounting for compositional differences across households—such as income levels, educational attainment, and demographic structure—when estimating net effects. Empirical evidence from Indonesia and other settings supports this interpretation. Salam et al. (2021) found that female-headed households, particularly those led by employed women, tend to allocate more resources toward children’s education. Similar patterns have been documented in Ghana, where Asiedu et al. (2024) report that female-headed households are more likely to prioritize educational investments than their male-headed counterparts, even when facing financial limitations. These findings suggest that female heads of households may consistently emphasize education as a priority, especially in contexts of constrained resources.

The analysis further disaggregates the association by age group, distinguishing between children aged 7–12 (primary education), 13–15 (junior secondary), and 16–18 (senior secondary). This stratification aligns with key educational transition points in Indonesia’s school system, where dropout risks and household decision-making pressures often differ.

The results, presented in Table 4, indicate that a positive association exists between female-headed households and school attendance across all age groups, although the strength of this relationship varies. Among children aged 7–12, those living in female-headed households are approximately 19.5% more likely to attend school compared to their counterparts in male-headed households (OR = 1.195, $p = 0.012$). While significant, this effect is relatively modest, likely reflecting the high baseline attendance rates in primary school due to compulsory education policies. The association becomes strongest at the junior secondary level: children aged 13–15 in female-headed households are 36.6% more likely to attend school (OR = 1.366, $p < 0.001$). This suggests that female heads may play a critical role in ensuring continued educational participation during a phase where school dropout rates typically rise. For youth aged 16–18, corresponding to senior secondary education, the odds ratio remains positive and significant (OR = 1.156, $p < 0.001$), though smaller in magnitude—possibly due to heightened economic constraints, labor market entry, or shifting household priorities as children near adulthood.

Table 4: Association Between Female-Headed Households and School Participation, by Age Group

	Primary		Junior Secondary		Senior Secondary	
	Age: 7-12 years		Age: 13-15 years		Age: 16-18 years	
Female-Headed Household (FHH)	1.195	(0.085) **	1.366	(0.066) ***	1.156	(0.026) ***
Pseudo R2	0.240		0.135		0.126	
Observations	878 782		418 683		386 437	

Notes: Odds ratios are reported. Robust standard errors, clustered at the district level, are shown in parentheses. *** statistically significant at the 1% level, ** 5%, * 10%

Source: Author's calculation

These findings suggest that female-headed households play a crucial role in sustaining children's school participation during middle adolescence, particularly during the transition from primary to junior secondary education. The pronounced increase in the effect size at the junior secondary level may reflect a stronger educational commitment, more protective decision-making, or a deliberate prioritization of schooling as a strategy to enhance household well-being. Rather than functioning as a constraint, female headship may embody adaptive strategies that support children's continued engagement in education, especially during stages when dropout risk tends to rise. Taken together, the results provide a direct response to Research Question 1, confirming that the gender of the household head is significantly associated with children's school participation and that this association is both positive and robust across different stages of schooling.

Overall, the analysis offers important empirical evidence that challenges conventional narratives portraying female-headed households as uniformly disadvantaged in educational outcomes. By disaggregating the association across age groups and controlling for relevant socioeconomic factors, the results demonstrate that female household heads can serve as effective agents of educational continuity. These findings underscore the need for a more differentiated understanding of household structures and their role in shaping children's schooling trajectories—particularly in contexts marked by socioeconomic vulnerability and unequal access to opportunity.

3.2 Gender Disparities in School Participation Across Household Headship

Model [2] investigates whether gender disparities in school participation differ by household headship through the inclusion of an interaction term between the child's gender and the gender of the household head. The estimated odds ratio for this interaction (female × female-headed household) is 1.017 ($p = 0.432$), indicating that the effect is not statistically significant. This result suggests that the gap in school participation between girls and boys does not vary meaningfully depending on whether a woman or a man heads the household.

Individually, both being female (OR = 1.248, $p < 0.001$) and living in a female-headed household (OR = 1.185, $p < 0.001$) are each positively associated with school participation. However, the lack of a significant interaction implies that these two effects are independent and additive rather than conditional. In other words, being a girl in a female-headed household does not confer any additional advantage—or disadvantage—relative to the sum of their contributions. This pattern holds even after controlling for a comprehensive set of covariates, including age, economic status, household demographics, and district-level educational context.

Taken together, the results provide a direct response to Research Question 2, which asks whether the gender gap in school participation varies by household headship. The analysis shows that while both child gender and household head gender independently influence school participation, their interaction is not statistically significant. This suggests that the gender gap in school participation remains stable across male- and female-headed households, with no evidence that household headship amplifies or mitigates this disparity. The findings reinforce the interpretation that gendered patterns of school participation are consistent regardless of household structure, even after accounting for a range of individual, household, and contextual characteristics.

These findings are consistent with Bammeke (2010), who found that children in female-headed households in Lagos performed on par with their peers in male-headed households. The study emphasized that the educational attainment of the mother strongly influenced children's outcomes and highlighted that female-headed households often maintain a strong commitment to schooling, even under economic constraints—particularly benefiting girls. Similar conclusions were drawn by Singh et al. (2013) in India, who reported no gender gap in academic performance among children in female-headed households, attributing this to more equitable investment practices. Likewise, Cheung and Park (2016) found that students from single-mother households in Hong Kong performed comparably to those from two-parent households, underscoring the positive role of maternal involvement in supporting children's education regardless of gender.

Expanding on this, the analysis further examines whether gender disparities in school participation vary by household headship across different stages of schooling. Interaction models were estimated using the same age-based subgroups: primary (7–12 years), junior secondary (13–15 years), and senior secondary (16–18 years). Across all groups, girls consistently show higher odds of school participation than boys, with the gender gap peaking at the junior secondary level (OR = 1.458, $p < 0.001$). Children in female-headed households also display higher attendance rates, reinforcing earlier findings. While the interaction between gender and household headship is not statistically significant in all cases, the variation in direction and magnitude—particularly at the junior secondary level—warrants further attention.

Table 5: Interaction Effects of Gender and Household Headship on School Participation, by Age Group

	Primary		**Junior Secondary**		**Senior Secondary**	
	Age: 7-12 years		**Age: 13-15 years**		**Age: 16-18 years**	
Female	1.168	(0.027) ***	1.458	(0.034) ***	1.222	(0.016) ***
Female-Headed Household (FHH)	1.253	(0.095) ***	1.319	(0.067) ***	1.147	(0.029) ***
Female x FHH	0.900	(0.061)	1.090	(0.054) *	1.017	(0.025)
Pseudo R2	0.240		0.135		0.126	
Observations	878 782		418 683		386 437	

Notes: Odds ratios are reported. Robust standard errors, clustered at the district level, are shown in parentheses. *** statistically significant at the 1% level, ** 5%, * 10%

Source: Author's calculation

At the primary level, the interaction term is negative and statistically insignificant (OR = 0.900, $p = 0.120$), suggesting that the gender advantage for girls is slightly muted in female-headed households. This aligns with the earlier results in Table 4, where the main effect of female headship at this level was relatively modest. By contrast, the interaction term becomes positive and marginally significant at the junior secondary level (OR = 1.090, $p = 0.079$), indicating that girls in female-headed households are more likely to remain in school than would be expected from the separate effects of gender and headship alone. Although the result is marginally significant ($p < 0.10$), it may still carry policy relevance—particularly during early adolescence, when dropout risks intensify and household-level educational decisions become more consequential. At the senior secondary level, the interaction becomes statistically insignificant again (OR = 1.017, $p = 0.497$), possibly reflecting the growing influence of external economic or structural constraints.

Overall, the results address Research Question 2 by showing that household headship may influence the gender gap in school participation most clearly during the junior secondary stage. Female-headed households offer a modest but meaningful advantage for girls during this critical transition phase, supporting the view that such households can serve as protective environments for continued schooling.

3.3 Contextual Variation in the Gender–Headship Effect on School Participation

Model [3] extends the analysis by including a three-way interaction between the child's gender, household headship, and district-level mean years of schooling (MYS). MYS is derived from the education sub-index of the Human Development Index (HDI) and captures the average number of years of formal education completed by adults in each district. As a contextual indicator, MYS reflects the overall educational environment in which children are raised—shaping social norms, institutional quality, peer influence, and expectations related to schooling. Districts with higher MYS generally offer more robust educational infrastructure, stronger parental networks, and greater institutional support for school participation.

The inclusion of the three-way interaction—female × female-headed household × MYS—tests whether the district's broader educational context conditions the intersectional effects of gender and household headship on school participation. Understanding this conditionality is critical because household-level influences on school participation may depend on the strength of external educational opportunities and institutional supports. A comparable pattern is found in Mozambique, where Manhisse and Ogawa (2024) show that female-headed households are more effective in promoting school completion among girls, especially in primary education settings where broader structural support is limited—underscoring the amplified role of household agency in under-resourced environments.

Additional analyses disaggregated by age group (7–12 for primary, 13–15 for junior secondary, and 16–18 for senior secondary) were also conducted to examine whether the three-way interaction effect varies across stages of schooling. However, these stratified models produced statistically insignificant three-way interaction estimates across all subgroups. In combination with the pooled model, this consistent lack of significance suggests that the combined influence of child gender and female headship does not meaningfully vary by MYS across different levels of schooling. This indicates that the interplay between household-level characteristics and district educational context remains relatively stable regardless of the child's educational stage.

Nonetheless, significant two-way interactions provide important insights. First, the interaction between female × MYS is positive and significant (OR = 1.026, $p = 0.003$), suggesting that girls experience greater educational gains in districts with higher MYS than boys do—possibly due to more gender-equitable norms, improved access, and reduced barriers to female education. Second, the interaction between female-headed households × MYS is negative and highly significant (OR = 0.894, $p < 0.001$), indicating that the educational advantage associated with female headship declines in better-educated districts. This may reflect a diminishing marginal role of household-level agency when broader institutional support structures are stronger, particularly in urbanized or education-rich areas. Similar dynamics are observed in rural China, where school consolidation improved average quality but disproportionately benefited children from wealthier households—highlighting how stronger educational contexts can inadvertently amplify household-level disparities (Guo et al., 2024).

Taken together, these findings address Research Question 3 by showing that while the gender gap in school participation is not significantly shaped by the joint effect of household headship and district educational context, it is still influenced independently by each factor. Girls benefit disproportionately from being in high-MYS districts, while the positive impact of female-headed households is more substantial in low-MYS areas, where institutional support is weaker. These patterns underscore the importance of situating household-level strategies within their broader structural context. Educational outcomes are shaped not only by family dynamics but also by the institutional and normative environments that vary across regions.

3.4. Discussions

From the perspective of the sociology of education, the findings contribute to a deeper understanding of how household structures—particularly household headship—interact with broader educational environments to shape children's school participation. This field emphasizes that educational outcomes are not shaped solely by individual characteristics but are embedded within family dynamics, cultural expectations, and structural inequalities (Ballantine et al., 2022).

The analysis shows that children in female-headed households (FHHs) are more likely to attend school than those in male-headed households, particularly at the junior secondary level. This association remains significant even after controlling for individual, household, and district-level factors. These findings challenge assumptions of disadvantage in FHHs and suggest that such households may act as adaptive environments that prioritize education. Evidence from rural Pakistan supports this interpretation: when women participate in schooling decisions and possess a strong awareness of gender equality, households allocate more resources to girls' education (Saleemi & Kofol, 2022).

These results also highlight the role of household agency—the capacity to make strategic choices under constraints, mobilizing time and resources toward long-term goals such as education (Kabeer, 1999). Despite systemic barriers, female heads may prioritize schooling more consistently, especially where education is viewed as a pathway to social mobility. Similar patterns have been documented in rural India, where children, especially girls, in female-headed households perform as well or better than those in male-headed households under similar socioeconomic conditions (Chudgar, 2011). Evidence from Vietnam further suggests that educated female heads are more likely to enhance household wealth, illustrating how agency is exercised through human capital investment (Vo et al., 2023).

The particularly strong effect at the junior secondary level aligns with Bourdieu's (1986) theory of cultural capital, which emphasizes how families transmit values and dispositions that support academic success. Female-headed households, despite their limited financial resources, may instill an educationally oriented habitus, promoting discipline, goal-setting, and persistence. These intangible assets become crucial during transitional phases when dropout risks are elevated. Evidence from Nicaragua suggests that when cash transfers are directed to women, household resources are more likely to be allocated to children's health and education, thereby reinforcing the connection between women's control over resources and child-focused investments (Gitter & Barham, 2008).

At the district level, structural opportunity is captured by mean years of schooling (MYS). The study finds that while girls benefit more from higher-MYS districts, the positive effect of female headship diminishes in such settings. This suggests that household influence is more critical in contexts where public educational systems are weaker—echoing Gamoran's (2001) assertion that educational inequality reflects both household strategies and institutional opportunity structures. Recent evidence from China finds that school consolidation improves quality but disproportionately benefits better-off households, exacerbating household-level disparities (Guo et al., 2024).

Overall, the findings encourage a more differentiated understanding of FHHs—not as structurally deficient but as active, education-oriented units. Their positive impact is most evident in lower-resource districts, where institutional support is limited. These insights underscore the need for inclusive education policies that acknowledge household diversity and bolster household-level efforts to retain children—especially at-risk adolescents—in school.

4. Conclusion

4.1 Summary of Findings

This study examines the relationship between household headship and children’s school participation in Indonesia, with a focus on gender disparities and district-level educational context. Using six waves of nationally representative SUSENAS data (2019–2024), this analysis examines how household structure interacts with child gender and district-level average years of schooling to influence attendance across primary, junior secondary, and senior secondary levels. Three research questions guide the analysis, each offering distinct insights.

First (RQ1), the study investigates whether children in female-headed households (FHHs) differ in school participation compared to those in male-headed households (MHHs). The results show that children in FHHs are significantly more likely to attend school, with the strongest effect at the junior secondary level—when dropout

risks typically increase. This association remains robust after controlling for individual, household, and contextual factors, challenging the assumption that FHHs are inherently disadvantaged.

Second (RQ2), the study explores whether the gender gap in school participation varies by household headship. It finds that both child gender and headship independently affect participation—girls attend school more than boys, and children in FHHs participate more than those in MHHs. However, their interaction is not statistically significant overall: girls in FHHs do not gain added advantage beyond the separate effects. A modest benefit appears at the junior secondary level, but this is not consistent across all stages.

Third (RQ3), the study assesses whether the effects of gender and headship vary across different district educational contexts. The three-way interaction is not significant, indicating that the advantage of being a girl in an FHH does not systematically depend on district-level education. Nevertheless, two-way interactions reveal that girls benefit more in districts with higher levels of education. At the same time, the positive effect of FHHs is stronger in districts with lower average schooling—suggesting that household-level support is critical in areas with weaker institutional capacity.

4.2 Policy Implications

This study challenges the common assumption that female-headed households (FHHs) are uniformly disadvantaged in supporting children's education. Children in FHHs exhibit significantly higher school participation, particularly at the junior secondary level, when dropout risks are higher. This suggests that, when supported, FHHs can serve as strong advocates for educational continuity. Policymakers should move beyond deficit-based narratives and recognize the potential of FHHs in promoting education. Targeted interventions—such as conditional cash transfers, school fee waivers, or parenting programs—could be especially valuable in rural and low-income districts where service delivery is limited.

The study also finds that the effects of child gender and household headship vary by district-level educational context. In districts with lower average years of schooling, the advantages of living in an FHH are more evident. This underscores the importance of local institutional capacity in shaping outcomes. While better-educated districts provide systemic support that benefits all children, those in less developed areas rely more on household-level efforts. District governments should prioritize investments in teacher quality, school access, and community education initiatives in underserved areas—particularly at the junior secondary level, where household support is most critical.

Although girls generally attend school at higher rates than boys, the study finds no significant added benefit for girls living in FHHs. This suggests that gender-sensitive policies should not rely on household structure as a proxy for advantage. Rather than narrowly targeting intersecting identities (e.g., girls in FHHs), policies should address broader systemic barriers—such as early marriage, unsafe school environments, and gender-insensitive pedagogy—that affect all vulnerable groups. A gender-equity lens should be integrated throughout the education policy cycle to ensure interventions are responsive to individual, household, and contextual disparities. Together, these findings underscore the need for inclusive, context-aware education policies that account for the interplay between gender, family structure, and local capacity.

4.3 Study Limitations and Future Extension

This study offers valuable insights into the relationship between household headship and children’s school participation in Indonesia; however, several limitations remain. First, the definition of household headship, based on self-reported SUSENAS data, may not fully reflect who holds decision-making power or controls household resources. It also masks variation among female-headed households (FHHs). Distinctions between widows, married women, or single mothers are not captured despite evidence that these subgroups differ significantly in socioeconomic capacity and child support (Cheung & Park, 2016; Saad et al., 2022). Second, the school participation measure used—current attendance—offers only a partial view of educational engagement. Attendance does not necessarily indicate whether a child is in the appropriate grade for their age, is progressing

adequately, or is learning effectively. Children may experience delayed entry, repetition, or irregular attendance, all of which point to deeper vulnerabilities (Singh et al., 2013; Williams et al., 2024). Future studies should incorporate indicators such as age-grade alignment and academic performance to capture the multidimensional nature of educational inequality better.

A third limitation is the use of repeated cross-sectional data from SUSENAS (2019–2024), which prevents tracking changes within the same households over time. As such, transitions in household headship (e.g., due to widowhood or migration) and their effects on school participation cannot be assessed. Longitudinal or panel data would enable more rigorous causal inference and dynamic analysis of intra-household changes (Hossain, 2025). Finally, this study relies solely on quantitative data. While offering generalizable results, it may overlook cultural norms, community influences, or gendered expectations that shape education-related decisions. Mixed-methods research could enrich understanding by linking lived experiences with statistical trends, thereby improving the policy relevance of future work (Shi et al., 2015).

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The Impact of Role Models on Academic and Social Outcomes in Adolescents in Thailand

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Abstract
This research explores the influence of role models on the academic interest, social behavior, confidence, and emotional well-being of adolescents in Thailand. Using a structured survey distributed online, data were collected from 135 adolescents aged 13–18. The results indicate that a significant majority of adolescents (79.2%) have role models, with celebrities and artists being the most frequently identified. Adolescents with role models reported lower engagement in risky behaviors, such as smoking and alcohol consumption, and higher levels of confidence and happiness compared to those without role models. However, academic interest was slightly lower among adolescents with role models, possibly due to the prominence of non-academic figures such as celebrities, whose success may be perceived as independent of educational achievement. These findings highlight the multifaceted role of role models in adolescent development and emphasize the importance of promoting role models who embody positive values, resilience, and academic or professional integrity to support adolescents' holistic growth and aspirations.

Keywords: Academic Outcomes, Role Model, Social Outcomes

1. Introduction

Adolescence is a critical developmental period in which individuals begin to form a sense of identity, values, and aspirations. During this time, role models often play a pivotal role in shaping adolescent behavior, attitudes, and outcomes. A role model is typically defined as someone whose behavior, example, or success can be emulated by others, particularly younger individuals (Lockwood & Kunda, 1997). These figures may include parents, teachers, celebrities, or peers, and their influence can significantly impact both academic engagement and social development.

Academic outcomes refer to measurable educational achievements such as grades, test scores, and skill acquisition, which are commonly used indicators of students' academic progress and performance (Fiveable, 2025). Social outcomes, on the other hand, encompass a range of interpersonal skills and emotional competencies, including

communication, empathy, teamwork, and the ability to build healthy relationships (IGI Global, 2025). Together, these outcomes provide a holistic picture of adolescent development.

Numerous studies have emphasized the impact of role models on youth development. According to Bandura's (1977) social learning theory, individuals, particularly adolescents, learn behaviors and values by observing and imitating others, especially those they admire or view as successful. Role models can either reinforce positive behaviors, such as persistence and academic focus, or promote harmful patterns, depending on the values they exemplify (Choi & Pak, 2006).

A study by Cureus (2022) found that adolescents who identified family members or adult peers as role models were more likely to exhibit positive academic interest, safer behavior, and higher happiness scores compared to those who admired celebrities or same-age peers. This suggests that the closeness and relatability of a role model play a significant role in shaping adolescents' internal motivation and behavior.

Similarly, research conducted in urban Los Angeles revealed that adolescents who had identifiable role models—especially known individuals like parents or mentors—showed higher self-esteem, better academic performance, and reduced substance use (Yancey, Siegel, & McDaniel, 2002). This highlights the protective function of positive role models in navigating complex psychosocial environments.

In the context of Thailand, adolescents are increasingly exposed to a diverse range of role models through traditional and digital media. However, the extent to which different types of role models influence academic motivation and social outcomes in Thai adolescents remains underexplored. This research aims to examine the relationship between role models and key academic and social indicators among Thai adolescents aged 13–18. By identifying the types of role models adolescents look up to and analyzing associated behavioral and emotional outcomes, this study seeks to contribute to a deeper understanding of how social influences shape youth development in Thailand.

2. Methodology

2.1. Research Design

The method that was used was a survey. The survey was about The Impact of Role Models on Academic and Social Outcomes in Adolescents. The target of this survey is adolescents from age 13-18/Grade 7-12 and some others for example college students or working. The researchers spread the online questionnaire, using google form link, throughout online platform including researchers' school LINE groups, Instagram channels, and sending directly to friends in age range mentioned. We have informed the respondents that this questionnaire is anonymous and guarantees the confidentiality of the data collection.

2.2. Data collection

This questionnaire form was divided into 7 Sections:

- First; Screening questions to screen if they understand the word role model or not. (Figure 1).
- Second; is to identify if they have a role model or not and if they do, who is they e.g., Family member, Celebrity, Public/Altruistic figure, Same-age peer and Adult Acquaintance. (Figure 2,3)
- Third; Demographic; asking about age, gender and households (who do they live with) (Figure 4,5,6,7)
- Fourth; Interest in Education, describing grades in school in A, B, C, D or GPA (1.00-4.00). (Figure 8)
- Fifth; Risky behavior; Smoking, asking how frequent and Drinking alcohol: In 30 days, how many days that they have drunk alcohol. (Figure 9,10,11,12)
- Sixth; Confidence and self-Esteem; If they are happy with themself, taking a positive attitude towards themself, feeling useless at times, wish to have more respect for themself, Feeling that they're a failure. The choices for answering were: 1=Strongly Disagree, 2=Disagree, 3=Moderate, 4=Agree, 5=Strongly Agree. (Figure 13)

- Seventh; Happiness Score; Their life is good at the moment, having problems but are dealing with it, confused about what is going on in life, learning from their mistakes and getting all the help they need. The choices are scaling from 1-5; 1= None at all, 2= Slightly, 3=Moderate, 4=Much, 5=Most. And also, how important family, friends and teachers are. The scaling is very important, somewhat important, neutral and not important. (Figure 14,15)

2.3. Analyzing of Data

The way to analyze the results is to find the mean, by adding up the all-range score in that category (Interest in education, Risky behavior, Confidence score, Happiness score) and divide by the group of people that have role model (107 people) and the group that have no role model (28 people). And compare means between groups.

3. Findings/Results

From the first question that was in the screening section, do you understand what Role Model is? From the responses of 174 people who have responded, 39 respondents don't understand what role models are. So, there are 135 responses that can be used.

After asking the question Do you have Role Model? Respondents can be separated into 2 groups: Having Role Model (107 people) and No Role Model (28 people).

It can be concluded that: (Table 1)

- Interest in education: Groups that have role models, have the average interest in education of 3.44. While groups that have no role model, have 3.55. For this behavior it can be concluded that Having Role model, has a lower education interest.
- Risky behavior (smoking and drinking alcohol): Groups that have role models, have the average of risky behavior at 1.14. While the group that has no role model has 1.20. Can conclude that having a Role model lowers risky behavior.
- Confidence: Group with a role model has a confidence score of 3.59. While groups with no role model have the average of 3.48. This means that having a role model has higher confidence.
- Happiness: Group that have a Role model, have a happiness score of 3.44. While the other group, which has no Role model, has the score at 3.26. So, it can be concluded that having Role model has higher happiness.

Behavior	Group1 (Have Role model) n= 107	Group2 (No Role model) n = 28	
Interest in education	3.44	3.55	Have Role model have lower education interest
Risky Behavior	1.14	1.20	Have Role model have lower risky behavior
Confidence Score	3.59	3.48	Have Role model have higher confidence
Happiness Score	3.44	3.26	Have Role model have higher happiness

Table 1: Role Model Impacting Behaviors on different groups

Starting off with the screening question, do they understand what is “Role Model”, the results turn out that from 174 people who filled up the survey understand what is Role Model 77.6% and the other 22.4% don’t. If they click “No”, the survey will end. So, with that, it is left with 135 people.

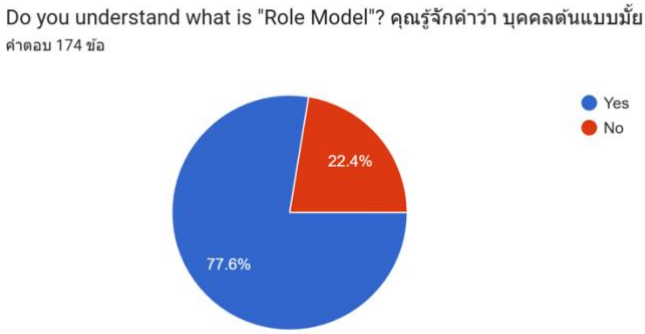

Figure 1: Pie Chart containing percentage whether they understand what is role model

From this question, 79.2% do have a role model which is 107 people. Other, 20.8% do not have a Role model which is 28 people.

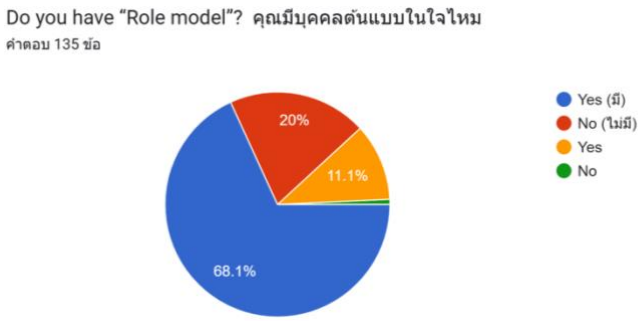

Figure 2: Respondents having role model or not

Based on people who have Role Model, results from the bar graph shows that the majority of people have Celebrity/Artists/Idol as the role model the most. Following with Family Members, next from family members is Public/Altruistic Figure, then Adult Acquaintance. Lastly, Same Age Peer which seems to be the least chosen role model.

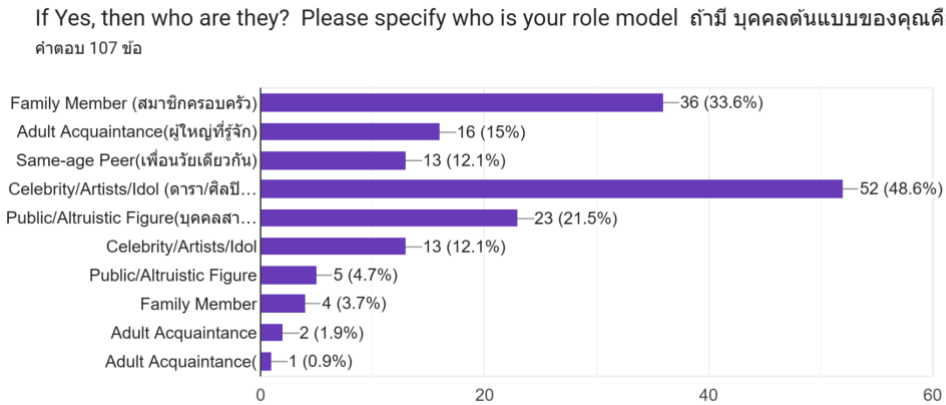

Figure 3: Who is the role model of the respondents

From the Pie Chart, it shows that people that have filled up this survey, how old are they.
The age 17 seems to be the majority age that people have when filling up this survey. From that age 16, 15 comes after. Age 18 and following with others; which may be above age 18, for example college students. The least age that filled up this survey is 14 and 13.

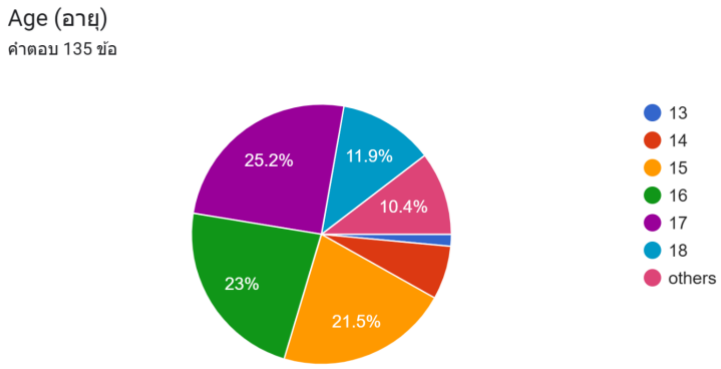

Figure 4: Respondents age

This graph shows the grade level of respondents. Most of the respondents are in grade 12/Year 13/ม.6. Following from that is grade 10/Year 11/ม.4, grade 11/Year 12/ม.5, others, grade 9/Year 10/ม.3. The least grade that respondents are from is grade 8/Year 9/ม.2.

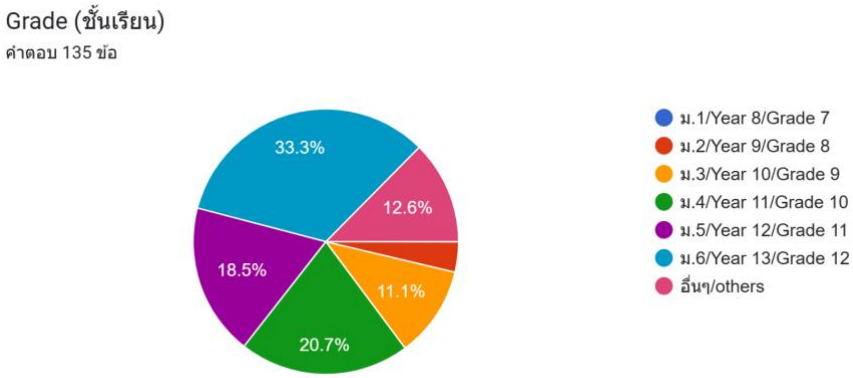

Figure 5: Respondent's grade levels

This graph presents the households of each respondent. From 126 respondents, the majority live with both of their parents/guardians and half from that majority live with 1 of their parents/guardians. The least household chosen is split time between two parents/guardians.

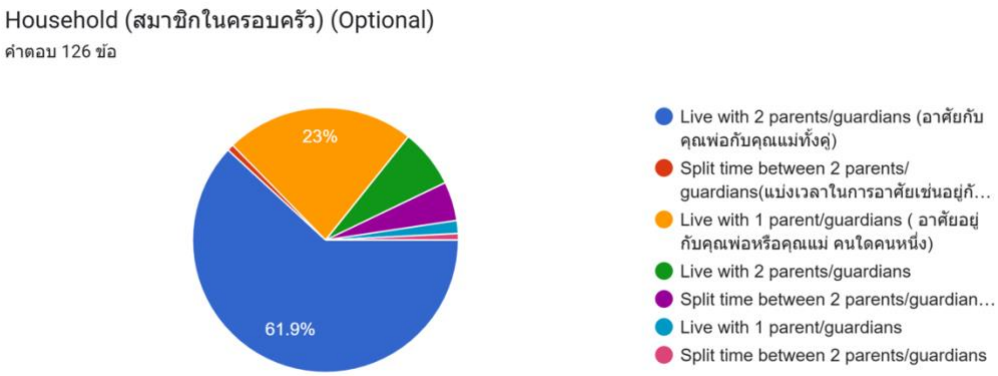

Figure 6: Respondent's households

This pie chart presents the gender of the respondents filling up this survey. Majority of the respondents are Female. Male is only 23% and non-binary is less than that.

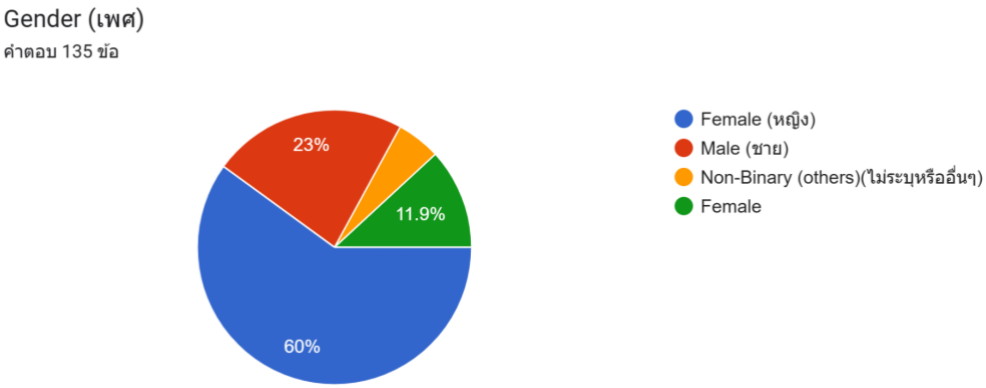

Figure 7: Respondent's gender

Half of the respondents would describe their grade as mostly B+'s/3.50. 24.4% of the respondents describe their grade mostly A's/4.00 and 17.8% would describe their grade as mostly B's/3.00. Only a few respondents describe their grade mostly C+'s/2.50 and mostly C's/2.00.

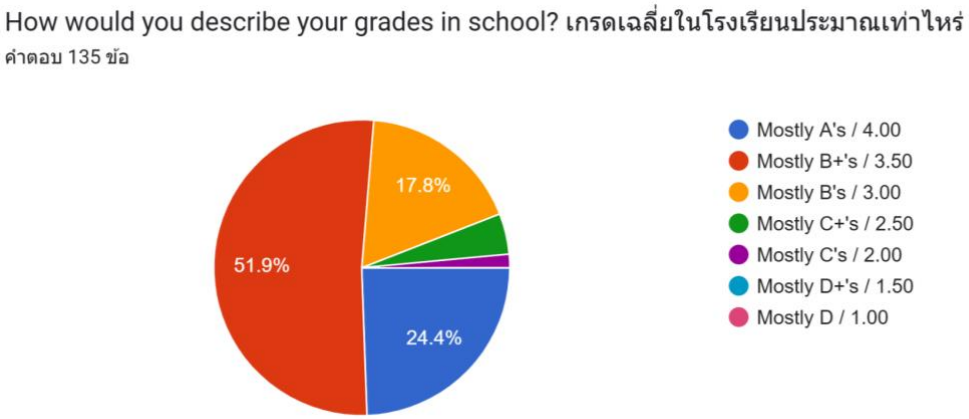

Figure 8: Interest in education, describing respondent's grade in school

This pie chart presents if the respondents have ever smoked cigarettes or electronic cigarettes. It could be seen that the majority of the respondents have never smoked cigarettes or e-cigarettes before. Only a small portion smoke cigarettes or e-cigarettes.

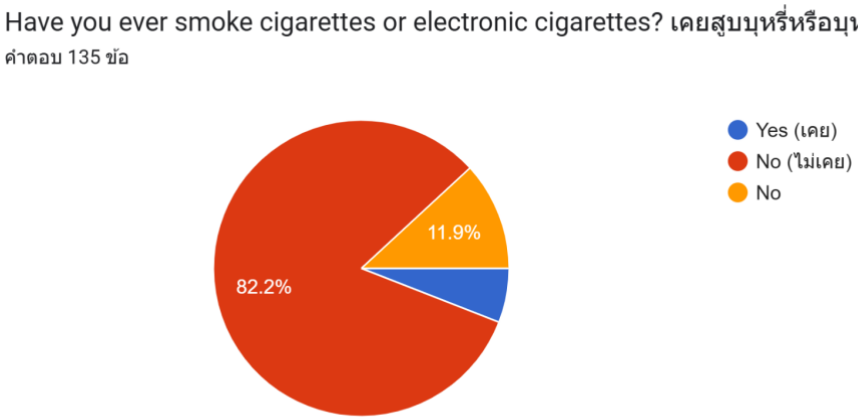

Figure 9: Risky behaviour, whether the respondents have ever smoked cigarettes or not.

If yes, this graph presents the frequency of smoking. 94.1% have not smoked at all. Only in a small percentage that have slightly smoke, moderate and much.

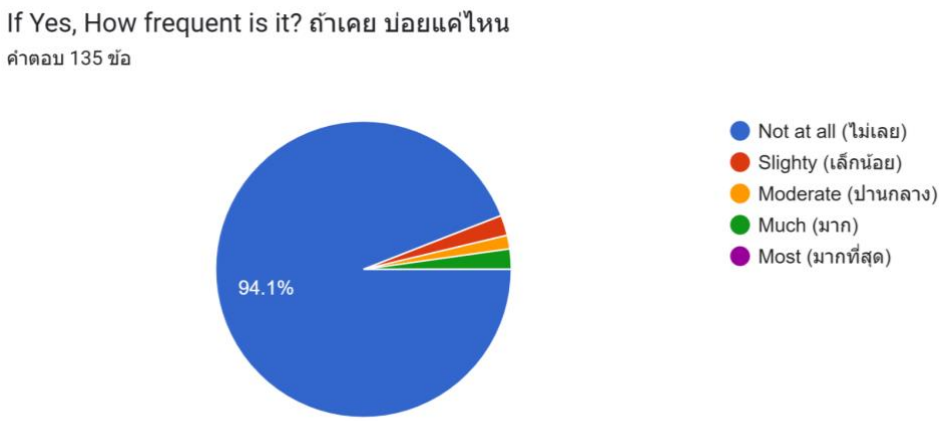

Figure 10: How frequent did the respondents smoke

This graph shows whether the respondents have ever drunk alcohol or not. It could be seen that respondents who have not drunk alcohol are more than respondents that have drunk alcohol.

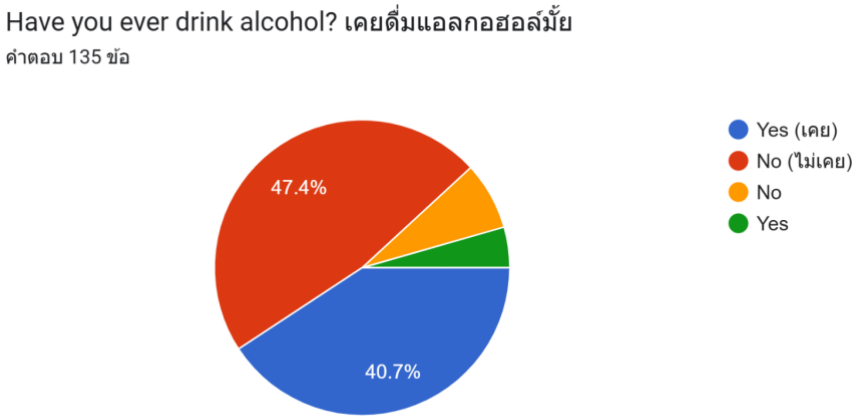

Figure 11: Risky behaviour, have the respondent's have ever drink alcohol

From the respondents that have answered yes for drinking alcohol, this questions as in during the past 30 days, how many days that they have at least one drink of alcohol. It can be seen that the majority of the respondents have not drunk any alcohol during the past 30 days. Some may have drunk in the past 1 to 5 days and slightly 6 to 19 days.

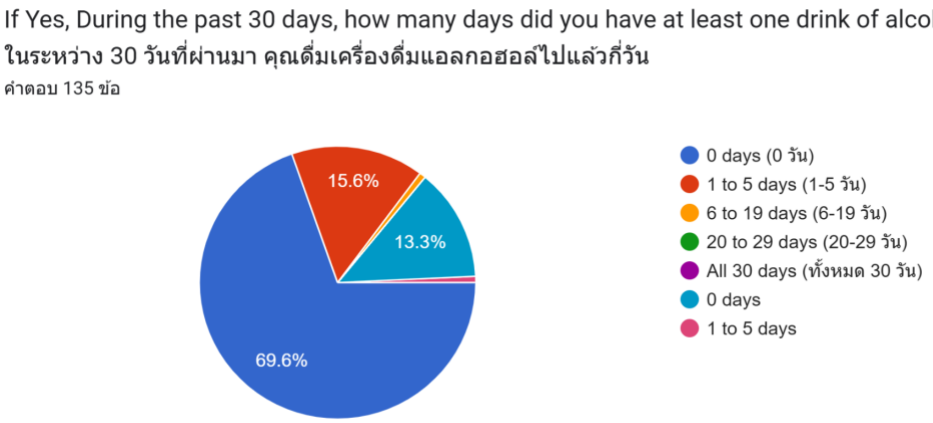

Figure 12: Days of having at least one drink, in the past 30 days

This graph presents the respondents Confidence/Self-Esteem Score. The choices were Strongly Disagree, Disagree, Moderate, Agree, Strongly Agree.

- On the whole, I am happy with myself: Majority are feeling moderate on themselves, but also there are some people who are agreeing and strongly agreeing. Though, there are some that disagree and slightly strongly disagree.
- I certainly feel useless at times: Similar to the first phrase, respondents feel moderate on feeling useless at times. The trend of disagree and agree are slightly different but agree is a bit lower than disagree. Some of the respondents do strongly disagree but still left with groups that strongly agree.
- I wish I could have more respect for myself: The highest trend is agreeing that the respondents wish they could have more respect for themselves. Feeling moderate and strongly agree are very close to being equal as same as disagree and strongly disagree. Though moderate and disagree are slightly higher.
- All in all, I feel that I am a failure: Moderate has the highest trend again, disagree and strongly disagree comes with a similar trend but disagree is slightly higher. Some of the respondents agree and a few strongly agree on feeling that they are a failure.
- I take positive attitude toward myself: Moderate and agree are in a similar trend but having agree slightly higher. Strongly agree comes next in the trend from the highest trend. Although, some disagree and a very few strongly disagree.

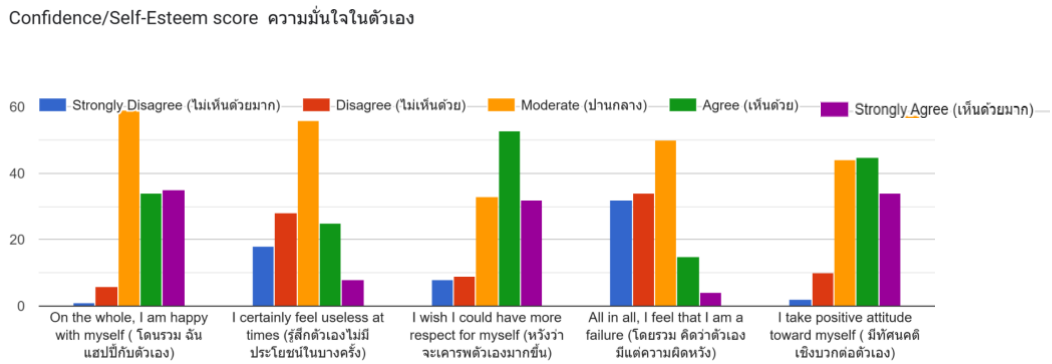

Figure 13: Confidence and self-esteem score of respondents

This graph represents the respondent's happiness score. The choices were divided into five; none at all, slightly, moderate, much, and most.

- Life is good for me at the moment: Most of the respondents feel moderate about their life whether it's good for them at the moment, also with the following trend; respondents feel much and most that their life is good at the moment. Although some disagree and very few none at all.
- I have a big problem but am dealing with them: Similar to the first phrase, respondents feel moderate about having a big problem but are dealing with it. The following trend is feeling slightly but there's still some that feels much and most. But also, there are some who feel none at all.
- I get confused about what is going on with life: In this phrase, the trends of feeling moderate and slightly comes nearly equal to each other but feeling moderate is a bit higher than slightly. Although there are some respondents who feel much and most (in a small trend) confused about what is going on with life. Though some respondents feel none at all.
- I learn from my mistakes: It could be seen clearly that most of the respondents have much to learn from their mistakes. Feeling most and moderate having the same amount of trend while feeling slightly and none at all are in a small trend comparing to the other three

- I am getting all the help I need: As same as most of the trends, moderate comes with the highest trend for the respondents getting all the help on what respondents need. The following trend comes with much and most. But some feel slightly getting the help they need and very few respondents feel none at all.
- I am easily depressed: Again, the highest trend is feeling moderate on easily being depressed. Slightly, none at all, much comes in a similar trend but there are some respondents do feel most on easily getting depressed.

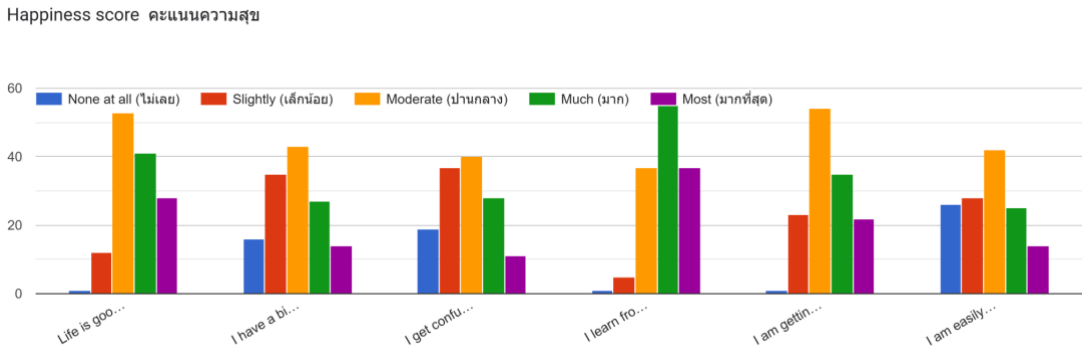

Figure 14: Happiness score of the respondents

This graph presents the importance of family, friends, teachers, and social media. The choices are not important, neutral, somewhat important, and very important.

- Family: It can be seen that the majority of the respondents choose the choice very important for their family. Only a few have chosen somewhat important and neutral but very few have chosen not important.
- Friends: Similar to the trend of family, respondents have chosen very important as the highest trend. Some respondents have chosen somewhat important and neutral but somewhat important in higher than neutral. A very few have chosen not to be important.
- Teachers: Respondents have chosen teachers as a neutral for how important for the respondents comes in the highest trend. The following trend is somewhat important which is higher than very important. Although, some have chosen not to be important for teachers.
- Social Media: The trend of social media is similar to the trend of teachers. By having neutral as the highest trend. The following trend is somewhat important which is also higher than very important. Though, some of the respondents have selected social media as not important, which seems in contrast to nowadays society.

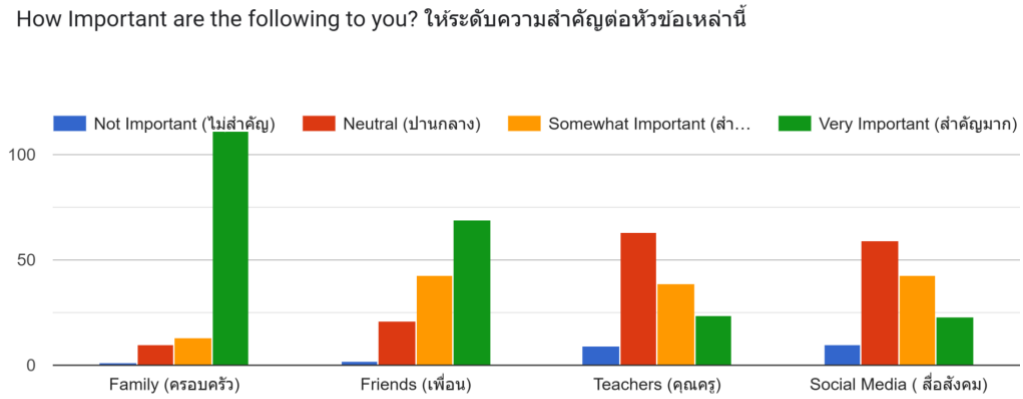

Figure 15: How important the respondents view family, friends, teachers, social medias

4. Discussion

The present study aimed to explore how the presence or absence of role models influences academic and social outcomes among adolescents in Thailand. The survey findings revealed that adolescents **without** role models reported a slightly **higher interest in education** (mean = 3.55) compared to those **with** role models (mean = 3.44). At first glance, this outcome may appear counterintuitive, as role models are commonly perceived to have a positive influence on youth motivation and goal-setting.

One possible explanation for this result lies in the **type of role models** selected by the participants. The majority of adolescents in this study identified **celebrities, artists, or social media influencers** as their primary role models. These public figures often achieve success through avenues that appear detached from academic achievement, such as beauty, fame, or online popularity. According to research by Choi and Pak (2006), when adolescents admire celebrities who emphasize appearance, fame, or financial success over academic accomplishments, this can lead to **distorted values** and **reduced academic motivation**. Similarly, Gibson (2004) noted that role models who achieve status through non-educational means may inadvertently lead youth to **undervalue formal education**, especially if success is perceived as attainable through talent or luck rather than sustained academic effort.

This explanation aligns with **social cognitive theory**, which posits that individuals learn behaviors through observing others (Bandura, 1986). If adolescents consistently observe role models who succeed without emphasizing education, they may internalize the belief that education is not a critical factor for success.

On the other hand, it is important to acknowledge that **not all role models exert a negative influence** on education. Numerous studies suggest that **academic or professional role models**—especially teachers, parents, or older peers—can foster a strong commitment to learning. For instance, Lockwood and Kunda (1997) found that exposure to inspiring role models who achieved success through education can **boost self-efficacy and motivation**, particularly when the individual perceives the role model as relatable and attainable. Moreover, adolescents who view their role models as hardworking and academically accomplished often strive to emulate those qualities (Oyserman et al., 2006).

The findings from this study indicate that adolescents who reported having a role model exhibited **lower levels of engagement in risky behaviors** such as smoking and alcohol consumption (mean = 1.14), compared to those without role models (mean = 1.20). This supports the notion that **role models can serve as protective factors** in adolescent behavioral development.

One possible explanation lies in the **nature and type of role models** identified by participants in this study—most frequently celebrities, artists, and idols. Many celebrities, especially those active in youth-oriented entertainment industries, are conscious of maintaining a positive public image due to their careers being dependent on public perception and sponsorships (Stever & Lawson, 2013). As such, they are often seen engaging in health-promoting behaviors or advocating against substance use.

In contrast, adolescents without role models may lack such external guidance or behavioral standards. This absence may increase their vulnerability to peer pressure and experimentation, particularly during adolescence—a developmental period characterized by identity exploration and risk-taking tendencies (Steinberg, 2008).

However, it is also important to recognize that **not all role models promote positive behaviors**. Some celebrities, especially those who gain notoriety through controversial actions, may actually glorify or normalize substance use (Brown et al., 2005). While this was not reflected in the current sample, such cases serve as a caution against generalizing the protective effect of all role models.

The findings from this study reveal that adolescents who reported having a role model scored higher in self-confidence (M = 3.59) compared to those without a role model (M = 3.48). Although the numerical difference is

modest, it suggests a meaningful trend that supports existing literature: having a role model is positively associated with self-confidence among adolescents.

Role models play a crucial role in adolescent development by providing a reference point for setting goals, navigating challenges, and forming personal identity. According to Lockwood and Kunda (1997), exposure to successful role models can inspire individuals and enhance self-perceptions, particularly when individuals perceive similarities between themselves and the role model. This inspirational effect can enhance adolescents' beliefs in their ability to succeed, which is a core component of confidence.

Furthermore, research indicates that role models often serve as “psychological blueprints” that adolescents may emulate, especially in contexts of perseverance, self-discipline, and emotional resilience (Yancey, Siegel, & McDaniel, 2002). When adolescents witness their role models succeed through hard work and persistence, it reinforces the belief that similar outcomes are achievable for them too. This aligns with Bandura’s (1997) theory of self-efficacy, which emphasizes that observational learning from competent models can strengthen one’s confidence in their own ability to perform certain behaviors.

In contrast, adolescents without role models may lack clear aspirational figures, which can lead to uncertainty about what is possible for them to achieve. Without such external sources of motivation or affirmation, these individuals may experience lower confidence, especially in settings where they face social pressures (Bryant & Zimmerman, 2003). They may internalize doubts or question their abilities, particularly in the absence of affirming narratives that validate their aspirations.

However, it is important to note that the influence of a role model on confidence can depend on the type and quality of the role model. For instance, if a role model is perceived as too distant or unattainable (e.g., a celebrity whose lifestyle seems unrelatable), the impact on confidence might be neutral or even negative (Cheryan, Plaut, Davies, & Steele, 2009). This indicates that not all role models boost confidence equally; relatability, shared values, and perceived attainability are key factors.

The findings of this study indicate that adolescents who reported having a role model experienced higher levels of happiness (M = 3.44) compared to those who did not have a role model (M = 3.26). Role models often serve as sources of emotional support, aspiration, and motivation. When adolescents admire and identify with role models, particularly those in media or public life, it can stimulate feelings of hope, purpose, and connection. These emotional experiences are closely tied to neurochemical processes involving **dopamine** and **serotonin**, two neurotransmitters significantly associated with well-being and happiness.

Dopamine is often referred to as the “reward” neurotransmitter. It plays a crucial role in the brain's reward system by reinforcing behaviors that produce pleasure or satisfaction (Palmiter, 2008). For adolescents, observing a role model succeed, overcome challenges, or simply engage in aspirational behavior—whether in person or through media—can trigger dopamine release, leading to feelings of enjoyment and increased motivation (Berridge & Kringelbach, 2015). These neurochemical responses may explain why the presence of role models, particularly those who are admired or idolized, contributes to higher happiness scores.

Similarly, **serotonin** plays a key role in mood regulation and emotional stability. Adequate serotonin levels are associated with increased mood, calmness, and emotional resilience, while deficiencies are linked to depression and anxiety (Young, 2007). Role models who display emotionally stable and resilient behavior may indirectly promote similar psychological states in adolescents by offering behavioral templates that foster emotional regulation and adaptive coping mechanisms.

However, some literature suggests that **not all role models produce positive emotional outcomes**, depending on the nature of the modeling relationship. For example, when role models are perceived as **unattainably successful** or when adolescents engage in **social comparison**, it may lead to feelings of inadequacy or reduced self-esteem (Festinger, 1954; Vogel et al., 2014). In such cases, the presence of a role model may paradoxically diminish happiness if the adolescent feels inferior or pressured to emulate unrealistic standards.

5. Conclusion

The findings suggest that the presence of role models is associated with several positive developmental indicators, particularly in reducing engagement in risky behaviors, enhancing self-confidence, and improving overall happiness. However, the study found that adolescents with role models reported a slightly lower level of academic interest than those without role models. This may be influenced by the type of role models identified — many participants listed celebrities and online influencers as their primary inspirations. While the present study supports the idea that having a role model is associated with positive developmental indicators in adolescents, it is important to recognize that the *type* of role model and the *context* of the relationship significantly shape this outcome. This study underscores the importance of encouraging adolescents to engage with role models who exhibit values aligned with personal growth, education, and long-term well-being.

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The Role of Monuments and Social Studies Education in the Formation of Collective Memory

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Abstract
This study examines the role of monuments in forming and transferring social memory within the context of social studies education. Conducted using a qualitative approach with a phenomenological design, semi-structured interviews were carried out with 25 social studies teachers working in middle schools in Malatya. According to the findings, teachers indicate that using monuments in social studies lessons strengthens students' social memory and cultural identity development. The most preferred methods for teaching about monuments include field trips, storytelling, visual materials, and drama. It was observed that students' perceptions of monuments are generally superficial but become enriched through classroom activities. The main challenges faced include time and spatial access issues, lack of materials, and student disinterest. Teachers emphasize themes such as patriotism, shared values, concretization of historical events, and fostering a sense of belonging, aiming to transmit social memory to new generations. Consequently, monuments are seen as an effective tool in social studies education for developing students' social and cultural awareness, highlighting the necessity for supportive policies to enable more effective educational practices.

Keywords: Collective Memory, Monuments, Social Studies Education, Cultural Heritage, Identity

1. Introduction

Collective memory is a shared sphere of consciousness and exchange that transmits, recalls, and reinterprets a society's past events, experiences, values, symbols, and common cultural heritage from generation to generation. In other words, collective memory refers not to individual recollections, but rather to the totality of knowledge, emotions, and symbols about the past that are collectively adopted, shared, and maintained by society (Assmann, 2011; Halbwachs, 1992).

Collective memory is not static; instead, it is a dynamic structure that is continuously changing and reproduced. Over time, certain elements of the past may be forgotten or reinterpreted according to social needs, current conditions, and prevailing ideologies (Halbwachs, 1992; İneç, 2020). Thus, collective memory has a significant

impact on shaping a society's present identity and values. Feelings of identity and belonging largely develop through collective memory, and educational institutions play a central role in transmitting this memory. Courses such as history, social studies, and literature in schools carry elements of collective memory to new generations, while family narratives, media, and popular culture also support this process. In addition, tangible and intangible elements such as monuments, museums, ceremonies, and literary and artistic works serve as carriers of collective memory; these structures and rituals not only ensure the remembrance of the past, but also make it possible to pass it on to future generations (Olick & Robbins, 1998; Buharalı, 2016; Gülpınar, 2023).

John Ruskin's statement in 1849, "We may live without architecture, and worship without her; but we cannot remember without her," reveals the indispensable role of architecture and the built environment in the formation of collective memory. This assertion emphasizes that architecture, beyond merely providing shelter, is a crucial tool that shapes the memory of individuals and societies, transmitting the past to the present and future (Ruskin, 1849).

Human history has been shaped by the desire to commemorate the lost, keep societal values alive, and pass significant events from generation to generation. As a concrete manifestation of this desire, monuments are the result of the human need to leave a mark, to be remembered, and to transmit existence to future generations. Monuments not only immortalize people or events, but also reflect collective memory and common identity. Ranging from a small gravestone to massive pyramids, from obelisks to heroic statues, monuments in various scales and forms are physical representations of humanity's desire to be remembered, to leave meaning, and to be collectively recalled (Young, 1993).

Such structures are also key elements of collective memory. Space provides a framework for organizing memories in the human mind, while monuments serve as focal points within this framework. Keeping collective memory alive requires symbols, rituals, and specific places. Monuments become functional through ceremonies, commemorations, and holidays, refreshing and strengthening collective memory (Nora, 1989; Assmann, 2011). At the same time, monuments reinforce a society's sense of historical continuity and identity, fostering social solidarity and the consciousness of coexistence. A monument in a city square not only commemorates those it represents or a particular event but also symbolizes the society's desire to exist together and connect with its past (Olick & Robbins, 1998).

Alois Riegl's definition of monuments in his essay "The Modern Cult of Monuments" reveals the historical and cultural depth of the concept. According to Riegl, in its earliest and most original sense, a monument is a work constructed to keep alive in the minds of future generations the deeds, skills, or a combination thereof, accomplished by an individual. This definition emphasizes that monuments are not merely physical structures, but also carriers of memory, the past, and social identity. Monuments do more than simply commemorate an event or person; they preserve what is to be remembered in people's minds through the means of art and writing. As Riegl points out, monuments can find a place in memory not only through architecture or sculpture but also through writing, painting, and various fine arts. Frequently, these elements are used together, deepening the meaning and impact of the monument (Riegl, 2015).

Siegfried Giedion, on the other hand, describes monuments as humanity's highest cultural need, viewing them as symbols that connect generations. For him, the existence of monuments is indispensable for the continuity of collective memory and shared identity. However, for such symbols to emerge, a socially "homogeneous" cultural environment is required. That is, monuments can only come into being when a particular community is united around shared values, beliefs, and meanings. This approach indicates that monuments are not merely physical entities but also products of social consensus and shared culture. As cultural diversity or division increases within a society, the meaning attributed to monuments may become more contested, and their social function may weaken. Giedion's view suggests that the impact of monuments on collective memory is directly related to cultural unity and continuity (Giedion, 1964).

Peter Eisenman, meanwhile, adopts a critical perspective on the relationship between monuments and history. According to Eisenman, a monument cannot be erected for an event or era until its historical process has concluded.

If history is “unfinished” that is, if the event or process is still ongoing then the place, meaning, and interpretation of this event in collective memory have not yet been fixed. This perspective posits that monuments represent not just the past but a past that has been historically completed, processed, and internalized in a social sense. Monuments built for events that have not yet ended, according to Eisenman, function more as symbols of uncertainty and ongoing historical debates rather than as “carriers of memory” (Forty, 2000).

The approaches of these three thinkers show that monuments are not merely structures of stone, concrete, or bronze, but are also material expressions of collective memory, identity, and cultural continuity. As Riegl notes, monuments keep social memory alive through both artistic and literary means; as Giedion emphasizes, they serve as symbols of social unity and shared values; and in Eisenman’s view, monuments can only truly exist when a historical closure has occurred in collective memory when the past has become “complete.”

This conceptual background, when combined with the aims and functions of social studies education, enables a deeper understanding of the central role of monuments in the construction of collective memory. Social studies classes aim for students to comprehend the relationship between past and present, individual memory and collective memory, and local and national identity. Social studies curricula are structured in a way that integrates disciplines such as history, geography, and civics, prioritizing the development of values, cultural heritage, identity, and social responsibility (Çapkın & Karatekin, 2020; Temizkan & Çakır, 2024; Avcu; 2025).

Within this context, monuments can be addressed in social studies classes not only as the concrete representations of historical events or prominent individuals, but also as reflections of collective memory, social values, and cultural identity. Through methods such as field trips, site studies, project-based learning, storytelling, and drama, monuments can become a vibrant and interactive part of both in-class and out-of-class learning. In this way, students are provided the opportunity to question the historical processes behind a monument, discover the meanings it holds in collective memory, and establish connections between past and present-day values.

Moreover, the use of monuments in social studies classes offers significant opportunities for fostering critical thinking and multiple perspectives among students. As Eisenman highlights, some monuments may lose their meaning over time or become the focus of societal debates. By using such examples, social studies teachers can prompt students to reflect on questions such as “how and why the past is remembered,” “which events are forgotten,” and “whose memory becomes dominant in society.” Thus, students learn not only historical knowledge, but also that collective memory is a dynamic, contested, and multilayered process.

2. Method

2.1. Research Model

This study is conducted within the framework of a qualitative research approach. Qualitative research enables the examination of phenomena in their natural context using various qualitative data collection methods such as observation, interviews, and document analysis (Yıldırım & Şimşek, 2005). In this method, researchers are concerned with the concepts constructed by individuals and the meanings attached to these concepts (Merriam, 2013). Qualitative research also involves analyzing research problems through interpretative techniques and exploring the meanings attributed to social issues. Researchers thematically analyze data obtained through both deductive and inductive reasoning, while remaining sensitive to the context of humans and their environment. This approach makes it possible to examine and interpret data in depth (Creswell, 2013). In this study, the phenomenological design, one of the qualitative research designs, was employed. Phenomenology is a method that aims to collect information about phenomena by examining individuals’ experiences (Kocabıyık, 2016). Events, experiences, perceptions, concepts, and situations that we encounter in life may emerge as phenomena whose meanings are not fully understood. The phenomenological design is preferred to better understand such phenomena. Phenomenology draws on the sources and diversity of individual experiences; it analyzes, evaluates, and compares these experiences. This method provides an opportunity to examine unknown or insufficiently understood phenomena in detail, thus allowing for a broader and deeper understanding (Yıldırım & Şimşek, 2011; Creswell, 2013; Patton, 2014).

In the phenomenological approach, data sources are generally individuals who have experienced the phenomena under investigation. The main data collection method for such research is interviews. In addition, the observation method is used as a supplementary data collection tool. Since phenomenology is a part of qualitative research methodology, it does not aim to provide generalizable or definitive results; rather, it offers information that helps to clarify and understand phenomena in a more detailed and explicit manner. Studies present and explain case examples based on specific experiences, enabling a better understanding of the subjects explored (Yıldırım & Şimşek, 2011).

2.2 Participants

In this study, the convenience sampling technique, one of the purposive sampling methods, was employed. This method allows the researcher to select situations that are easily accessible and close at hand, enabling the research to progress quickly and efficiently. Convenience sampling is a cost-effective and practical approach, often preferred in cases where other sampling methods are not feasible (Yıldırım & Şimşek, 2011; Büyüköztürk, 2016). Using this technique, the study was conducted with a total of 25 middle school teachers 12 women and 13 men working in central Malatya. The principle of easy accessibility was taken into account in the selection of participants. The data collection process continued until sufficient and satisfactory information was obtained, and the study group was finalized after the interview with the 25th participant.

In this study, it was determined that sufficient data were provided and no new information was being obtained, leading to the completion of the study group. Participants were assigned codes such as P1, P2, P3, ..., P25 to maintain confidentiality. Additionally, the data obtained from the interviews were included in the findings section to support and provide evidence for the results.

2.3 Data Collection Tool

In this study, a semi-structured interview form containing open-ended questions prepared by the researcher was used as the data collection method. In the process of developing the interview form, the first step was a review of the relevant literature, from which a framework encompassing the key points was established. Subsequently, the validity of the interview form was ensured through expert opinions. In this context, the opinions of three faculty members from the Department of Turkish and Social Sciences Education at İnönü University were sought. In addition, two social studies teachers and a Turkish language teacher also reviewed the questions. Updates were made as needed in line with their suggestions. After the necessary revisions and additions, this framework was finalized into the interview form.
The questions included in the interview form were as follows:

1. How does the use of monuments in social studies classes contribute to students' development of collective memory and identity?
2. What methods and strategies do social studies teachers use when incorporating monuments into their lessons?
3. What are students' perceptions of monuments, and what is their level of knowledge regarding the meaning and significance of these monuments?
4. What are the main challenges encountered in using monuments in social studies education, and what are the proposed solutions to these challenges?
5. How is the role of monuments in the transmission of collective memory and cultural heritage emphasized in social studies lessons, and which themes are prioritized in this process?

2.4. Data Collection and Analysis

This study was conducted with 25 middle school teachers working in central Malatya during the 2024-2025 academic year. During the research process, interviews with the participants were scheduled in advance. The locations and times of the interviews were determined according to the participants' availability. Audio recordings were taken during the interviews to enable detailed analysis. The data were analyzed using the descriptive analysis

method. In the analysis process, thematic categories were first established based on the research questions and the theoretical framework. Then, the collected data were organized according to these categories. Finally, the data were presented with frequency values.

3. Results

In this section, the findings obtained from the research are presented and interpreted through tables.

Table 1: Participants' Views on the Question: "How does the use of monuments in social studies classes contribute to students' development of collective memory and identity?"

Theme	Frequency (f)
Strengthening of Collective Memory	14
Enhancement of Cultural Identity and Sense of Belonging	12
Concretization of Historical Events	9
Transmission of Local Values and Shared Memory	7
Development of Critical and Inquisitive Thinking Skills	4
Strengthening of Intergenerational Bonds	3

- **P3:** *"Through monuments, students better understand that collective memory is kept alive by observing firsthand the contemporary reflections of past events."*
- **P8***: "Visits to monuments foster patriotism, shared values, and local identity awareness among students. Students feel proud of the historical heritage in their own city."*
- **P10***: "Linking abstract historical events with monuments enables students to better understand these events and retain them in their memories."*
- **P14***: "When students discuss social events through monuments, they learn to think critically and inquisitively, developing different perspectives."*

The teachers participating in the study emphasized that the use of monuments in social studies classes makes significant contributions to the development of students' collective memory and identity. The most common theme, strengthening of collective memory (f=14), indicates that monuments help students more easily understand the historical events and shared past of their society. Most participants stated that monuments are effective in enabling students to connect with the past, thus facilitating the intergenerational transmission of collective memory. The second prominent theme was the enhancement of cultural identity and sense of belonging (f=12). Teachers noted that introducing students to the historical and cultural heritage of their own locality fosters a sense of belonging, ownership, and pride. In particular, monument visits and field studies help students feel a stronger sense of local identity. Within the theme of concretization of historical events (f=9), teachers highlighted that abstract historical processes are made tangible and meaningful through monuments. This enables students to grasp events more easily and retain them more permanently in their memory. The theme of transmission of local values and shared memory (f=7) shows that, through local monuments, students learn about the community's shared values, collective memory, and the cultural motifs transmitted from the past to the present. Some participants also noted that, in this regard, monuments contribute to social integration. A smaller number of teachers drew attention to the development of critical and inquisitive thinking skills (f=4) and the strengthening of intergenerational bonds (f=3). Overall, teachers' views reveal that the use of monuments in social studies classes provides multidimensional contributions to the formation and strengthening of students' collective memory and identity awareness.

Table 2: Participants' Views on the Question: "What methods and strategies do social studies teachers use when incorporating monuments into their lessons?"

Theme	Frequency (f)
Field Trips and On-site Observation	13
Explanation and Storytelling	11

Visual Materials and Digital Presentations	10
Drama and Role-Playing Activities	7
Group Work and Collaborative Learning	5
Participation of Local Experts/Guest Speakers	3
Project and Presentation Activities	2

- **P2***: "Visiting monuments on-site with students ensures that the subject matter becomes memorable for them. After field trips, I assign small projects based on students' observations."*
- **P6:** *"In my lessons, I narrate the stories behind monuments by dramatizing them. Sometimes, together with the students, we reenact historical events through drama."*
- **P8***: "By using technology, I show photographs and short videos of monuments in the classroom and provide visual support with virtual tour applications."*
- **P12***: "I invite local historians or elders who are knowledgeable about local history to the classroom to share their experiences with the students. This creates significant awareness among students."*

The vast majority of participants identified field trips and on-site observation (f=13) as the most effective strategy. Teachers emphasize that students seeing monuments firsthand not only makes learning permanent but also helps to concretize historical events. It was noted that this practice increases students' interest in the subject and that their learning is reinforced through observations and small projects. The second most prominent method was explanation and storytelling (f=11). Teachers narrate the events behind historical monuments in the form of stories, stimulating students' imagination. During this narration, students often participate actively, and stories are brought to life through drama or role-playing activities (f=7). Visual materials and digital presentations (f=10) have become particularly prominent since the pandemic, supporting lessons with virtual museum and monument tours, photo and video screenings, and interactive presentations. Teachers noted that these materials are especially useful in schools outside of major cities or in situations where access to monuments is difficult. Group work and collaborative learning (f=5) involves students conducting research together about monuments, preparing presentations, and sharing what they have learned with their classmates. Through the participation of local experts/guest speakers (f=3), teachers invite local figures, historians, or elders knowledgeable about the construction or history of the monument to provide students with firsthand information. Project and presentation activities (f=2) were also highlighted. Students are encouraged to undertake projects such as shooting short documentaries, preparing posters, or giving presentations about monuments either individually or in groups. By integrating monuments into their lessons using various methods and strategies, teachers aim to provide students with a deeper learning experience at both the cognitive and emotional levels. These practices make the lesson more meaningful and memorable for students.

Table 3: Participants' Views on the Question: "What are students' perceptions of monuments, and what is their level of knowledge regarding the meaning and significance of these monuments?"

Theme	**Frequency (f)**
Superficial Knowledge and Symbolic Perception	12
Increased Awareness and Sense of Belonging	10
Understanding of Historical and Cultural Meaning	8
Alienation from Monuments in Daily Life	7
Questioning the Meaning of Monuments and Critical Approach	4
Emotional Bond and Sense of Pride	4

- **P5:** *"Many students know superficially what monuments represent, but they cannot fully grasp their deeper historical meaning and social value."*
- **P7:** *"After completing projects related to monuments in class, students began to develop a sense of ownership and belonging towards the monuments."*
- **P11***: "It is gratifying when some students realize during discussions that monuments are not just 'statues' or 'structures' and begin to question their significance."*

- **P14**: *"Most students pass by monuments every day, but very few truly know their historical meaning or why they were built. We try to address this gap through informative activities."*
- **P18**: *"Some students, especially those whose families have war or liberation stories, form a stronger emotional bond with monuments and feel proud of them."*

The findings obtained from the research indicate that students' perceptions of monuments and their level of knowledge generally remain superficial. The most prevalent theme was superficial knowledge and symbolic perception (f=12); students are mostly aware of the external appearance and general meaning of monuments, but they lack sufficient knowledge about their deeper historical and social significance. This situation is more common when monuments are not addressed in educational settings or when they are perceived in everyday life without being attributed any particular meaning. The second most frequently observed theme was increased awareness and sense of belonging (f=10). It was reported that when students engaged in projects, visits, or presentations related to monuments in class, both their level of knowledge and their sense of ownership toward monuments increased. Especially in lessons involving active participation, students become more aware of the contribution monuments make to the community in which they are located. The theme of understanding historical and cultural meaning (f=8) shows that students, particularly after guided activities or field trips, have a better grasp of the events and societal values behind monuments. However, this knowledge generally emerges under the guidance of the teacher and following specific activities. The theme of alienation from monuments in daily life (f=7) indicates that, although students often pass by monuments, they tend to see them as ordinary structures and continue their lives without being aware of their historical or cultural importance. A less frequently observed theme, questioning the meaning of monuments and critical approach (f=4), shows that some students have begun to question why monuments are built, what values they represent, and what their social function is. Such critical approaches usually emerge during lessons that focus on controversial or contemporary monuments. The theme of emotional bond and sense of pride (f=4) is observed especially among students who have a personal connection to the events commemorated by monuments, either through family history or collective memory. These students feel both an emotional bond and a sense of social pride towards monuments. Overall, the findings suggest that students' level of knowledge about monuments can be increased through active practices and guidance in lessons, and that their emotional and critical engagement with monuments can also be strengthened through such activities.

Table 4: Participants' Views on the Question: "What are the main challenges encountered in using monuments in social studies education, and what are the proposed solutions to these challenges?"

Theme	Frequency (f)
Problems of Time and Accessibility	13
Lack of Materials and Resources	11
Low Student Interest	8
Administrative and Budgetary Constraints	6
Safety and Organizational Problems	5
Lack of Teacher Preparation and Competence	3

- **P4**: *"We do not have enough time to organize field trips to monuments. Also, since our school is far from the city center, we experience difficulties with transportation."*
- **P7**: *"Teaching materials and guidebooks are very limited. We especially struggle to find original resources specifically prepared about monuments."*
- **P11**: *"Some students have difficulty understanding why monuments are important. More creative methods are needed to capture their attention and motivate them."*
- **P13**: *"It is quite difficult to organize trips because the school administration does not allocate a budget. In addition, some official permission processes can take a long time."*
- **P18**: *"Ensuring safety measures during monument visits and managing large groups requires serious responsibility."*
- **P21**: *"Sometimes, as teachers, we feel that we do not have enough knowledge to plan such activities; there is a need for more in-service training."*

In the study, the most common challenge encountered in the use of monuments in social studies education was identified as problems of time and accessibility (f=13). Teachers stated that, in particular, the distant location of monuments from schools and the limited duration of class periods often prevent the organization of field trips. This situation makes it difficult to provide students with on-site learning opportunities. The second most frequently mentioned issue was the lack of materials and resources (f=11), with participants reporting a shortage of original, up-to-date, and high-quality educational materials on monuments. The limited availability of guidebooks and visual materials makes lesson preparation challenging for teachers. Low student interest (f=8) emerges especially when students fail to grasp the historical and social significance of monuments or perceive them as "ordinary" in their daily lives. Teachers expressed the need for more innovative and interactive methods to capture students' attention and increase their motivation. Administrative and budgetary constraints (f=6) are mainly due to the lack of sufficient funding from school administrations for trips and the lengthy and complex nature of official permission processes. Such constraints make it difficult to organize field trips and activities. Safety and organizational problems (f=5) arise especially from the need to transport large student groups, ensure safety measures, and conduct activities in an orderly manner. A less frequently mentioned theme was the lack of teacher preparation and competence (f=3); some teachers reported not feeling adequately qualified in activity planning and guidance and expressed a need for more in-service training.

Table 5: Participants' Views on the Question: "How is the role of monuments in the transmission of collective memory and cultural heritage emphasized in social studies classes, and which themes are prioritized in this process?"

Theme	Frequency (f)
Patriotism and National Consciousness	12
Emphasis on Shared Values and Identity	11
Keeping Historical Events Alive	9
Strengthening the Sense of Belonging	8
Explanation of Cultural Diversity and Unity	5
Social Responsibility and Solidarity	4

- **P2***: "I try to reinforce feelings of patriotism and national unity in students through monuments. Each monument is a symbol of sacrifice or a significant social event."*
- **P5***: "In social studies classes, we emphasize that monuments reflect shared values and social identity. Students identify themselves with these values."*
- **P10***: "We keep important historical events and heroic stories alive through monuments, showing students the effects of these events in the present day."*
- **P12***: "In class, I explain that monuments are not just stones or statues, but symbols of the collective memory and sense of belonging that hold society together."*
- **P16***: "By discussing monuments belonging to different ethnic and religious groups, I highlight our cultural richness and the importance of living together in unity."*

The vast majority of teachers stated that, in social studies classes, they particularly prioritize the theme of "patriotism and national consciousness" (f=12) when it comes to the role of monuments in the transmission of collective memory and cultural heritage. Addressing monuments as symbols of national unity, independence, and sacrifice in lessons contributes to strengthening national consciousness and patriotism among students. The second most common theme was the emphasis on shared values and identity (f=11). Through monuments, special care is taken to instill social values and cultural identity in students. Teachers present monuments as symbols of our common history, cultural integrity, and social identity. The theme of keeping historical events alive (f=9) stands out with the telling of significant historical events and heroic stories associated with monuments in class. This approach helps students learn about past events in a more meaningful and lasting way. Strengthening the sense of belonging (f=8) is defined as increasing students' feelings of belonging and attachment to their city or community. Teachers stress that addressing monuments as elements of "collective memory" fosters a sense of social belonging in students. Less frequently mentioned themes include the explanation of cultural diversity and unity (f=5) and social responsibility and solidarity (f=4). Teachers include monuments belonging to different social groups in their

lessons to emphasize cultural diversity and social unity, and they also draw attention to the way monuments convey social values such as solidarity and mutual assistance. Overall, it is evident that the use of monuments in lessons focuses on themes such as patriotism, shared values, historical consciousness, and a sense of belonging in the transmission of collective memory and cultural heritage, thereby aiming to develop strong cultural awareness at both the individual and societal levels among students.

4. Discussion

This study examined the central role of monuments in the formation and transmission of collective memory within the context of social studies education, and comprehensively revealed how the use of monuments in lessons contributes to students' development of collective memory, identity, and values. The findings show that monuments not only commemorate significant events, figures, or cultural motifs of the past, but also serve as mediators in keeping collective memory alive, constructing identity, and transmitting shared values to new generations.

Most participating teachers emphasized that using monuments in social studies classes primarily helps to strengthen students' collective memory. Through monuments, students are able to better understand the events, values, and shared memory of the society they live in, and can concretize and make sense of historical processes. This finding demonstrates that monuments are among the tools for intergenerational transmission of collective memory. Similarly, monuments play an important bridging role in the development of cultural identity and sense of belonging; it was found that students' acquaintance with monuments in their own city or country reinforces this sense of identity.

According to teachers' views, the most preferred methods for integrating monuments into lessons are field trips and on-site observation, narration and storytelling, visual materials and digital presentations, as well as drama/role-playing activities. Through field trips, students actively participate in learning by directly observing monuments, leading to a more lasting learning experience. Moreover, methods such as storytelling and drama not only convey knowledge, but also develop students' imagination and empathy skills. It was also determined that visual materials and digital content facilitate the process, especially in cases where physical access to monuments is limited (Pilli & Çakır, 2022).

Another finding of the study is that students' perceptions and knowledge of monuments generally remain at a superficial and symbolic level; however, with effective lesson practices, this perception can evolve into a deeper and more critical form. Projects, visits, and activities related to monuments increase students' awareness and sense of belonging, making it easier for them to grasp the historical and social significance behind the monuments. Nevertheless, some students remain alienated from monuments in daily life, perceiving them merely as physical structures, whereas those who have personal or family connections to events commemorated by monuments tend to develop an emotional bond and sense of pride. This indicates that social studies lessons offer opportunities not only for cognitive but also for affective and social development (Kara, Topkaya & Şimşek, 2012).

The main challenges regarding the use of monuments in educational settings were found to be problems of time and accessibility, lack of materials and resources, low student interest, administrative and budgetary constraints, safety and organizational problems, and lack of teacher preparation and competence. These challenges were identified as narrowing the scope of teaching activities and limiting students' direct interaction with monuments. However, to overcome such obstacles, the study recommends increased in-service training, the development of high-quality materials, collaboration between schools and local authorities, and the creation of supportive policies for field trips.

The findings regarding the role of monuments in the transmission of collective memory and cultural heritage indicate that themes such as patriotism and national consciousness, emphasis on shared values and identity, keeping historical events alive, strengthening the sense of belonging, and highlighting cultural diversity and social unity are prominent in lessons. In particular, addressing concepts such as love of country, national unity, and sacrifice through monuments contributes to the development of students' social solidarity, historical responsibility,

and community awareness. Additionally, the inclusion of monuments belonging to different social groups and cultural backgrounds in lessons helps students develop a more sensitive and inclusive perspective toward social diversity and multiculturalism.

It has been understood that integrating monuments into social studies education supports students in acquiring fundamental competencies such as historical consciousness, identity, sense of belonging, and social responsibility at both the individual and societal levels. In the future, the implementation of monuments and memory sites in social studies instruction through innovative approaches (e.g., virtual reality, digital maps and Web 2.0 tools, QR code applications, etc.) will further enhance both student participation and the quality of learning (Çetin, 2024).

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Subject-Specific Responses to Educational Disruption: Analysis of Mathematics and Science Performance in a Bruneian Primary School

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Abstract
Between 2018 and 2024, Mathematics and Science results from a Brunei primary school show interesting patterns. The results fall into three groups: those from regular school days (2018-2019), those during COVID disruptions (2020-2021), and those after returning to classrooms (2022-2024). Each period showed different patterns in how students performed in these two subjects. Breaking down the data this way helped show which teaching methods worked best during normal schooling versus during disruptions. The research applies frameworks from constructivist learning, technological integration, and assessment practices to understand how teaching strategies affected student attainment during educational disruption. Results show Science maintained stronger resilience, with post-pandemic pass rates staying between 89-93% and improving alignment between practice tests and final examinations. Mathematics demonstrated greater vulnerability, with more variable performance before stabilising around 75%. During 2021, when alternative assessment methods were used, both subjects achieved perfect pass rates, though this effect was temporary. The stark difference between subjects suggests fundamental variations in how Science and Mathematics education respond to disruption. The study suggests teachers should consider different approaches for each subject in Brunei's schools. Making Mathematics lessons more connected to real-life situations and ensuring classroom activities better match test requirements could help students perform more consistently. With these improvements, students would likely develop stronger skills needed for their future studies and careers in technical fields.

Keywords: Mathematics Education, Science Education, Brunei Darussalam SPN21, Teaching Strategies, Assessment Methods, Educational Resilience

1. Introduction

Education in Mathematics and Science serves as a cornerstone for developing young minds in Brunei's educational setting. These two subjects prepare students with essential skills that support continued academic advancement, address daily challenges and enhance lifelong learning. The national education system stresses high-quality instruction, promotes lifelong learning and prepares students to face 21st-century challenges with adaptability and confidence.

Research conducted by Timbang and Chin in 2019 at Haji Mohd Jaafar Maun Primary School revealed declining achievement patterns among Year 6 students. Mathematics results fell from 73.9% (2018) to 61.1% (2019), whilst Science dropped from 91.3% to 83.3% in the same period. Though Science maintained higher overall pass rates, both subjects showed concerning downward trends. Their study identified challenges, that is, students struggled to apply concepts to real-world contexts and had difficulty comprehending subject-specific language in assessment questions (Chin, 2021).

These learning challenges were subsequently magnified by the COVID-19 pandemic, which accelerated changes in educational delivery methods. Schools were compelled to adapt quickly to online and blended learning approaches (Chin, 2021). Whilst technology offered new ways to engage students, significant challenges emerged regarding access to digital resources, teacher preparedness, and pedagogical adaptation. These difficulties added complexity to existing Mathematics and Science instruction, especially in helping students understand real-world contexts and scientific language.

This study, conducted within Brunei's National Education System for the 21st Century (SPN21 - Sistem Pendidikan Negara Abad ke-21), extends previous research by examining how various teaching approaches affect student performance and comprehension in Mathematics and Science. Building on earlier findings by Timbang and Chin (2019) regarding instructional effectiveness, the research incorporates insights gained during the pandemic about the value of versatile teaching methods. Through analysis of mock examination data and Primary School Assessment (PSR - Penilaian Sekolah Rendah) results spanning 2020 to 2024, this study explores how specific teaching approaches and evaluation techniques influence student outcomes in these critical subject areas.

2. Background to Education in Brunei Darussalam

This section explores the learning environment in primary Mathematics and Science education in Brunei Darussalam. It begins by exploring the National Education System for the 21st Century (SPN21) and is followed by focused analyses of how Sciences and Mathematics are taught. Then it further discusses emerging pedagogical approaches and digital integration relevant to the Mathematics and Science instruction in the studied primary school setting

2.1. Brunei's National Education System for the 21st Century (SPN21)

SPN21 functions as the educational framework supporting Brunei Vision 2035 objectives. It introduced fundamental changes to instructional delivery, especially as regards adopting English as the medium for Mathematics and Science instruction across primary education. The curricular design prioritises higher-order thinking capabilities by emphasising analytical reasoning and methodical problem resolution within authentic contexts. Beyond cognitive development, SPN21 pursues comprehensive learner development by integrating content knowledge, procedural competencies, dispositional attributes, and ethical principles. The framework includes adjustable instructional methodologies to address the spectrum of Bruneian classroom student learning profiles and capabilities.

Primary education within this framework unfolds across two sequential developmental phases. During the initial phase (Years 1-3), instruction centres on establishing core competencies, especially literacy and numeracy fundamentals, preliminary technological literacy, and personal-social growth. The subsequent phase (Years 4-6) extends these foundations towards more sophisticated cognitive operations, practical skill application, and advanced reasoning capabilities. This carefully structured progression ensures educational coherence through purposeful scaffolding of increasingly complex concepts and abilities, maintaining instructional continuity throughout the primary years. The systematic advancement between phases reflects pedagogical intentionality in cultivating progressively advanced intellectual capabilities appropriate to learners' developmental stages.

SPN21 adopts a three-tiered model of differentiated instruction to accommodate students' varied learning needs. The core tier focuses on essential learning outcomes that all students are expected to achieve. The intermediate

tier enhances educational content for students showing advanced proficiency, whilst the extended tier delivers sophisticated learning materials customised for exceptionally capable learners. This carefully calibrated educational architecture ensures instructional delivery corresponds appropriately to the diverse cognitive capacities and learning approaches present across the student population.

The assessment framework integrates ongoing School-Based Assessment (SBA) with standardised evaluations. Periodic proficiency measurements track educational progress, with the Primary School Assessment (PSR) serving as the culminating evaluation at Year 6. Instructional time follows a consistent format of 25 or 30 minutes per period, with lessons typically comprising a minimum of two consecutive periods.

This comprehensive educational approach demonstrates Brunei's dedication to upholding rigorous academic standards whilst offering diverse learning pathways. The system is specifically designed to enable students across the ability spectrum to maximise their individual potential through expanded educational opportunities and experiences.

2.2. Mathematics Teaching and Learning Context

Mathematics teaching focuses on building reasoning abilities and solution-finding techniques in a system where tests and content mastery remain central priorities. English has served as the teaching language for Mathematics from Year 1 since 2008, creating a dual-language learning context for numerous students.

The mathematics curriculum applies a progressive method called Concrete-Pictorial-Abstract (CPA). Students develop understanding by advancing through three phases: they begin by manipulating actual objects to grasp mathematical ideas, then progress to working with diagrams and visual representations, before mastering algebraic forms and symbolic notations.

Mathematics instruction develops through two distinct phases. In lower primary (Years 1 to 3), instruction stresses concrete experiences with manipulatives, number bonds, and basic operations. Teachers focus on developing number sense, pattern recognition, and foundational measurement concepts through hands-on activities and guided discovery. In Years 4 to 6, students engage with more sophisticated mathematical thinking, learning operations with multiple steps and developing abstract understanding. The mathematics curriculum gradually prepares them for the procedural knowledge and conceptual challenges the students will face in secondary school mathematics classes.

Educators use diverse teaching methods in their classrooms. Some arrange group-based problem-solving sessions, whilst others connect everyday situations with theoretical principles. Many include visual bar models to help students understand and solve word problems. These approaches encourage mathematical discussions and multiple solution strategies.

Primary challenges include language barriers in English-medium instruction, especially for mathematical reasoning and word problems; balancing procedural fluency with conceptual understanding within time constraints; meeting diverse learning needs in mixed-ability classrooms; and connecting abstract mathematical concepts to authentic applications. Resource availability varies between urban and rural schools, affecting implementation consistency.

Assessment combines continuous school-based evaluation (focusing on formative feedback) with the summative PSR examination in Year 6. These assessments measure both procedural fluency and conceptual understanding, though traditional examination formats often emphasise accurate calculations over problem-solving and reasoning skills.

2.3. Science Teaching and Learning Context

Implementing SPN21 has transformed Science education in Brunei's primary schools, establishing Science as a standalone subject taught in English from Year 1. The curriculum adopts an inquiry-based approach through the La main à la pâte (LAMAP) programme, making scientific concepts accessible through hands-on exploration.

The lower primary Science curriculum nurtures natural curiosity through observation and simple experiments, whilst the upper primary introduces more sophisticated scientific investigations. This progression builds a strong foundation for secondary education whilst maintaining student engagement through active learning experiences.

A distinctive feature is the integration of practical work with theoretical understanding. Students engage in regular experiments and investigations, though the extent of practical work varies based on school resources. The assessment framework balances ongoing evaluation through School-based Assessment with the comprehensive Year 6 PSR examination.

Unique challenges include adapting scientific vocabulary for English language learners and managing resource distribution across Brunei's diverse school locations. Rural schools face limitations in accessing advanced scientific equipment. Despite these challenges, the curriculum continues evolving to meet contemporary educational needs, focusing on developing scientifically literate citizens prepared for technological advancement.

2.4. Emerging Pedagogical Approaches and Digital Integration

Brunei's education has seen significant shifts towards technology-enhanced learning and innovative pedagogical approaches. Throughout successive periods, educators have steadily incorporated technology into their instructional approaches. Mathematics and Science education has experienced numerous shifts, with present-day practices influencing both the learning process and teaching methodologies.

Digital technology integration has become increasingly prominent, and though implementation varies across schools, interactive whiteboards, educational software, and online learning platforms supplement traditional pedagogies. This digital transformation supports visualisation in Mathematics and virtual experiments in Science, which is especially beneficial when physical resources are limited.

Teacher training has gained increasing importance across educational periods. It focuses on preparing educators to implement learner-centred and investigative teaching approaches. A considerable emphasis has been directed towards linking Mathematics and Science across different educational disciplines, and illustrated in real-world applications. Contemporary teaching approaches increasingly emphasise differentiated instruction, aligning with SPN21's three-tiered model that provides core, intermediate, and extended learning routes for students with varying abilities.

Assessment methodologies are adapting to include more formative and evaluative practices, working in conjunction with traditional summative assessment techniques. Educational priorities increasingly recognise the requirement of building modern competencies parallel to content mastery, especially analytical reasoning, collaboration, and technological proficiency.

2.5. Evolution of Assessment Practices

Evaluation procedures experienced significant transformation during the COVID-19 pandemic period. A remarkable change happened when authorities introduced the School Assessed Marks (SAM) system in 2021, replacing conventional examination formats previously used for PSR evaluations. The SAM approach involved continuous performance monitoring throughout the academic year rather than relying on year-end testing. Although Mathematics and Science showed flawless pass rates in the final PSR outcomes, these results prompted discussions about the system's dependability and consistency. Whilst Shahrill et al. (2021) outline Brunei's broad educational adaptations during the pandemic, further analysis is needed to determine how SAM specifically influenced performance metrics and perceptions of fairness.

The SAM system's implementation encountered various difficulties, among them depending heavily on educators' evaluation skills, uneven distribution of resources between schools, and fluctuating student participation levels. These issues underlined the requirement for comprehensive structures to reinforce alternative evaluation methods. However, problems in implementing these contemporary approaches persist. These include varying levels of technological infrastructure across schools, the need for sustained teacher training, and balancing innovative practices with traditional examination requirements. The ongoing development of SPN21 continues to address these challenges whilst maintaining Brunei's educational standards and cultural values.

2.6. Research Gaps and Theoretical Framework

Whilst SPN21 provides a comprehensive educational framework and recent studies have documented various teaching approaches in Mathematics and Science, several research gaps remain in the Bruneian primary education context. First, there is limited understanding of how specific teaching strategies affect student achievement, especially in Mathematics and Science. Second, whilst studies have examined pandemic-related adaptations (Chin, 2021; Shahrill et al., 2021), few have investigated the long-term implications of these changes on teaching practices and student outcomes. Third, the relationship between traditional and innovative teaching methods in improving student understanding of real-world contexts and scientific language requires further exploration.

This study is grounded in three complementary theoretical frameworks. According to the Constructivist Learning Theory articulated by Vygotsky (1978) and Piaget (1964), learning occurs when students actively create meaning through direct interaction with their surroundings and conscious processing of these experiences. Within Mathematics and Science instruction, this theoretical approach validates the importance of practical activities, investigative learning methods, and authentic problem scenarios. These constructivist principles support the SPN21 framework to emphasise developing students' analytical reasoning and solution-finding abilities through active learning experiences.

Mishra and Koehler (2006) developed TPACK—Technological Pedagogical Content Knowledge—to help teachers effectively combine technology with their teaching. This framework shows how teachers need balanced knowledge of technology tools, teaching methods, and subject content to create effective instruction. TPACK concepts have become especially important since the pandemic, when schools rapidly increased their use of technology for teaching Mathematics and Science.

Black and Wiliam's (1998) Assessment for Learning Theory emphasises how formative evaluation practices critically support student development. When viewing instructional approaches from this perspective, we gain an understanding of how multiple instructional strategies contribute to ongoing learning whilst preparing students for significant evaluations. The theory proves especially applicable in Brunei's assessment-driven educational environment, where educators must simultaneously address formative feedback needs and meet established summative assessment demands.

The integration of these three theoretical perspectives—Constructivist Learning Theory, Technological Pedagogical Content Knowledge, and Assessment for Learning Theory—establishes a comprehensive analytical foundation. This multilayered framework enables structured investigation into several critical aspects of educational practice: the comparative effectiveness of instructional approaches in fostering conceptual understanding; the strategic integration of technological resources within Mathematics and Science education; the harmonisation between teaching methodologies and assessment structures; and the identification of factors that contribute to successful implementation of pedagogical innovations. By drawing upon these complementary theoretical principles, the study can examine educational phenomena from multiple dimensions simultaneously.

3. Rationale and Research Questions

3.1. Rationale

Previous research by Timbang and Chin (2019) has identified several teaching strategies used in primary Mathematics and Science education. However, a limited understanding exists regarding effective implementation of these strategies to address specific learning challenges in the Bruneian context. This study aims to fill this knowledge gap by examining the relationship between teaching approaches and student performance at Haji Mohd Jaafar Maun Primary School, taking into account Brunei's examination-oriented educational system.

3.2. Research Questions

Based on the research gaps identified in the literature review and guided by the theoretical framework, this study addresses the following research questions:

3.2.1. How do different Mathematics and Science teaching strategies impact student learning outcomes at HMJM Primary School?

3.2.2. What factors influence the effective implementation of these teaching strategies in the classroom?

4. Methodology

This study employs a descriptive quantitative research design to examine Mathematics and Science performance at Haji Mohd Jaafar Maun Primary School from 2018 to 2024. This methodological approach was designed to investigate the research questions about how teaching approaches affect student performance and what elements shape their classroom application. Results were examined within three distinct chronological segments: the pre-pandemic years (2018-2019), the pandemic interval (2020-2021), and the re-establishment period (2022-2024). This temporal framework enables systematic comparison of performance patterns before, during, and after educational disruption. The methodology involves multiple analytical approaches, including statistical analysis of performance data, comparative examination of mock and PSR examination results, and thematic identification of factors influencing student achievement. Through these complementary methods, the study seeks to evaluate the effectiveness of various educational approaches implemented during these unprecedented periods and identify subject-specific response patterns to educational challenges. All research procedures were conducted in accordance with ethical guidelines to ensure data integrity and participant confidentiality.

4.1. Research Design

4.1.1. Statistical Overview

The research design includes descriptive statistical analyses of mock examination and Primary School Assessment (PSR) results through percentages and year-on-year differences. A trend analysis was conducted to visualise performance patterns and highlight anomalies, with particular attention to the 2021 performance peaks in both subjects.

4.1.2. Analytical Framework

The research methodology employs three complementary analytical approaches to comprehensively examine the data. It begins with a comparative analysis of anonymised student performance data from 2018 to 2024, followed by a content analysis aimed at identifying recurring patterns and trends across three distinct periods. Thematic analysis further investigates deeper contextual patterns relating to performance consistency and irregularities throughout these timeframes. Together, these analytical methods provide a multidimensional understanding of the performance data and associated educational factors.

4.2. Data Sources

This study relies exclusively on anonymised student performance data collected between 2018 and 2024. The dataset includes mock examination results and Primary School Assessment (PSR) scores for Mathematics and

Science subjects. Mock examination results reflect students' readiness and facilitate comparison with summative PSR results. It should be noted that data from 2018's mock examination was unavailable, and the presence of such data differs across the following years. These datasets underline comparative, content, and thematic analyses conducted to assess treads, detect anomalies, and explore performance across the study period.

4.3. Data Collection Methods

The data collection draws on official school records, assessment guidelines, and anonymised student performance records from 2018 to 2024. Both mock examination outcomes and final PSR results are included to support the analysis of performance trends and inconsistencies. The datasets had been compiled previously, providing consistency for this study.

4.4. Analytical Framework

Three distinct analytical approaches were employed to examine the data comprehensively:

4.4.1. Quantitative Analysis

Quantitative methods were utilised to analyse anonymised student performance data, focusing on the two assessment points: mock examinations and the Primary School Assessment (PSR). Pass rates refer to students achieving grades A to C, whilst grades D and E represent underperformance requiring intervention. For every year from 2018 to 2024, performance percentages and year-on-year differences were calculated for Mathematics and Science subjects. A trend analysis was also conducted to visualise performance consistency and anomalies, especially in 2021, which saw perfect PSR pass rates in Mathematics and Science.

4.4.2. Content Analysis

The analysis of content reviews datasets related to student performance across three specific periods: the time before COVID (2018–2019), the duration of COVID (2020–2021), and the time after COVID (2022–2024). The analysis of each period integrates quantitative performance data with prevailing educational conditions, providing a clear record of pandemic-related effects and the adaptations made across subject areas.

4.4.3. Thematic Analysis

The thematic analysis identified recurring patterns within the data, focusing on five themes: contrasting performance trends between Mathematics and Science, subject-specific achievement levels, predictive value of mock examinations, impact of teaching and learning factors, and COVID-19 impact and recovery patterns.

4.5. Ethical Considerations

The study adhered to ethical guidelines by anonymising and securely storing all data. Approval was obtained from the relevant educational authorities, and the data were used exclusively for this study.

5. Results

5.1. Quantitative Analysis Results

This investigation utilised academic performance data from sixth-grade students across multiple academic years. The analytical approach focused on two assessment instruments: formative mock examinations and summative national examinations (PSR). The Primary School Assessment (PSR) constitutes Brunei's standardised national evaluation administered to all Year 6 students upon completion of their primary education. The comparative analysis of these assessment instruments facilitated evaluation of instructional effectiveness and identification of subject-specific response patterns.

As sequential evaluation tools, these assessment points were selected as they offer critical indicators of student progression — with mock examinations functioning as predictive measures of readiness, and PSR outcomes reflecting final achievement levels. Within this analysis, pass rates are defined as the percentage of students who achieved grades A to C, whilst grades D and E indicate underperformance requiring additional support.

Descriptive statistical techniques summarised performance trends from 2018 to 2024, examining mean scores, annual variations, and differences between mock examination outcomes and PSR results. The comparison between the two assessments provides valuable insight into the effectiveness of preparation strategies and interventions implemented between these two points of evaluation. The tables below present a detailed breakdown of these findings, identifying patterns in performance and instances of irregularity. Moreover, trend analysis offers a visual illustration of consistency and variation across the dataset. Specifically, the year 2021 recorded perfect PSR pass rates in both Mathematics and Science, reflecting a marked improvement compared to preceding mock examination outcomes and meriting further investigation.

5.1.1. Period-Based Statistical Analysis

Student performance data was analysed across three time periods: 2018-2019, 2020-2021, and 2022-2024.

5.1.1.1. Mathematics Performance Analysis (2018-2024)

Table 1: Statistical Analysis of Mathematics Performance by Period (2018-2024)

No:	**Period**	**Mean Pass Rate**	**Standard Deviation (SD)**	**Year-over-Year Change**
1.	Pre-COVID (2018-2019)	75.20%	1.84	+3.52%
2.	COVID Impact (2020-2021)	81.25%	26.52	+8.04%
3.	Post-COVID (2022-2024)	66.93%	14.71	-17.63%

The pre-COVID period showed consistent achievement levels with a modest year-over-year improvement of 3.52%. In contrast, the COVID-19 impact period exhibited significant variability (SD = 26.52), largely due to the extreme contrast between the 5% mock examination pass rate and the exceptional 100% PSR pass rate during the 2021 SAM implementation. This extraordinary 95% difference represents the most significant assessment disparity in the entire study period. The post-COVID period showed a decline in mean performance (66.93%) with a 17.63% decrease from the COVID period, whilst maintaining considerable variability (SD=14.71), suggesting ongoing challenges in stabilising Mathematics achievement.

5.1.1.2. Science Performance Analysis (2018-2024)

Table 2: Statistical Analysis of Science Performance by Period (2018-2024)

No:	**Period**	**Mean Pass Rate**	**Standard Deviation (SD)**	**Year-over-Year Change**
1.	Pre-COVID (2018-2019)	87.30%	5.66	-8.8%
2.	COVID Impact (2020-2021)	87.50%	17.68	+0.2%
3.	Post-COVID (2022-2024)	91.13%	1.91	+4.2%

The pre-COVID performance was stable (mean pass rate 87.30%, SD = 5.66), though showing a slight year-over-year decline of 8.8% between 2018 and 2019. The COVID impact period maintained nearly identical mean performance with a minimal 0.2% increase but exhibited considerably increased variability (SD = 17.68) due to contrasting pass rates of 75% and 100%. The post-COVID period demonstrated clear improvement (mean 91.13%,

a 4.2% increase from the COVID period) with remarkably low variability (SD=1.91), indicating successful recovery and consistent stabilisation across these three years.

5.1.2. Mathematics Results (2018–2024)

This section examines Mathematics performance across mock examinations and PSR results, comparing student achievement at these two critical assessment points. Table 3 presents the performance trends, showing pass rates and the differences between mock and PSR results (Chin, 2021).

Table 3: Mathematics Performance Trends in Mock and PSR Results (2018-2024)

No:	Year	Mock (%)	PSR (%)	Difference (%)
1.	2018	N/A	73.90	N/A
2.	2019	70.00	76.50	6.50
3.	2020	12.50	62.50	50.00
4.	2021	5.00	100.00	95.00
5.	2022	18.75	50.00	31.25
6.	2023	31.03	75.80	44.77
7.	2024	21.43	75.00	53.57

Note: Mock examination data for 2018 was unavailable.

5.1.2.1. Pre-COVID Period (2018-2019)

The 2018 PSR pass rate of 73.90% (cohort: 27 students) established a baseline performance level without corresponding mock data. In 2019, mock results were introduced, showing a 70.00% pass rate (cohort: 30 students), which aligned closely with the PSR pass rate of 76.50%. This alignment suggested effective assessment practices before pandemic disruptions. A noted discrepancy of one student between mock and PSR counts was due to absence during mock examinations, though student enrolment remained stable (Timbang & Chin, 2019).

5.1.2.2. COVID Impact Period (2020-2021)

The 2021 results present the most dramatic disparity between assessment points in the entire study period. Mock examination results showed an alarming 5% pass rate—the lowest recorded across all years—whilst the PSR achieved a perfect 100% pass rate, creating an unprecedented 95% difference. This extraordinary improvement coincided with the implementation of School Assessed Marks (SAM), suggesting a fundamental shift in assessment methodology rather than conventional interventions. The extreme disconnect between mock and PSR results raises important questions about assessment consistency and the challenges of transitioning between assessment frameworks. Whilst the perfect PSR pass rate appears successful on paper, the vast discrepancy indicates potential systemic issues in how student performance was evaluated during this exceptional period. The contrast was particularly pronounced in Mathematics, suggesting subject-specific vulnerabilities in assessment alignment during educational disruptions.

5.1.2.3. Post-COVID Recovery Period (2022-2024)

Initial challenges emerged in 2022 with a PSR pass rate of 50% (cohort: 32 students). However, performance stabilised in subsequent years, with pass rates of 75.80% (2023, cohort: 29) and 75% (2024, cohort: 28), indicating a return to pre-COVID performance levels.

5.1.3. Science Results (2018-2024)

This section analyses Science performance across mock examinations and PSR results. Table 4 presents comparative data showing pass rates and the differences between these two assessment points, reflecting more consistent performance patterns than Mathematics.

Table 4: Science Performance Trends in Mock and PSR Results (2018-2024)

No:	Year	Mock (%)	PSR (%)	Difference (%)
1.	2018	N/A	91.30	N/A
2.	2019	65.00	83.30	18.30
3.	2020	50.00	75.00	25.00
4.	2021	77.00	100.00	23.00
5.	2022	68.75	91.00	22.25
6.	2023	82.76	93.10	10.34
7.	2024	85.71	89.29	3.58

Note: Mock examination data for 2018 was unavailable.

5.1.3.1. Pre-COVID Period (2018-2019)

The initial assessment year established favourable performance metrics in Science, with PSR evaluations showing achievement rates of 91.30% among participating students (n=28). This provided a substantive reference point despite lacking comparative mock examination data for this period. The subsequent academic year introduced formative assessment practices through mock examinations, which revealed an achievement rate of 65.00%, while corresponding summative assessments demonstrated improvement to 83.30%. This differential of 18.30 percentage points between assessment instruments suggested opportunities for refinement in formative evaluation methodologies.

5.1.3.2. COVID Impact Period (2020-2021)

Despite pandemic disruptions, Science maintained robust performance levels. The 2020 PSR pass rate was 75.00% (cohort: 24 students), whilst 2021 achieved a perfect 100% pass rate (cohort: 22 students), with mock results at 77.00%. The consistency in mock-PSR differences (23-25%) during this period suggested reliable assessment practices even during disrupted learning conditions.

5.1.3.3. Post-COVID Recovery Period (2022-2024)

Science education showed consistent performance during the post-pandemic period, with summative assessment outcomes ranging between 89.29% and 93.10%, and student group sizes ranging from 28 to 32 participants. Formative assessment instruments demonstrated progressive enhancement in predictive validity, with achievement metrics improving from 68.75% in the initial recovery year to 85.71% by the conclusion of the study period. Of significant analytical importance was the progressive convergence between formative and summative evaluation outcomes, with the differential diminishing to merely 3.58% by academic year 2024, suggesting substantial enhancement in assessment methodology alignment and instructional continuity.

5.2. Cross-Subject Performance Trends (2018-2024)

5.2.1. Comparative Performance Overview

The analysis reveals distinct performance patterns between Mathematics and Science across the study period. Science consistently outperformed Mathematics, demonstrating higher pass rates (83.30-100% versus 50-100%) and greater stability in results. Both subjects recorded their peak performance in 2021, coinciding with the implementation of the School Assessed Marks (SAM) system during the pandemic period.

5.2.2. Subject Stability Differences

Mathematics results showed significant fluctuations during assessment period transitions, whilst Science maintained steady performance levels. This difference in subject performance stability reflects the varying impacts of remote learning adaptations on each discipline. The consistent Science performance suggests greater

adaptability to changing educational conditions, whilst Mathematics demonstrated more sensitivity to instructional disruptions.

5.2.3. Assessment Alignment Patterns

Mock examination results were consistently lower than PSR results in both subjects, suggesting effective exam preparation and support strategies between these assessment points. However, Science demonstrated remarkable improvement in assessment alignment, with the gap between mock and PSR results narrowing from 22.25% in 2022 to just 3.58% in 2024. In stark contrast, Mathematics maintained significant disparities ranging from 31.25% to 53.57% during the same period.

5.2.4. The 2021 Assessment Anomaly

The most striking difference between subjects occurred in 2021, when Mathematics performance improved from a strikingly low 5% mock pass rate to a perfect 100% PSR result—a 95 percentage point improvement that far exceeded Science's more moderate progression from 77% to 100% in the same year. This extraordinary disparity suggests fundamental differences in how each subject responded to the SAM implementation and highlights potential vulnerabilities in Mathematics assessment practices during educational disruptions.

5.2.5. Cohort Consistency

Ranging from 22 to 32, the number of students per cohort provides a relatively consistent sample which allows year-on-year comparisons across assessment periods and different academic years.

5.3. Performance Trends for Grades D and E

5.3.1. Mathematics

The data analysis from 2020 to 2024 reveals notable fluctuations in the proportions of students receiving grades D and E, especially in the transition between mock examinations and PSR results. Table 5 presents a detailed breakdown of these grade distributions across the examination periods.

Table 5: Mathematics Grade Distribution Analysis for Grades D and E (2020-2024)

No:	Year	Mock Grade D (%)	PSR Grade D (%)	Difference Grade D (%)	Mock Grade E (%)	PSR Grade E (%)	Difference Grade E (%)
1.	2020	29.17	16.67	-12.50	20.83	0.00	-20.83
2.	2021	18.18	0.00	-18.18	77.27	0.00	-77.27
3.	2022	37.50	6.25	-31.25	43.75	3.13	-40.62
4.	2023	24.14	10.34	-13.80	44.83	13.79	-31.04
5.	2024	17.86	14.29	-3.57	57.14	10.71	-46.43

Note: Grade distribution data for 2018 and 2019 was unavailable.

The Mathematics grade distributions demonstrated several significant patterns. The comparative analysis demonstrates progressive reduction in underperforming grades (D and E) from mock assessments to PSR results, reflecting positive outcomes from strategic educational interventions. The 2021 academic year showed exceptional improvement, with complete elimination of D and E classifications in PSR outcomes, resulting in comprehensive student achievement within satisfactory performance levels (grades A-C). Mock-to-PSR differentials also showed substantial variation, especially for grade E performance, where percentage differences ranged from -20.83% in 2020 to a remarkable -77.27% in 2021. These significant fluctuations indicate varying degrees of alignment between preliminary and final assessment frameworks. Documentation for 2018 and 2019 provides insufficient

grade distribution details, creating analytical limitations when examining performance patterns during these initial comparative periods.

5.3.2. Science

The trends in Science for grades D and E showed consistent improvements and better alignment between mock and PSR results than Mathematics. Table 6 presents a detailed analysis of grade distributions from 2020 to 2024.

Table 6: Science Grade Distribution Analysis for Grades D and E (2020-2024)

No:	Year	Mock Grade D (%)	PSR Grade D (%)	Difference Grade D (%)	Mock Grade E (%)	PSR Grade E (%)	Difference Grade E (%)
1.	2020	29.17	16.67	-12.50	20.83	0.00	-20.83
2.	2021	9.09	0.00	-9.09	13.64	0.00	-13.64
3.	2022	12.50	6.25	-6.25	18.75	3.13	-15.62
4.	2023	17.24	3.45	-13.79	0.00	6.90	+6.90
5.	2024	14.29	10.71	-3.58	0.00	0.00	0.00

Note: Grade distribution data for 2018 and 2019 was unavailable.

Performance trends in Science revealed a consistent narrowing of gaps between mock and PSR results for grades D and E from 2020 to 2024. The analysis showed that grade E dropped from 20.83% in mock examinations in 2020 to 0% in PSR results and was fully eliminated by 2024. Grade D demonstrated steady reductions, with a 12.50% gap in 2020 narrowing to just 3.58% in 2024.

6. Subject-Specific Performance Patterns

Three phases - pre-COVID (2018–2019), during COVID (2020–2021), and post-COVID (2022–2024) – were studied, framing the comparison between Mathematics and Science performance over time.

6.1. Data Interpretation

6.1.1. Mathematics Performance Patterns

The baseline Mathematics performance in 2018 showed a PSR pass rate of 73.90%, establishing a reasonable achievement level. In 2019, there was close alignment between mock (70.00%) and PSR (76.50%) results, suggesting effective assessment practices before pandemic disruptions (Timbang & Chin, 2019).

The 2020 results showed a decline to 62.50% PSR pass rate. An unprecedented improvement occurred in 2021 with a 100% PSR pass rate, coinciding with the implementation of School Assessed Marks (SAM). This perfect pass rate becomes even more remarkable when considering the starting point—a mere 5% pass rate in the mock examinations, representing an extraordinary 95 percentage point improvement. This extreme disparity between mock and PSR results represents the largest assessment gap observed throughout the entire study period and suggests a fundamental shift in assessment methodology during this exceptional year.

After early difficulties resulting in a 50% PSR pass rate in 2022, Mathematics experienced a steady increase with rates of 75.80% in 2023 and 75.00% in 2024. Mock examination results remained lower than PSR results, indicating that effective intervention strategies between assessments yielded positive results.

6.1.2. Science Performance Patterns

Science exhibited strong foundational performance with a 91.30% PSR pass rate in 2018, followed by a significant 18.30% improvement when comparing mock to PSR results in 2019. Science maintained a more stable

performance than Mathematics, achieving 100% in the 2021 PSR and showing consistent improvements from mock to PSR results, indicating reliable assessment practices. High-performance stability was maintained with PSR pass rates between 89.29% and 93.10%. Progressive improvement in mock examination results from 68.75% (2022) to 85.71% (2024) was observed. The gap between mock and PSR results narrowed to 3.58% by 2024, showing improved assessment alignment.

6.1.3. Grade Distribution Analysis (D and E Grades)

6.1.3.1. Mathematics

Reductions in D and E grades from mock to PSR were consistently observed. The most dramatic improvement occurred in 2021, with the complete elimination of D and E grades. Large variations in mock-to-PSR differences for grade E (-20.83% to -77.27%) were noted.

6.1.3.2. Science

Grade distribution patterns were more stable compared with Mathematics. Grade E was eliminated in PSR results by 2024, whilst gaps between mock and PSR results consistently narrowed over time.

6.1.4. Comparative Subject Resilience

Science showed greater resilience across all periods, maintaining higher mean pass rates and lower standard deviations. This stability was evident in the post-COVID period, where Science maintained mean pass rates above 90% with a standard deviation of just 1.91, indicating consistent high performance. The subject demonstrated strong recovery capabilities and successful adaptation to changing educational conditions.

In contrast, Mathematics demonstrated more sensitivity to disruption, as evidenced by higher standard deviations and more variable mean performance. This vulnerability was apparent in the post-COVID recovery trajectory, where Mathematics continued to show significant variability (SD=14.71) despite attempts to stabilise performance. Whilst Mathematics achieved pass rates around 75% by 2023-2024, the path to recovery was more volatile than Science's steady improvement pattern.

These contrasting patterns suggest fundamental differences in how these subjects respond to educational disruption and recovery efforts, with implications for future curriculum planning and intervention strategies.

6.2. Findings

6.2.1. Subject Performance Disparity

Science consistently outperformed Mathematics across all periods, maintaining PSR pass rates between 83.30% and 100%, compared to Mathematics' wider range of 50% to 100%. Science demonstrated greater stability with mock-PSR differences ranging from 3.58% to 25%, whilst Mathematics showed larger variations from 6.50% to 95%.

6.2.2. Assessment Alignment

Mock examinations consistently predicted lower performance than actual PSR results in both subjects. Science showed better alignment between mock and PSR results (narrowing from 25% difference in 2020 to 3.58% in 2024), compared with Mathematics (ranging from 31.25% to 95% difference). This trend was evident in Science's steady improvement in mock examination results from 68.75% in 2022 to 85.71% in 2024.

6.2.3. COVID-19 Impact

Both subjects achieved 100% pass rates in 2021 during SAM implementation. The data shows different patterns before and after this peak performance year. In mock examinations preceding the 2021 PSR, Mathematics recorded a 5% pass rate whilst Science showed 77%. Following the return to standard assessment practices, each subject followed distinct performance patterns: Science maintained consistent results between 89.29% and 93.10% from 2022-2024, whilst Mathematics initially registered 50% in 2022 before recovering to approximately 75% in subsequent years, similar to its pre-COVID performance range (73.90%-76.50%).

6.2.4. Intervention Effectiveness

Consistent improvements from mock to PSR results evidence the effectiveness of interventions. In Mathematics, D and E grades were eliminated in 2021's PSR results, with grade E differences ranging from -20.83% to -77.27%. Science showed more sustainable improvements, with grade E completely eliminated by 2024 and grade D gaps narrowing from 12.50% in 2020 to 3.58% in 2024.

These findings reveal complex patterns influenced by subject characteristics, assessment practices, external disruptions, and intervention strategies. The data indicates a clear need for continued support in Mathematics whilst maintaining the successful practices evident in Science education.

7. Discussion and Implications

Analysis of student performance data across the periods reveals distinct patterns in how Mathematics and Science responded to and recovered from educational disruption. Five distinct patterns emerged: subject-specific recovery trajectories, SAM implementation impact, assessment alignment trends, grade distribution patterns, and long-term stability.

The most prominent pattern emerged in the subjects' recovery trajectories. Science demonstrated remarkable resilience, maintaining PSR pass rates between 89.29% and 93.10% post-COVID with steadily improving mock-to-PSR correlation (narrowing to 3.58% by 2024). In contrast, Mathematics showed greater vulnerability, with pass rates fluctuating from 50% to 75.80% during recovery, and persistent mock-to-PSR variations (ranging from 31.25% to 53.57%).

The second significant pattern appeared in the impact of School Assessed Marks implementation. While both subjects achieved 100% pass rates during SAM in 2021, their subsequent trajectories differed markedly. Science maintained high achievement levels (above 89%), whilst Mathematics declined sharply to 50% before showing a gradual recovery.

Assessment alignment trends formed the third distinct pattern. Science exhibited progressive improvement in mock-to-PSR alignment, with differences decreasing from 25% in 2020 to 3.58% in 2024. Mathematics, however, continued to show significant discrepancies, with mock results consistently underestimating PSR performance by margins of 31.25% to 53.57% post-COVID.

The fourth pattern emerged in grade distribution trends. Science successfully eliminated Grade E failures by 2024, decreasing Grade D percentages steadily. Mathematics showed concerning patterns in mock examinations (57.14% Grade E in 2024), though PSR Grade E rates improved to 10.71%.

The fifth pattern revealed differences in long-term stability. Science achieved stable high performance (mean 91.13%, SD=1.91 post-COVID), whilst Mathematics showed ongoing volatility (mean 66.93%, SD=14.71), suggesting fundamental differences in subject resilience to educational disruption.

These patterns indicate that whilst both subjects benefitted from intervention strategies, Science's instructional framework proved more robust in supporting sustained recovery. Mathematics requires more targeted support, especially in addressing mock-to-PSR alignment and supporting at-risk students. The findings emphasise the need for subject-specific recovery strategies rather than uniform approaches across disciplines.

The following discussion examines how these results contribute to understanding subject-specific resilience, assessment practices, and educational recovery in primary school Mathematics and Science education.

7.1. Subject-Specific Resilience Patterns

7.1.1. Science Resilience

Science demonstrated remarkable resilience throughout the study period. As documented by Chin (2021), this resilience was characterised by consistently high performance with PSR pass rates between 89.29 and 93.10% in the post-COVID period. The subject showed progressive improvement in mock-to-PSR correlation, which narrowed to 3.58% by 2024. The subject markedly achieved the elimination of Grade E failures by 2024 and maintained low-performance variability with a standard deviation of 1.91 in the post-COVID period.

This resilience suggests that Science instruction may have inherent characteristics that support learning continuity. As discussed by Shahrill et al. (2021), adaptable teaching components—especially those involving practical work—were modified to suit remote and blended contexts, which may have benefited Science more than other subjects. Science also maintained strong conceptual frameworks that remained accessible despite disruptions. The effective integration of theoretical and practical learning in Science education appears to have contributed to its stability during challenging periods.

7.1.2. Mathematics Vulnerability

Although both subjects experienced disruption, Mathematics displayed greater sensitivity, as reflected in performance fluctuations ranging from 50% to 100% in PSR results (Chin, 2021). The subject demonstrated significant disparities between mock and PSR assessments, with gaps ranging from 31.25% to 53.57%. The 2021 data presents a striking example: mock examinations indicated a 5% pass rate, compared to a 100% achievement in the PSR—the largest assessment discrepancy observed in the study. Furthermore, Mathematics faced persistent challenges with Grade E performance, which reached 57.14% in mock examinations by 2024. The subject also exhibited greater variability in post-COVID performance, reflected by a standard deviation of 14.71.

These patterns suggest that Mathematics may possess instructional characteristics that made it more vulnerable to disruption. As noted by Shahrill et al. (2021), remote and blended learning posed significant challenges in maintaining teaching continuity—difficulties that likely affected subjects dependent on sequential understanding and abstract reasoning. Mathematics also struggled with the translation of abstract concepts into remote learning formats. Its heightened sensitivity to gaps in instructional continuity highlights the need for more robust and sustained support systems during periods of educational disruptions.

7.2. Assessment Practice Insights

7.2.1. Mock Examination Effectiveness

The data reveals important lessons about assessment practices across both subjects. Science showed improving alignment between mock and PSR results, whilst Mathematics maintained significant mock-to-PSR discrepancies. Science's steady improvement in assessment alignment—narrowing the gap from 25% in 2020 to 3.58% in 2024—suggests successful adaptation of formative assessment methods that reinforced student preparedness. In contrast, Mathematics appeared to rely more heavily on summative preparation, with limited evidence of formative strategies being used consistently. This imbalance may have contributed to the persistent mock-to-PSR disparities, indicating a need for a more diagnostic and feedback-oriented approach to assessment within Mathematics instruction.

Following the COVID disruption, Mathematics exhibited significant assessment gaps, with mock-to-PSR differences of 31.25% to 53.57%. The 2021 data points to a dramatic assessment contrast: Mathematics mock

examinations recorded a 5% pass rate whilst PSR results reached 100% during the SAM implementation period. This 95% difference represents the largest assessment disparity in the entire study period and coincided with fundamental changes in evaluation methods. The pattern suggests that assessment frameworks require careful calibration, especially during transitions between different evaluation systems.

Assessment adaptation varied markedly between the two subjects. Science established more consistent assessment alignment across different evaluation points, while Mathematics showed higher sensitivity to changes in assessment format. This subject-specific difference in assessment resilience suggests that Mathematics instruction may require more specialised approaches that strengthen the connection between learning experiences and evaluation contexts.

Science successfully integrated practical components with examination requirements, whilst Mathematics struggled to bridge the gap between conceptual understanding and examination performance. Science's integrated approach to assessment yielded more consistent results, whilst Mathematics showed greater sensitivity to assessment methods, indicating a need for more diverse assessment approaches that better align with learning objectives and examination requirements.

7.2.2. School Assessed Marks (SAM) Impact

Whilst both subjects achieved 100% pass rates during the 2021 SAM implementation, only Science sustained high performance thereafter, whereas Mathematics declined once traditional assessments resumed. This suggests the need for careful transition strategies when changing assessment methods.

7.3. Recovery Patterns

7.3.1. Science Recovery

Although disrupted alongside other subjects, Science demonstrated quick stabilisation at high-performance levels, consistently improving mock examination results. As D and E grades declined, it became evident that teaching and assessment strategies had been effectively adapted.

7.3.2. Mathematics Recovery

Mathematics showed a more pronounced recovery process with distinct phases evident in the data. Following the 2021 SAM implementation, which saw the dramatic shift from a 5% mock examination pass rate to 100% in the PSR, Mathematics experienced an initial performance decline to a 50% PSR pass rate in 2022. This substantial decrease suggests that the transition back to traditional assessment methods presented challenges for Mathematics instruction.

An examination of subsequent academic years reveals Mathematics results improved gradually, with success rates reaching approximately 75% during the 2023-2024 period. This figure represents a return to the pre-pandemic performance range of 73.90%-76.50%. The gradual nature of this recovery suggests educational institutions must maintain support systems and specialised instructional approaches well after the initial disruption phase concludes. Research by Shahrill et al. (2021) supports this observation, noting the particular difficulties educators faced in maintaining instructional continuity during periods of remote and hybrid learning models. Mathematics appears especially vulnerable to educational interruptions due to its sequential nature, where each concept builds upon previously established knowledge.

Differences in student engagement during remote learning may also have contributed to the slower recovery in Mathematics. Science activities often involved hands-on experiments and observable phenomena that maintained curiosity and motivation. In contrast, Mathematics tasks typically demanded greater independent effort and abstract reasoning, which some students found difficult to sustain without structured classroom support. These behavioural factors may have intensified learning gaps, especially among students who struggled with self-regulation during periods of home-based learning.

7.4. Implications for Educational Resilience

The findings reveal crucial lessons for building educational resilience, and the analysis demonstrates that differentiated intervention strategies, rather than uniform approaches, are essential for addressing subject-specific vulnerabilities. As Mailizar et al. (2020) emphasise, developing targeted support systems for more vulnerable subjects, especially Mathematics, is crucial for maintaining educational quality during periods of disruption.

Another factor that may explain the differences in subject resilience is the level and focus of professional development received by teachers. Science educators may have benefited from more structured support in adapting practical, inquiry-based instruction to online or blended contexts. In contrast, Mathematics instruction may not have received equivalent pedagogical guidance, particularly in translating abstract concepts into remote-friendly formats. Exploring how subject-specific training contributed to instructional continuity would help identify where future improvements can be made.

The performance patterns emphasise the importance of assessment alignment and consistent assessment practices. Timbang and Chin (2019) found that progressive improvement in mock-to-PSR correlation provides valuable insights into student preparedness and areas needing additional support. This correlation proved especially significant in Science, where the narrowing gap between mock and PSR results demonstrated the effectiveness of subject-specific assessment strategies. The contrasting patterns in Mathematics suggest that assessment practices need further refinement.

Both subjects' recovery trajectories emphasise the need for sustained support beyond immediate crisis periods. Shahrill et al. (2021) and Kaur (2023) argue that effective recovery planning requires monitoring both short-term and long-term progress alongside flexible intervention strategies that can adapt to subject-specific challenges. Compared to Mathematics' more prolonged recovery period, the successful recovery pattern in Science provides valuable guidance for developing educational practices that can better withstand future disruptions whilst maintaining high academic standards.

The distinct recovery patterns between Mathematics and Science suggest a need for sustained differential support systems beyond crisis periods, especially in Mathematics, where conceptual gaps may compound over time if not adequately addressed. The successful adaptation of Science education during crisis periods provides a model for building educational resilience, indicating that hands-on, inquiry-based approaches combined with flexible assessment methods could be institutionalised as standard practice. Furthermore, the varying mock-to-PSR alignment patterns between subjects (especially Mathematics' persistent discrepancies) suggest that assessment practices need fundamental restructuring rather than temporary adjustments to ensure better predictive validity and support student achievement in the long term.

7.5. Educational Technology Integration During Disruption

The differential performance patterns between Mathematics and Science reveal important insights about educational technology integration during the pandemic. The data suggests that how technology was deployed within each subject significantly influenced student outcomes and subject resilience.

Science education demonstrated more successful technology integration, likely due to several subject-specific factors. During remote learning, Science teachers at HMJM Primary School utilised virtual laboratory simulations and interactive visual demonstrations that maintained the experiential aspects of scientific inquiry despite physical separation. Applications such as simple household experiment demonstrations via video conferencing allowed students to observe scientific phenomena directly, preserving the inquiry-based approach central to Science education. This technological adaptation maintained the constructivist elements of Science learning, as evidenced by the consistent high performance (PSR pass rates between 89.29% and 93.10% post-COVID).

In contrast, Mathematics education faced greater challenges in technology integration. The abstract nature of mathematical concepts proved difficult to convey through standard video conferencing platforms. Whilst

visualisation tools existed, their implementation appeared less systematic than in Science. Mathematics teachers relied more heavily on document cameras to demonstrate problem-solving procedures, which maintained procedural knowledge but often struggled to convey conceptual understanding effectively. The significant disparities between mock and PSR results in Mathematics (ranging from 31.25% to 53.57% post-COVID) suggest that the technological tools employed were less effective at replicating the scaffolded learning experiences typically provided in face-to-face Mathematics instruction.

The assessment data also reveals differences in how digital formative assessment tools were integrated between subjects. Science showed progressive improvement in assessment alignment (narrowing from 25% in 2020 to 3.58% in 2024), suggesting effective use of digital quizzes, concept checks, and feedback mechanisms that prepared students for summative assessments. Mathematics, however, maintained significant assessment gaps throughout the study period, indicating that digital formative assessment practices were less successfully integrated into the learning process.

Communication technologies were deployed differently between subjects as well. Science instruction more effectively utilised asynchronous learning resources that students could review multiple times at their own pace. Mathematics instruction relied more heavily on synchronous explanation, which disadvantaged students with connectivity issues or competing home responsibilities during scheduled class times. This difference in communication technology deployment likely contributed to the varying recovery patterns observed between subjects.

The rapid transition to School Assessed Marks (SAM) in 2021 revealed the most striking technology-related disparities. The extraordinary improvement in Mathematics from a 5% mock examination pass rate to 100% in PSR suggests that the digital assessment tools used during this period may have failed to accurately measure mathematical understanding, especially compared to Science, which showed a more modest improvement from 77% to 100%. This discrepancy highlights the challenges in developing valid digital assessment instruments for abstract mathematical concepts compared to more observable scientific phenomena.

These findings align with Mishra and Koehler's (2006) TPACK framework, demonstrating that successful technology integration depends not only on technological tools themselves but on how they are pedagogically deployed within specific content areas. The subject-specific response patterns observed at HMJM Primary School suggest that future educational technology planning should acknowledge and account for the unique challenges in translating different subject matters into effective digital learning experiences.

7.6. Practical Implications for Mathematics Pedagogy

The findings reveal specific areas where Mathematics instruction requires targeted enhancement to build greater resilience against future educational disruptions. The persistent assessment disparities and performance volatility in Mathematics, contrasted with Science's stability, point to several practical implications for pedagogical practice.

The significant mock-to-PSR gaps in Mathematics (31.25%-53.57% post-COVID) compared to Science's improving alignment (narrowing to 3.58% by 2024) suggest that Mathematics assessment practices require fundamental restructuring. This includes developing formative assessments that better mirror summative evaluation demands and implementing regular diagnostic feedback loops that identify conceptual gaps earlier in the learning process. Teachers should include structured mock examination practices that systematically prepare students for PSR requirements, addressing the persistent disconnect between classroom learning and assessment outcomes.

Mathematics instruction should emphasise contextual problem-solving throughout the curriculum rather than primarily during examination preparation. The challenges in applying mathematical knowledge to real-world situations, initially identified by Timbang and Chin (2019), appear to have been magnified during the disruption period. Systematic integration of authentic problem-solving contexts would help address the disconnect between abstract mathematical concepts and practical applications. This approach aligns with SPN21's emphasis on

developing analytical reasoning within authentic contexts and could strengthen students' ability to transfer mathematical knowledge across different situations.

The differential recovery patterns between subjects also highlight the need for Mathematics-specific differentiated instruction that addresses the wide performance variability observed (SD=14.71 post-COVID). This contrasts with Science's consistent performance (SD=1.91), suggesting that Mathematics requires more carefully scaffolded support systems for diverse learners. Teachers should implement clearly defined differentiated routes that provide targeted support for struggling students whilst offering extension opportunities for advanced learners, following SPN21's three-tiered instructional model.

Enhanced visualisation and concrete-to-abstract progression strategies could address Mathematics' vulnerability to instructional disruption. The persistent grade distribution challenges in Mathematics, especially the 57.14% Grade E rate in mock examinations by 2024, indicate that students struggle with fundamental concept comprehension. Systematic incorporation of visual modelling approaches, manipulatives, and step-by-step conceptual development could strengthen the foundation necessary for sustained mathematical understanding.

Professional development for Mathematics teachers should focus on developing robust formative assessment practices and technology integration strategies specific to mathematical reasoning. The contrasting technology deployment success between subjects suggests that Mathematics educators require specialised training in adapting abstract concepts for digital learning environments. This professional development should address pedagogical approaches and assessment alignment strategies that have proved successful in Science education.

These implications align with the theoretical frameworks guiding this study, especially the need for more effective TPACK integration in Mathematics education and stronger constructivist approaches that make abstract concepts more accessible to students during various learning modalities. The evidence suggests that Mathematics instruction requires more comprehensive support systems that address immediate learning needs and long-term resilience-building to withstand future educational disruptions.

7.7. Theoretical Framework Integration

The distinct performance patterns between Mathematics and Science can be interpreted through the three theoretical frameworks that guided this study. Each framework offers complementary perspectives that help explain the subject-specific responses to educational disruption observed in the data.

From a constructivist learning perspective (Vygotsky, 1978; Piaget, 1964), Science's resilience can be attributed to its inherently experiential nature. Science education at HMJM Primary School maintained elements of active knowledge construction even during remote learning, allowing students to engage with scientific concepts through household experiments and observation-based activities. The consistently high performance in Science (PSR pass rates of 89-93% post-COVID) suggests that constructivist learning principles remained accessible despite the changed learning environment. In contrast, Mathematics' greater vulnerability (reflected in the fluctuating PSR rates from 50% to 75.80% post-COVID) indicates challenges in facilitating constructivist learning experiences with abstract numerical concepts during disrupted education.

The TPACK framework (Mishra & Koehler, 2006) illuminates the technological adaptation challenges faced by teachers. The significant assessment discrepancies in Mathematics, especially the extraordinary improvement from 5% in mock examinations to 100% in PSR during 2021, reflect potential difficulties in integrating technological, pedagogical, and content knowledge effectively. Science teachers appear to have achieved a more balanced TPACK integration, as evidenced by the narrowing gap between mock and PSR results (from 25% in 2020 to 3.58% in 2024). This suggests that Science instruction has more successfully adapted technological tools to support content delivery and assessment practices.

The Assessment for Learning principles (Black & Wiliam, 1998) help explain the different assessment alignment patterns between subjects. Science's progressive improvement in mock-to-PSR correlation indicates successful

incorporation of formative assessment practices that prepared students for summative evaluations. Mathematics, however, maintained significant mock-to-PSR gaps (31.25%-53.57% post-COVID), suggesting a persistent disconnection between learning activities and assessment requirements. This disconnect aligns with Black and Wiliam's emphasis on the importance of assessment feedback loops in supporting student achievement—a process that appears to have been more effectively maintained in Science education than in Mathematics during and after educational disruption.

Together, these theoretical perspectives provide a comprehensive framework for understanding why Science demonstrated greater educational resilience than Mathematics at HMJM Primary School during the study period. The integration of these frameworks suggests that educational resilience depends not only on subject content but also on how teaching approaches, technological integration, and assessment practices align with learning objectives during periods of disruption.

8. Addressing Research Questions

8.1. Research Question 1

How do different Mathematics and Science teaching strategies impact student learning outcomes at HMJM Primary School?

The analysis reveals that Mathematics and Science teaching strategies had markedly different impacts on student learning outcomes. Science teaching strategies yielded consistently strong outcomes, as evidenced by sustained high-performance levels between 89.29% and 93.10% in PSR pass rates after the COVID-19 period. The strategies demonstrated a steadily improving correlation between mock examinations and PSR results, reaching a close alignment of 3.58% by 2024.

In contrast, Mathematics teaching strategies produced more varied results. The outcomes showed considerable fluctuation in performance, with PSR pass rates varying between 50% and 75.80% after COVID-19. The data revealed ongoing significant disparities between mock and PSR results, ranging from 31.25% to 53.57%. The most notable assessment difference occurred in 2021, when mock examinations indicated a 5% pass rate whilst PSR results reached 100% during the SAM implementation. This extraordinary 95 percentage point difference highlights the challenges in developing and implementing consistent assessment practices within the Mathematics teaching framework, especially during educational disruptions when traditional instructional approaches required rapid adaptation.

8.2. Research Question 2

What factors influence the effective implementation of these teaching strategies in the classroom?

The analysis identified several factors that influenced the effective implementation of teaching strategies in the classroom. These factors encompassed subject characteristics, assessment practices, recovery patterns and systemic considerations.

Subject-specific characteristics emerged as a significant influencing factor. Science benefited from adaptable, practical components allowing easier modification across different learning contexts. In contrast, Mathematics faced more significant implementation challenges due to its sequential nature and reliance on abstract concepts, which proved more difficult to convey effectively.

Assessment alignment played a crucial role in strategy effectiveness. Science progressively improved alignment between mock examinations and PSR assessments throughout the study period. However, Mathematics consistently maintained significant assessment gaps that required additional intervention measures to bridge the divide between mock and final performance.

The pattern of recovery support requirements differed markedly between subjects. Science exhibited quick stabilisation, maintaining consistently high-performance levels post-disruption. On the contrary, Mathematics demanded more sustained support mechanisms and experienced a markedly longer recovery trajectory to achieve stable performance outcomes.

At the system level, several factors emerged as influential. The implementation of School Assessed Marks (SAM) in 2021 demonstrated temporary effectiveness but highlighted challenges in the post-SAM transition period. This transition emphasised the importance of careful consideration when changing assessment methodologies. The availability of resources and level of teacher preparedness also significantly impacted the success of strategy implementation.

These findings indicate that successful implementation of teaching strategies requires careful consideration of multiple factors, including subject-specific pedagogical needs, assessment methodology alignment, and comprehensive systematic support structures. The evidence suggests that considering these various factors, a holistic approach is essential for effective strategy implementation in the classroom environment.

9. Limitations and Future Directions

9.1. Study Limitations

This study presents several methodological limitations that require consideration. Although the analysis encompasses comprehensive student performance data from 2018 to 2024, the findings derive from a single primary school setting, constraining the generalisability of results to broader educational contexts in Brunei Darussalam. By examining data from a single primary school, this research cannot account for how variations in school resources, facilities, and implementation strategies across different settings may have influenced performance patterns, especially when remote learning amplified the importance of technological infrastructure.

The absence of qualitative data from 2020 to 2024 creates a significant gap in understanding how stakeholders experienced and navigated during and after the COVID-19 period. Whilst valuable qualitative insights were obtained through student and teacher interviews in 2019 (Timbang & Chin, 2019), this limitation affects the depth of understanding regarding how participants experienced teaching and learning adaptations. The lack of recent perspective from teachers, students, and parents restricts the ability to contextualise the quantitative performance patterns observed throughout the disruption and recovery periods.

The research demonstrates limited exploration of subject-specific pedagogical approaches that may explain the differential resilience between Mathematics and Science. Insufficient documentation of intervention strategies implemented between mock and PSR examinations restricts the understanding of which specific remedial practices contributed to performance improvements. The study also provides minimal analysis of how teacher professional development and adaptation to new teaching methodologies may have varied between subject departments, potentially explaining some of the observed differences in subject resilience and recovery processes.

Socioeconomic and contextual factors that likely influenced learning during the pandemic period remain unexplored. The study lacks examination of home learning environments, parental educational backgrounds, and access to resources during remote learning—all factors that potentially contributed to the different recovery patterns between subjects. Furthermore, whilst the implementation of School Assessed Marks (SAM) in 2021 is noted, there is limited analysis of the specific changes in assessment criteria that produced perfect pass rates and the subsequent challenges in transitioning back to traditional assessment methods. These contextual limitations affect the conclusions that can be drawn about optimal approaches to Mathematics and Science instruction during crisis periods.

9.2. Future Research on Assessment Practices

Longitudinal studies examining Mathematics and Science achievement patterns beyond crisis periods are needed to understand sustained impacts on student learning. Particular attention should be paid to the post-COVID period (2022-2024), where different recovery patterns emerged - Science demonstrated stable high performance, whilst Mathematics showed greater vulnerability and slower recovery. This distinct pattern demands investigation into why Science education proved more resilient to disruption and what factors contributed to Mathematics' extended recovery period.

A critical question for subsequent research concerns the longevity of teaching innovations implemented during educational disruption. Specifically, researchers should examine whether practices like mixed-mode instruction and digital learning platforms remained in use after schools resumed normal operations. Such investigations would help educational authorities make evidence-based decisions about which adaptations merit permanent integration into instructional frameworks.

Subsequent investigations should explore the instructional methods that enabled Science education to demonstrate greater stability compared to Mathematics during disruptions. Particular attention should be given to how experiential, discovery-based teaching approaches were modified for distance learning environments. The extraordinary case observed in 2021, when Mathematics performance improved from a 5% mock examination pass rate to 100% in the PSR, presents a valuable opportunity to investigate factors that influence assessment alignment during transitional periods. This significant mock-to-PSR disparity (95 percentage points) stands as the most extreme example of the broader pattern of assessment gaps in Mathematics (ranging from 31.25% to 53.57% post-COVID).

Future studies should also examine socioeconomic factors that influenced learning during pandemic disruptions; investigate how teacher professional development and technological integration contributed to subject resilience; and explore intervention strategies implemented between mock and PSR examinations. Complementing these quantitative investigations with firsthand accounts from classroom teachers, learners, and their families would provide valuable perspectives to contextualise the statistical performance patterns observed. Research in these areas would strengthen educational systems' capacity to maintain teaching quality during periods of disruption while supporting effective recovery strategies for all students.

9.3. Future Research on Stakeholder Perspectives

Future research should focus on gathering qualitative insights from teachers, students and parents regarding their experiences with different teaching and assessment methods across the transition periods. Such investigations should examine teachers' perspectives on implementing new pedagogical approaches and assessment strategies, especially how these evolved through remote and hybrid learning phases. Students' experience with different learning modalities and their impact on subject understanding would provide crucial insights into the effectiveness of various instructional methods. Parents' observations of their children's learning progress and challenges during and after the pandemic would also offer valuable perspectives on home-based learning support. School administrators' views on policy implementation and resource allocation would complete this comprehensive stakeholder analysis, providing insights into institutional decision-making during educational disruption and recovery periods.

9.4. Future Research on Support Systems

Research into effective teacher professional development, school-home communication channels, and data-informed decision-making processes would contribute to developing more resilient educational systems capable of adapting to future disruptions. This research direction is important given the findings that show varying recovery patterns between Mathematics and Science—with Science showing more rapid stabilisation (maintaining PSR pass rates between 89.29% and 93.10% post-crisis) compared to Mathematics' more protracted recovery (from 50% to stabilising around 75%).

Future studies should examine how targeted support systems could help address these subject-specific challenges, especially in maintaining teaching quality during periods of disruption and supporting effective recovery strategies. Research should also explore the institutionalisation of structured intervention programmes, ensuring that successful teacher training models, student support initiatives, and assessment realignment strategies are embedded into long-term educational policies. This would ensure continuity in instructional quality and preparedness for future crises, reducing the reliance on reactive, temporary measures.

9.5. Technology Integration

Research examining the integration of emerging technologies in Mathematics and Science education and their impact on student engagement and achievement would be valuable for future crisis preparedness. Given the findings that Science adapted more successfully to remote learning conditions than Mathematics, investigation into subject-specific technological tools and platforms is warranted. This includes examining how digital resources can effectively support abstract mathematical concept development whilst facilitating practical Science learning in remote settings. The post-COVID period provides valuable insights into which technological adaptations were sustainably integrated into regular teaching practice and which were temporary crisis responses, especially given the different recovery trajectories between Mathematics and Science.

The post-pandemic educational environment requires thoughtful integration of technological capabilities alongside substantive improvements in teaching methodologies, assessment practices, and learner support frameworks. Sustained research initiatives examining these educational components will generate valuable knowledge for advancing Mathematics and Science instruction. Such inquiries will help establish educational structures characterised by adaptability and inclusivity for diverse student populations.

9.6. Practical Recommendations for Mathematics Pedagogy

Based on the study's findings, several practical recommendations emerge to address the specific vulnerabilities identified in Mathematics education in the studied primary school. These recommendations aim to enhance instructional resilience and improve student outcomes in Mathematics.

9.6.1. Strengthening Conceptual Understanding Through Visualisation

The persistent gap between mock and PSR results in Mathematics (31.25%-53.57% post-COVID) suggests a disconnect between instructional approaches and assessment requirements. Mathematics instruction should place greater emphasis on visual representation tools that bridge abstract concepts with concrete understanding. Teachers should systematically include visual modelling approaches such as the bar model method, which has proven effective in Singaporean mathematics education (Kaur, 2023). This approach would help students visualise mathematical relationships, especially during problem-solving tasks, addressing the specific challenges in real-world applications identified by Timbang and Chin (2019).

9.6.2. Assessment Alignment Strategies

To address the significant disparities between formative and summative assessments in Mathematics, teachers should implement strategic mock examination practices that more accurately reflect PSR requirements. This includes designing formative assessments that mirror the cognitive demands and question formats of summative evaluations. In addition, integrating regular diagnostic assessments with detailed feedback would help identify specific conceptual gaps earlier in the learning process. The narrowing assessment gap demonstrated in Science education (from 25% to 3.58%) provides a model for how systematic alignment between teaching, learning, and assessment can be achieved.

9.6.3. Contextualised Problem-Solving Approaches

Mathematics instruction should emphasise contextual problem-solving throughout the curriculum rather than primarily in examination preparation. Developing regular problem-solving routines that connect mathematical operations to authentic Bruneian contexts would help address the challenges in applying mathematical knowledge to real-world situations identified in previous research (Timbang & Chin, 2019). Such approaches might include community mathematics projects, problem-based learning challenges, and cross-curricular applications that demonstrate the relevance of mathematical concepts to everyday life.

9.6.4. Differentiated Instructional Routes

The fluctuating Mathematics results, especially during the recovery period (PSR pass rates ranging from 50% to 75.80%), suggest that a one-size-fits-all approach is insufficient for addressing diverse learning needs. Mathematics instruction should include clearly defined differentiated routes that provide targeted support for struggling students whilst offering extension opportunities for advanced learners. This approach aligns with SPN21's three-tiered model of differentiated instruction and would help address the wide performance variability observed in Mathematics (SD=14.71 post-COVID).

9.6.5. Technology Integration Specific to Mathematical Reasoning

Given the challenges in Mathematics during remote learning, teachers should develop a toolkit of mathematics-specific digital resources that support conceptual understanding rather than merely procedural fluency. Interactive digital manipulatives, dynamic geometry software, and adaptive learning platforms with immediate feedback mechanisms would provide more effective technological support for mathematical reasoning. Professional development should specifically address how to integrate these tools effectively within the Mathematics curriculum, addressing the TPACK framework's emphasis on the intersection of technological, pedagogical, and content knowledge.

9.6.6. Collaborative Learning Structures

Mathematics instruction should include structured collaborative learning opportunities that promote mathematical discourse and multiple solution strategies. Pairing and small group problem-solving activities, whether in-person or through digital breakout rooms, can support the development of metacognitive skills and mathematical communication. This approach addresses the constructivist learning principles that appear to have been more effectively maintained in Science education during disruption periods.

These recommendations provide practical pathways for strengthening Mathematics education at HMJM Primary School and potentially other primary schools within Brunei's educational system. By addressing the specific vulnerabilities identified in this study, Mathematics instruction can develop greater resilience to educational disruptions whilst improving student outcomes in regular and challenging circumstances.

10. Conclusion

Examination of student achievement data in Mathematics and Science from 2018 to 2024 uncovers clear differences in how each subject was affected by and recovered from educational disruption. The data shows Science education maintained robust performance throughout the study period, with average success rates increasing from 87.30% before COVID to 91.13% after the pandemic subsided. The post-COVID recovery phase was marked by highly consistent results across different classes and schools, as evidenced by the small performance variation (standard deviation of 1.91). Unlike Science, Mathematics showed increased vulnerability to educational interruptions. Average student achievement in this subject area decreased from 75.20% pre-pandemic to 66.93% after COVID. The recovery in Mathematics was also characterised by substantial performance differences across learning contexts, with a considerable spread in results (standard deviation 14.71).

The most striking example of these differential patterns appeared in 2021, when Mathematics mock examination results showed only a 5% pass rate compared to Science's 77%, yet both subjects achieved 100% PSR pass rates

under the School Assessed Marks system. This exceptional case, especially the 95 percentage point improvement in Mathematics, highlights the significant assessment challenges that emerged during the transition between traditional and alternative evaluation methods. The significant disparity in subject performance patterns reveals the shortcomings of applying identical pedagogical approaches across the two disciplines. This evidence supports implementing specialised instructional strategies that account for the distinctive learning processes and particular vulnerabilities associated with each subject area.

The performance data illustrates Science education's capacity to maintain educational continuity despite disruption, whilst Mathematics instruction appeared more sensitive to learning interruptions. This pronounced difference in resilience patterns suggests fundamental distinctions in how these subjects respond to educational challenges, reinforcing the value of subject-specific recovery strategies rather than generalised approaches across the curriculum.

The implications are substantial for educational practice and policy within Brunei's SPN21 framework. The persistent gap between mock and PSR results in Mathematics (ranging from 31.25% to 53.57% post-COVID), compared to Science's improving alignment (narrowing from 22.25% to 3.58% between 2022-2024), emphasises the need for subject-specific assessment practices. Science's adaptable practical components and stronger conceptual frameworks appeared to support learning continuity during disruption, whilst Mathematics' sequential nature and abstract concepts presented greater challenges in remote learning environments.

The temporary implementation of School Assessed Marks in 2021 achieved perfect pass rates in both subjects but revealed different recovery trajectories when traditional assessment resumed. This finding suggests that assessment methodologies must be carefully aligned with subject-specific pedagogical approaches to maintain educational quality during transitions. Furthermore, the differential recovery patterns between subjects underscore the importance of developing targeted support systems that address the unique vulnerabilities of each subject area.

When considered within Brunei's SPN21 educational structure, these results indicate that building educational resilience demands continued attention to subject-specific teaching methodologies. These approaches should be simultaneously responsive to each discipline's unique characteristics and adaptable to shifting educational environments. The observed differences in subject performance patterns provide education professionals with valuable insights for developing more targeted strategies to address future educational challenges whilst preserving instructional quality.

The findings from this research contribute meaningful guidance for strengthening educational resilience in Mathematics and Science instruction. This study highlights the importance of identifying and preserving effective teaching practices that emerged during crisis periods, whilst developing targeted support systems for areas showing greater vulnerability. The subject-specific performance patterns documented here provide educational stakeholders with an evidence-based foundation for developing more responsive and adaptable instructional approaches within Brunei's SPN21 educational system.

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Contextual Application of Phraseological Units

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Abstract
The article discusses the contextual application of phraseological units. The problem of studying the contextual implementation of phraseological units is not new and has been highlighted to one degree or another in a number of works. Researchers such as R.A. Budagov, G.V. Kolshansky, N.N. Amosova, M.T. Tagiyev have made the greatest contribution to the development of the theory of context. The article notes that context is the environment in which a word occurs. Context does not determine the meaning of a word only within a sentence, this is only the simplest case. Determining or clarifying the meaning of a word, its general or specific meaning can be determined by sentences, periods, and even entire chapters. Context is understood as a set of formally stable conditions under which the content of any language unit is unambiguously revealed. It determines the micro context within the boundaries of a sentence, the macro context within a paragraph, and the thematic context, which is the entire content of the material.

Keywords: Phraseological Unit, Context, Intra-Phrase Context, Supra-Phrase Context, Contextual Changes

1. Introduction

Phraseologisms can be used regularly (normatively) and occasionally both in oral and written speech. The routine meaning of a phraseological unit (PU) is the meaning indicated in the dictionary. The accidental meaning is the meaning that a phraseological unit acquires in a certain context, accompanied by a deviation from the usual, generally accepted. The possibility of random transformation of phraseological units is associated with their two main properties: isolated composition and systemic-linguistic stability. In addition, for phraseological units with a complex semantic structure, the role of connotative components is great. All these factors make phraseological units an extremely interesting material for research in terms of their "behavior" in context. One of the first to study in detail the periodic changes of PU was the Russian scientist A. V. Kunin (1996). He was the first to introduce the terms “usual use” and “random use” into scientific linguistic speech and analyzed various types of random transformation of phraseological units in context, using the English language as material. Context is a part of the text, isolated and combined with a linguistic unit or a unit of speech, which can be transformed into a linguistic unit defined by the actualizer in the process of everyday or casual use. The current stage of development of phraseology as a linguistic discipline is characterized by a comprehensive approach to the study of phraseological units. One of the relatively new areas of phraseological research is phraseological contextology.

1.1. Objective of the study

The purpose of the article is to study the contextual application of phraseological units and their contextual implementation in sentences.

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1.2. Methodology

The main method used in the dissertation is the contextual analysis method. Associated methods are the method of phraseological identification and phraseological description developed by A.V. Kunin (1996), the comparative method and the method of dictionary definitions.

2. Presentation and Discussion

The main problem of phraseological contextology is the inclusion of phraseological units in speech, their actualization in context. For the future development of phraseological contextology, it is undoubtedly of interest to study the actualization of phraseological units in context depending on the purpose and function of a specific context. The problem of studying the contextual implementation of phraseological units is not new and has been covered to one degree or another in a number of works. A. M. Budagova(2017) understands context as the environment in which a word occurs. she emphasizes that context determines the meaning of a word not only within a sentence, which is only the simplest case. The definition or clarification of the meaning of a word, its general or particular meaning, can be determined by sentences, periods, and even entire chapters. A. M.Budagova (2017) distinguished between narrow and broad contexts and emphasized the importance of dialogic speech as a broad type of context .

G.V. Kolshansky (1959) considers the context to be a set of formally stable conditions under which the content of any linguistic unit is unambiguously revealed. He distinguishes between microcontext within a sentence, macrocontext within a paragraph, and thematic context, which represents the entire content of the material. G.V. Kolshansky (1959) argues that without context it is impossible to realize the expressive and communicative function of language . In our opinion, the concept of context in Kolshansky's work is not formalized enough and requires clarification. Let us pay attention to the definition given by G.V. Kolshansky(1959). The three types of context include any linguistic unit in which the content of essentially any other linguistic unit of a lower level is unambiguously revealed without explanatory division . In this regard, a compound word is a context, since the meaning of the roots included in it is unambiguously realized. The possibility of such a broad understanding of context, based on the definition itself, is reflected in the types of context presented by G.V. Kolshansky (1959). In addition, micro- and macrocontexts are communicative speech units, and thematic context is a literary work or a relatively complete part of it and should be considered more as a text than as a context, since it is impossible to distinguish between themes. In our opinion, the statement that the context unambiguously reveals the content of any linguistic unit is not entirely true, since recent studies have shown that phraseological units (called phraseological units by the authors) based on direct and figurative combinations are possible. For example: *wave a hand - wave, wave a white flag - raise a white flag.* Both meanings are realized simultaneously in one context. There are contexts where two meanings of a word or the meaning of a phraseological unit and the literal meanings of its components are played out through wordplay. Of course, such a play on meanings is a random technique, but still, the context in which this event occurs does not become out-of-context.

N. N. Amosova(1963) distinguishes four types of context : variable context, constant context, conditionally limited context and fixed context. She distinguishes two types of variable context: broad context or speech situation and narrow context. Narrow context means a variable sentence.

Agreeing with N.N. Amosova (1963), A.M. Budagova (2017) notes that N.N. Amosova distinguishes a special form of broad context - dialogic speech. She distinguishes two main types of variable context: lexical and syntactic. Lexical context is understood as a context containing such an indicative minimum that helps to realize the meaning of a word through the semantics of a word or a complex of words that make up this indicative minimum. N. N. Amosova (1963) considers the phraseological unit itself as a constant context. Such formations as to pay attention - to care, to call (or visit) - to visit belong to the usual limited context. In a fixed context, N. N. Amosova (1963)

understands stable expressions that do not have the semantic properties of a constant context. For example, by expectations, internal secretion, etc. It should be noted that the type of context, which is the phraseological unit itself, completely hides the development of phraseological units in various types of changing contexts. The allocation of a phraseological unit as a constant unit creates serious difficulties. The constant allocation of a phraseological unit encounters significant difficulties, since many phraseological units reflect a completely rethought nature of phraseological units, the presence of semantically empty words, etc. Many phraseological units that do not have an indicative minimum cannot be considered contextual if we approach it from the point of view of understanding the context proposed by N. N. Amosova(1963). M. T. Tagiev(1966) studies the external connections of phraseological units and introduces the concept of configuration: a formation based on the actual structural connection between a phraseological unit and an element associated with it is called a configuration. A configuration consists of the phraseological unit itself and its environment. M. T. Tagiev(1966) believes that a combination is phraseological if it has a certain environment that does not follow from the valence relations of the component words, and vice versa, if the combination is applied to its valence relations, it is free. We understand the importance of studying the speech environment of phraseological units, but M. T. Tagiev(1966) clearly pays too much attention to the significance of compatibility, not recognizing other ways of contextual realization of phraseological units. In M. T. Tagiev's(1966) understanding, the environment does not allow him to separate phraseological units from compound words. For example, compound words are blue-eyed, dark-haired, heartbreaking, etc. In paragraph B, it is also characterized by the environment, based not on a separate consideration of its components, but on the interrelation of the whole. When defining different types of context, we see that A.V. Kunin(1996), believing that it can be a word, claims that it is a group of words within a sentence, a sentence as a whole and a larger formation, that is, a supra-phrase unity. With this approach, three types of context are distinguished: intra-phrase, phrasal and supra-phrase: Intra-phrase context is an actualizer of a phraseological unit expressed by a word or a group of words of a simple or complex sentence. Let's pay attention to this example: *Here is realism as life.* The expression realism as life is in a phraseological configuration. The phraseological unit as life, when combined with the word trace, actualizes one of its full meanings.

Here is a trace as life on the rear left wheel. In this example, the phraseological unit "as large as life " is used in the meaning "noticeable, large in size" in combination with the words "mark", "sign". The intra-phrase context actualizes the phraseological unit expressed by words and groups of words of a simple or complex sentence. The compound context actualizes the phraseological unit expressed by a simple or complex sentence. The phraseological-compound context is typical for a phraseological unit that is in independent use, for example, to repeat the previous expression.
For example: *And how did little Tim behave? asked Mrs. Gratchit. As good as gold, said Dick.*

The superphrasal context is a situational actualizer of phraseological units expressed by two or more sentences. The phraseological context often does not provide enough information for the speech implementation of phraseological units. In this case, a broader context is needed. This can be seen in the following example. *But here it is, in all its glory.*

If we take into account the two previous sentences illustrating the situation, the meaning of phraseological units becomes clear. *How did you cut your knee, Rey? – I didn't cut it, – he said. "I didn't do it,"* he replied. In this example, the phraseological unit refers to a broken knee, is used jokingly and means "to fall from grace". In this case, the phraseological unit is implemented in a superphrasal context. Knowing examples of speech implementation of phraseological units is very important both in the practical study of the English language and in interlingual relations, since the behavior of phraseological units in speech allows us to determine the relevance and contextual modeling of phraseological units, and their communicative potential as linguistic units in phraseological configurations is realized in speech. The use of phraseological units as a component of phraseological configurations can lead to the emergence of new phraseological units. Knowing the patterns of speech implementation of phraseological units is also very important in teaching, practical study of any language, as well as in translating from one language to another. From the point of view of everyday and casual use, A.V. Kunin (1996) distinguishes four types of phraseological configurations:

1. Everyday configuration of the first degree. In this configuration, phraseological units retain their traditional structure and component composition. At the same time, maintaining stylistic compliance with the vocabulary, it implements color.
2. The second-degree usual configuration is characterized by an increase in stylistic effect within one stylistic tonality. In this case, the increase in expressiveness occurs due to a change in the position of phraseological units or the use of two (or more) phraseological units within one configuration.
3. The first-degree random configuration. In this configuration, phraseological units are sometimes realized through the use of transformed numerous stylistic devices (insertion, addition, double actualization, replacement of components, break, ellipsis).
4. The second-degree random configuration. This configuration includes complex stylistic devices.

Kazan linguists L.K. Bayramova(1982) and E.F. Arsentyeva (2006) continued to study this problem in a comparative aspect, using materials from distantly related and unrelated languages. In the monograph "Phraseology and phraseography in a comparative aspect (based on the Russian and English languages)", published in 2006, E.F. Arsentyeva (2006) presented a study of the use of phraseological units of the Russian and English languages that were not subject to contextual changes, paying much attention to phraseological combinations. When studying phraseological units that were subject to contextual changes, the following types of transformations were analyzed:

1. Change of lexical component/components.
2. Inclusion. Violated use of phraseological units.
3. Addition of a variable component.
4. Ellipsis. Phraseological allusion.
5. Phraseological repetitions.
6. Extended metaphor. He attributes the following to structural-semantic ones:

contextual use of phraseological units with semantic focus...

- expansion of component composition;
- reduction of component composition (ellipsis);
- replacement (substitution) of a component;
- breakage and complete deformation (fracture)

(split use according to A.V.Kunin or according to the English terminology of A. Nachisione).

The researcher attributes the following to semantic transformations:

- phraseological play on words;
- explanation of the internal form (figurative basis).

Separately, A. O. Zholobova (2005) considers such creative contextual transformations of phraseological units as the author's aphorisms based on phraseological units and phraseological saturation of context (instantaneous phraseological saturation of speech according to the terminology of A. Nachisione) (1976). As for aphorisms, they can be based on the comparison or expansion of the component composition of phraseological units, as well as on the use of a parallel construction with the repetition of individual elements of a phraseological unit. Moreover, an aphorism can be a completely deformed (transformed) phraseological element. In some cases, a complete defrazeologization of a phraseological unit is observed. I. P. Kudryavtseva (2007) analyzes the contextual use of phraseological units with components denoting time, based on the material of phraseological units of modern English and pays close attention to such techniques of random transformation of phraseological units as stylistic inversion and graphic highlighting of a phraseological unit. The author notes that the most common technique of the latter is italics. The problem of studying phraseological units in context is the subject of research by domestic and foreign scientists. A significant contribution to the study of contextual transformations of phraseological units was made by the monograph of the Latvian scientist Anita Nachisione(2001), published in 2001. The linguist identifies four main types of transformation of phraseological units in speech: extended metaphor, phraseological pun, distorted use of phraseological units and phraseological allusion. The author also studies phraseological repetition and repeated phraseological saturation of the context.

Thus, all types of transformations can be divided into three groups:

1. Transformations that change the substantive form of phraseological units without violating their structure. These include phraseological puns and rare violations of stylistic distribution.
2. Transformations that change the structure of phraseological units and thereby introduce innovations into their content. These include replacement, addition of component/components, wedge, omission, ellipsis, component/component.
3. Complex transformations: extended metaphor, phraseological repetition, phraseological allusion and phraseological richness of context.
4. Phraseological richness of context.

L.K. Bayramova considers the following types of accidental transformations (1982):

1. Inversion.
2. Replacement.
3. Wedge (called by the author the insertional dissection technique).
4. Contamination carried out in four ways.
5. Ellipsis.
6. Marking.

The features of random transformation of phraseological units are the subject of dissertations completed in the last decade by A. R. Abdullina (2007), D. N. Davletbaeva (2006), E. V. Ryzhkina (2003), and others. In addition, a number of works examine the types of contextual transformation of multilingual phraseological units. In this regard, the third chapter of the dissertation research by A. O. Zholobova (2005) is of considerable interest. The researcher describes the classification of random transformations by A. Melerovich and V. Mokienko, the concept of N. Shadrin, the models of random use of phraseological units by A. Nachisione, and also presents the types of random transformation of phraseological units of biblical origin in English, Spanish and Russian fiction, journalism and periodicals.

Most scholars are of the opinion that the replacement of a lexical component (less often components) is one of the most common types of contextual transformations, for example: E. F. Arsentyeva (2006), A. R. Abdullina (2007). The replaced lexeme can be a synonym, antonym or belong to the same semantic (thematic group) in relation to the occasionally varied component. The need for replacement is conditioned by the context and is a means of achieving the desired stylistic effect. Let us turn to examples from our material: *A modern court will not recognize this and will turn everything into a reproach and slander to an unrecognized writer; without sharing, without an answer, without participation, like a familyless traveler, he will remain alone in the middle of the road". "The veil was so impenetrable that it resembled a burqa. - A bald spot in the head - a devil in the ribs! – the girl sternly corrected the veiled lady, making it clear by her tone that their conversation with Foma Fomich was their personal business and she would not allow the uninitiated into their intimate circle".*

In the first example, we observe the replacement of the component “bachelor” with “traveler” and in the second example the replacement of several components, namely “gray hair in the beard” with “bald spot in the head”. In this way, the authors achieve an enhanced stylistic effect by updating the images.

It is not surprising that this loss of childhood would catch up with her and that at fortysomething a parent substitute would come along in the guise of a knight in shining sedan, “someone”, she writes “I couldn’t take off” [23].

“Sire, do not talk to me of small projects,” said the Great Cham of baroque architecture, Gian Lorenzo Bernini, to Louis XIV after the Sun King lured him to Paris [24].

Don Quixote, very lean and egoistic and honest and foolish, a veritable knight of the Woeful Countenance… [25].

Examples from the English language illustrate the replacement of the components “armour” and “literature” with “sedan” and “baroque architecture” respectively. It should be noted that the replacement of a component is typical for nicknames-phraseologisms. The author, exploiting the model of a well-known nickname, substitutes the necessary components-substitutes.

A synonymous replacement of “rueful” in the phraseological unit “the knight of the Rueful Countenance” with “woeful” was also found. The meaning of the phraseological unit does not change. Wedging also refers to common types of occasional transformations of phraseological units. The main function of this type is to clarify or strengthen the meaning. The following examples illustrate the strengthening of the meaning and the increase in expressiveness of the phraseological units “burning brunette” and “prodigal son” by wedging in the components “fiery” and “bitch”.

3. Conclusion

Over the past decades, the interest of linguists in the study of phraseological units in real speech use has increased significantly. A number of domestic and foreign scientists study the use of phraseological units in context, with considerable attention being paid to the study of contextual transformations of phraseological units. Along with the usual (normative) use of phraseological units, common-occasional and occasional (speech) transformations of phraseological units are widely used for certain stylistic purposes. Being separately formed units of language, phraseological units are easily transformed. All contextual transformations of phraseological units can be divided into three groups:
1. Transformations that change the content of phraseological units, but do not violate their structure.
2. Transformations that change the structure of phraseological units and thereby introduce some innovations into their content.
3. Complex transformations, which are a combination of two or more techniques of occasional transformations of phraseological units.

Both English and Russian are characterized by different types of contextual transformations of phraseological units, such as: replacement of a component/components, insertion, addition of a variable component/components, ellipsis, break or broken use of phraseological units, extended metaphor, phraseological repetition, phraseological pun and context saturation.

The study of the types of contextual transformations of phraseological units clearly demonstrates the similarity of the mechanism of such transformations. The most common types are replacement of a component/components, insertion, addition, truncation, a combination of several techniques at the same time, i.e. phraseological saturation of the context.

The differences, as a rule, are of a secondary nature. For example, it was found that in Russian, unlike English, conjunctions, particles and introductory words can act as components added to the beginning of a phraseological unit, while the addition of a variable component/components to the end of a phraseological unit is more often observed in English.

The functions of occasional stylistic devices for transforming phraseological units coincide in both languages, and the “goal” of the impact of any type of transformation of phraseological units in each specific case is motivated by the author’s intention, his communicative and emotive attitude. The following functions of the considered stylistic devices for transforming phraseological units are distinguished: strengthening the meaning, clarifying the meaning, increasing the emotional and expressive content of the phraseological unit and the entire context in which the occasionally used turn of phrase is used, acquiring an unusual meaning by the phraseological unit, introducing humorous or satirical content into the statement, etc. The conducted experimental study convincingly proved that the metaphors underlying the figurative rethinking of phraseological units are alive not only for native speakers, but also for people at a sufficiently high level of proficiency in the language. The results of the experiment indicate the formation of the mechanism of metaphorical transfer also by non-native speakers, which, in turn, is a clear proof of the commonality of cognitive mechanisms for generating various kinds of transformations of phraseological units and their perception by representatives of different nations. Just as in the experiments of American scientists, we have proven that with various transformations of phraseological units, this unit remains understandable in the presence of a sufficient pragmatic context. Thus, we can conclude that the mental perception of phraseological units is similar both by native speakers and by people who are at a sufficiently high level of proficiency in it.

During the second experiment, it was confirmed that the structure of each phraseological unit, indeed, contains the so-called key components / components that carry the main part of the meaning of the entire phraseological unit, while the remaining components provide only additional information. The identity of the procedure for determining these components in the English and Russian languages and the similarity of the cognitive process of their recognition and recreation of a complete image based on these key components, which underlies the phraseological units of both compared languages is revealed. Thus, it can be stated that the mechanism of contextual occasional use of phraseological units in English and Russian is common.

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Perceived Effects of ICT Integration on Teaching and Learning in Ghanaian Senior High Schools: A Mixed-Methods Study

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Abstract
Integrating Information and Communication Technology (ICT) in education is not just a trend, but a transformative force that is reshaping traditional teaching and learning methodologies. This mixed-methods study delves into the potential effects of ICT integration on teaching and learning in Ghanaian senior high schools, with a specific focus on educators' perspectives. Data were collected from 90 teachers across various categories of schools in the Greater Accra Region, employing both quantitative surveys and qualitative interviews. The findings reveal that ICT positively influences teaching and learning outcomes, enhancing student engagement, promoting critical thinking, and facilitating personalised learning experiences. These personalised learning experiences, enabled by ICT, allow students to learn at their own pace, focus on their individual learning needs, and receive immediate feedback. Notably, female teachers reported a higher perceived impact of ICT on their teaching practices than their male counterparts. Despite these positive perceptions, the study identifies significant challenges, including inadequate infrastructure, limited access to technology, and insufficient training for educators, which hinder effective ICT integration. This research underscores the need for targeted support, such as regular professional development workshops and mentorship programmes, and equitable access to ICT resources, including ensuring all schools have a minimum standard of technology and internet connectivity. These recommendations align with the national curriculum's goals of fostering student digital literacy and innovation. By highlighting these dynamics, the study contributes to the broader discourse on educational technology in Ghana, providing essential insights for policymakers and stakeholders seeking to optimize ICT integration in the educational landscape.

Keywords: Educational Technology, Ghana, ICT Integration, Senior High Schools, Teaching and Learning

1. Introduction

Incorporating Information and Communication Technology (ICT) has transformed the approach to teaching and learning in different academic domains. ICT encompasses a range of technologies that facilitate information collection, storage, editing, and dissemination (Wordu et al., 2021). With ICT being a critical component of the national curriculum, it is now extensively used as a management, assessment, diagnostic, and statistical tool (Mugaya, 2020). In addition to traditional lesson preparation, interactive computer applications and simulation exercises have also been adopted to enhance the learning experience (Rowe et al., 2015). Furthermore, instead of just teaching students to use technology, teaching them through technology has been identified as a critical strategy in preparing them for the future (Pardede, 2020). The educational expertise of teachers and students can be used to assess the effectiveness of ICT in education (Mwenda, 2017).

Numerous studies have investigated factors that can optimise the effectiveness of learning technology, such as motivation, feedback, reinforcement, social interaction, readiness level, and pacing (Ananga, 2020). The integration of ICT in education offers considerable potential for enhancing educational outcomes. Nonetheless, addressing challenges such as infrastructure, teacher training, and access is crucial for its efficient utilisation. For instance, this study builds on previous research that demonstrates how internet access can improve academic performance in Ghanaian Senior High Schools. It examines what teachers think about using ICT to enhance lessons and activities (Amponsah, et al., 2022). Similarly, this study aims to investigate teachers' perceptions of using ICT in the classroom to enhance the overall learning experience in Ghanaian Senior High Schools. This investigation is like how teachers feel about the government's Wi-Fi technology programme and its impact on their teaching (Asomah et al., 2024).

The integration of ICT into the educational system in Ghana, particularly at the Senior High School (SHS) level, is crucial for achieving objective and root-based learning. The Ghanaian government recognises the significance of ICT in stimulating critical thinking, innovation, creativity, and digital literacy to tackle the problems of the twenty-first century (Gunu et al., 2022). As such, the integration of ICT into SHS curricula has been met with great enthusiasm (Gyasi-Mensah & Osman, 2022). Studies indicate that the inclusion of ICT in educational curricula has a favourable effect on teachers' and learners' competencies and knowledge (Mwendwa, 2017). This holds particular importance given the recent implementation of a new curriculum by the National Council for Curriculum and Assessment (NaCCA), which strongly emphasises the acquisition of skills and competency-based learning. According to NaCCA (2018), learners' daily activities should naturally incorporate the usage of ICT for them to be empowered and transformed into digital citizens who are creative designers, computational thinkers, global collaborators, and capable of creative communication. However, assessing the perceived influence of ICT integration on learning process is crucial for ensuring the effective implementation of the new curriculum.

Numerous studies have explored the efficacy of ICT as an educational tool (Baah-Duodu et al., 2020). There is a widely held belief that ICT has the potential to revolutionise conventional teaching and learning methods by empowering teachers and students to enhance higher-order thinking skills, problem-solving capabilities, creativity, and communication skills; nonetheless, there is no adequate empirical evidence to substantiate this claim. Notwithstanding, it is generally recognised that ICT can encourage transformation and facilitate the cultivation of 21st-century competencies in educators and learners (Mohamed et al., 2021). In education, this transformative power of ICT can extend to addressing the challenge of promoting intrinsic motivation in students. Teachers, lecturers, and researchers may need to seek practical ways to leverage ICT tools and strategies to enhance intrinsic motivation, leading to better engagement in the learning process (Arkorful et al., 2021). By integrating technology into pedagogy, educators can create interactive and stimulating learning environments (Arkorful et al., 2021) that tap into students' natural curiosity and enthusiasm, fostering a genuine interest in acquiring knowledge and skills.

The incorporation of ICT in high schools is a topic that has garnered significant attention in research. For instance, Arkorful et al. (2021) discovered that educators' favourable attitudes toward incorporating ICT in their pedagogy corresponded with the inventive use of ICTs in teaching, leading to increased student engagement in the learning process. Similarly, Awuor and Okono (2022) observed that students cooperated to solve problems arising from using ICT, forming academic discourse communities, and working together across different schools. This

highlights the global importance of technology in educational activities, as emphasised by teachers (Gyasi-Mensah & Osman, 2022).

Incorporating ICT in education piques academic curiosity and fosters a sense of fulfilment by enabling students to transition from passive knowledge recipients to active information creators. It is essential to recognise, however, that despite the potential advantages of integrating ICT into education, obstacles must be overcome. For example, Biasi et al. (2021) found that conventional examination conditions may impede the successful incorporation of ICT in schools. Restrictions on using ICT gadgets during examinations can demotivate teachers and students who have been using ICT as part of their learning and teaching. Consequently, this study explores educators' perspectives on the influence of ICT integration on teaching and learning, with a specific focus on grades 10 to 12.

1.1. Statement of the problem

ICT integration in education has become a worldwide phenomenon. Some studies (Bento & Martins, 2018; Gil-Flores et al., 2017) demonstrated that ICT integration in education can improve teaching and learning and boost learner involvement and motivation. Consequently, the Ghanaian government has tried to incorporate ICT into the educational system because it acknowledges the capacity of ICT to raise educational standards (Asante & Osei-Kwasi, 2019; Oduro, 2019). Despite these efforts, more studies need to examine the perspectives of senior high school teachers on the impact of ICT integration on educational activities in Ghana.

The effective integration of ICT in education hinges on the dual foundation of teachers' active support and involvement, as Ertmer Ottenbreit-Leftwich (2010) emphasized. This support is connected to teachers' attitudes and perceptions, a sentiment echoed in the research by Arkorful et al. (2021). Essentially, teachers' positive shaped by their perceptions, attitudes toward ICT, are vital determinants influencing their willingness to actively engage with and support the use of ICT in educational settings. Therefore, fostering a positive environment where teachers endorse and actively participate in using ICT is crucial for its successful implementation and impact on education. To determine possible obstacles and enablers to its delivery, it is crucial to be abreast of teachers' views at SHS on incorporating ICT in the classroom. Consequently, this research aims to investigate how Ghanaian senior high school teachers perceive the impact of ICT integration on teaching and learning activities. The study aims to determine possible obstacles and enablers to Ghana's effective adoption of ICT at the senior high school level.

1.2. Objective of the study

This study aimed to ascertain the perceived effects of ICT integration on senior high school teaching and learning, as well as the extent to which educators employ ICT resources during instruction. The broad objective is further broken down into specific and achievable objectives:

1. To determine the effect of incorporating ICT on the teaching and learning process.
2. To explore the perceived effects of ICT utilization in teaching and learning by educators of both genders.
3. To investigate the differences in the utilization of ICT in teaching and learning among educators from three categories of schools
4. To determine teachers' views on using ICT in teaching and learning across different school categories.

1.3. *Research Questions*

The study addresses several key questions related to the integration of Information and Communication Technology (ICT) in education, particularly in Ghanaian senior high schools:

1. How do teachers perceive the impact of incorporating ICT into the teaching and learning process in Ghanaian senior high schools?
2. What is the perceived influence of ICT incorporation on teaching and learning among male and female teachers in Ghanaian senior high schools?

3. What are the differences in the use of ICT in teaching and learning among educators from various school categories (Category A, B, and C)?
4. What are teachers' views on using ICT in teaching and learning across different school categories?

These questions aim to explore the effectiveness, challenges, and perceptions of ICT integration in the educational system.

2. Literature Review

2.1. Theoretical Framework

The Technology Acceptance Model (TAM) was used in this study to explore and predict users' behaviour toward information technology. The TAM has been widely used to explain how individuals accept technology and is based on four primary concepts: perceived ease of use, perceived usefulness, attitude towards using, and behavioural intentions. Davis first proposed the model in 1986, which various researchers have modified and refined. Perceived ease of use and perceived usefulness refer to the degree to which people believe that utilising a specific system will save them physical and mental effort and enhance their job performance, respectively. In this study, perceived usefulness and perceived ease of use were examined for e-learning opportunities to improve learning outcomes. The TAM is essential for assessing technology acceptance (Adarkwa, 2018).

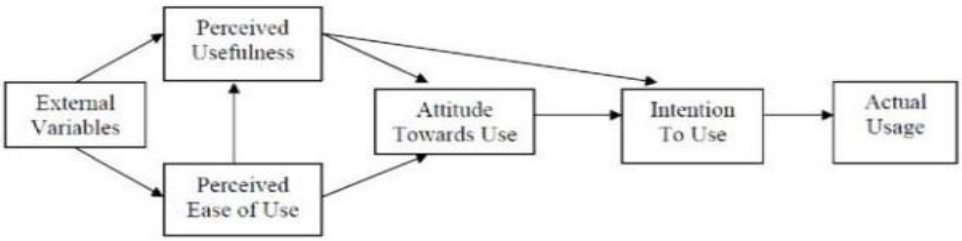

Figure 1: Technology Acceptance Model (Source: Adopted from Park, (2009)

2.2. Enhancing Teaching and Learning Through the Effective Integration of ICT

The integration of ICT as a teaching tool in classrooms has been shown to enhance cognitive knowledge and promote effective learning in schools (Yermekkyzy, 2022). To achieve this, it is essential for teachers to understand ICT and incorporate it into their teaching methods. This approach can help stimulate and improve student abilities, promote better learning outcomes, and cultivate lifelong learning skills (Prasad et al., 2021). Although Prempeh (2020) discovered in their study that students and teachers prefer using ICT for general studies and entertainment purposes such as streaming videos, watching movies, and playing games, Moyo (2019) asserted that the primary motivation for incorporating ICT in education is to enhance the quality of teaching and learning beyond the traditional methods. Moyo's position has been affirmed by Prempeh (2020), who found that integrating ICT in second-cycle institutions increases accessibility, efficiency, and overall quality of education.

Incorporating ICT into the traditional teaching and learning approach involves using various modes of instruction while maintaining the same learning objectives (De Koster et al., 2017). De Koster et al suggest that teachers can now use a projector and PowerPoint application instead of writing on the board, utilising technology effectively without compromising the learning outcomes (Wilson, 2020). According to Awang et al. (2019), secondary schools need an ICT plan aligned with their vision to achieve full integration of ICT in education.

However, Gülen (2019) claims that an ICT plan demands quality and reliability in numerous areas. First, the ICT system's hardware and software must be high-quality for reliable functioning. This includes ensuring that servers and network equipment are high-quality and can handle the organisation's workload. Second, ICT plan implementers must be qualified, and system trained. IT professionals and end-users will utilise the system daily. Ensuring everyone has the right skills and knowledge will help the system run smoothly. The ICT plan must match

the company's business strategy and goals. The ICT system should support fundamental business processes and help the corporation achieve its goals. The ICT system must understand the organisation's demands before establishing and implementing the ICT plan. Fourth, the ICT system must scale and adapt to business needs. The ICT system should expand with the company. Monitoring and maintenance are needed to keep the system running smoothly.

Finally, a solid ICT support system is necessary to resolve concerns. This comprises a quick-response help desk or support crew. Sabiri (2020) suggests categorising ICT integration in education into three areas: ICT as a learning resource, ICT for lesson preparation, and ICT for teaching, as each school's approach may differ. Incorporating ICT into teaching effectively requires ICT proficiency that considers appropriate hardware and software and the ability to manage various computer programmes for different purposes (Gil-Flores et al., 2017). Turugare et al. (2020) propose that teachers can use projectors to present lessons, leading to efficient and effective interaction with students and promoting the successful integration of ICT into teaching and learning.

2.3. Empirical Framework

2.3.1. Effect of Incorporating ICT on the Teaching and Learning Process

The integration of ICT into education has been widely regarded as a transformative force in the teaching and learning process. Numerous studies highlight the positive impact of ICT on enhancing pedagogical strategies, student engagement, and overall educational outcomes. Anderson and Dexter (2005) state that ICT tools, such as interactive multimedia, simulations, and online resources, offer diverse modalities for delivering instructional content. These modalities cater to various learning styles, providing students with a more personalised and interactive learning experience. Furthermore, Hattie et al. (2017) emphasises the role of feedback in effective teaching, and ICT facilitates timely and constructive feedback mechanisms. Incorporating learning management systems and online assessment tools allows educators to track individual student progress, identify learning gaps, and tailor interventions accordingly. This supports a formative assessment approach and fosters a dynamic and responsive teaching environment.

2.3.2. Perceived Effects of ICT Utilisation in Teaching and Learning by Educators of Both Genders

Research on educators' perceptions, irrespective of gender, towards using ICT in teaching and learning reveals a generally positive outlook. Ertmer et al. (2012) note that educators recognise ICT to enhance pedagogical practices, making lessons more engaging and relevant. Integrating multimedia resources and interactive platforms caters to diverse learning styles and promotes inclusivity in the classroom. Additionally, Ghavifekr et al. (2017) argue that both male and female educators acknowledge the role of ICT in developing students' 21st-century skills, including critical thinking and digital literacy. The perceived benefits of ICT utilisation extend beyond the immediate classroom setting, as educators recognise the importance of preparing students for the technologically driven future.

2.3.3. Differences in the Utilisation of ICT in Teaching and Learning Among Educators in Secondary Schools

While the overall perception of ICT is positive, variances in its utilisation among educators in secondary schools are evident. Research by Chigona and Chigona (2010) indicates that differences in technological proficiency, access to resources, and institutional support contribute to divergent practices. Educators in well-resourced schools might have greater access to ICT tools and training, leading to more extensive integration into their teaching practices. Moreover, a study by Selwyn (2011) suggests that variations in subject disciplines also affect the extent of ICT integration. For instance, science and mathematics teachers may use simulations and modelling tools more extensively than those in humanities, reflecting subject-specific pedagogical preferences.

2.3.4. Teachers' Views on the Usage of ICT in Teaching and Learning Across Different School Categories

Teachers' perspectives on using ICT in teaching and learning vary across different categories of schools, namely public, private, and religious institutions. According to Anderson (2017), educators in private schools may express

more favourable views due to better access to technology resources and professional development opportunities. Conversely, teachers in public schools may need help with infrastructure limitations and insufficient training. Furthermore, a study by Quayson and Halm (2020) reveals that teachers in religious schools may integrate ICT tools to align with specific educational values or religious teachings. This emphasises the contextual nature of ICT utilisation, with educators adapting their practices based on the mission and vision of the educational institution. In conclusion, exploring the literature on the influence of ICT integration in teaching and learning among Ghanaian Senior High School teachers reveals a complex interplay of factors that shape perceptions, practices, and variations in the educational landscape. The positive impact of ICT is evident, but challenges (Asad et al., 2021) and discrepancies highlight the need for targeted support and equitable access across different school contexts.

3. Materials and Methods

3.1. Research Design

The data for this study were collected from 90 mathematics teachers of grades 10 to 12 in Greater Accra Region using an explanatory sequential mixed methods design (Hollstein, 2014). The design was chosen for complementarity and triangulation; the qualitative method brought meaning and interpretation to the statistical results given by the quantitative method. A survey questionnaire was used to gather quantitative information and conducted semi-structured interviews to gain qualitative insights. The collected quantitative data were analysed using both descriptive and inferential statistics and the qualitative data thematically.

The study examined the effect of ICT integration on teaching and learning processes and differences (if any) in perceptions between male and female teachers regarding ICT integration and among teachers from the three categories of senior high schools. The qualitative data were analysed thematically to identify challenges faced during integration, and the significance of ICT integration. The chosen research design for this study was non-experimental, as it aimed to report the current situation regarding the integration of ICT in senior high schools within the Greater Accra Region of Ghana without manipulating the existing teaching and learning environment. This design was deemed appropriate by the researchers based on the work of Cohen et al. (2000) and Topping (2023), who highlight the advantages of non-experimental designs in providing a snapshot of a particular phenomenon.

3.2. Population of the Study

The study targeted senior high school teachers in the Greater Accra region of Ghana, as the aim was to gain insight into the phenomenon from the perspectives of the various SHS's systemic categorisation by the Ghana Education Service (GES, 2022). Most teachers (n = 74, 82.2%) were male, while only 16 (17.8%) were female. Table 1 presents a comprehensive overview of the demographic information of the participants involved in the study. The sample included 50 (55.5%) teachers from Category A schools, 24 (26.7%) from Category B schools, and 16 (17.8%) from Category C schools. The age range of the teachers varied, with 12.2% for 20–30 years, 54.4% aged between 30 and 40 years, 24.4% for 40–50 years, and only 8.9% within the age range of 50–60 years. Regarding subjects taught, 53.3% of the teachers taught General Science courses, 18.9% taught ICT, and Agriculture, General Arts, Business, and Technical skills were taught by 8.9, 8.9, 3.3, and 4.4 percent, respectively, while only 2.2% taught Home Economics.

Table 1: A comprehensive overview of the demographic information of the participants in the Senior High Level

Demographic Variable	**Categories**	**Frequency**	**Percentage (%)**
Gender	Male	74	82.2
	Female	16	17.8
Category of School	Category A	50	55.5
	Category B	24	26.7
	Category C	16	17.8

3.3. Sample Size and Sampling Technique

In this study, a multi-stage sampling technique was used to gather data. Initially, a stratified random sampling approach was implemented to select two senior high schools, each from urban, semi-urban, and rural areas in the Greater Accra Region. Secondly, a convenience sampling technique was used to select the participating teachers from the selected schools. According to Babbie (2017), convenient sampling entails selecting individuals who are easy to come by and readily available to the researcher.

The schools selected were readily available within the study's region. Finally, twenty teachers with more than five years of experience in teaching were purposefully selected from each participating school, allowing them to make informed decisions about the items on the questionnaire. In total, 90 teachers participated in the study.

3.4. Instrument

The research team adopted a self-report questionnaire and designed the interview guide based on teachers' responses to the questionnaire to collect data from teachers from six selected senior high schools. The questionnaire consists of two sections (Sections A and B) intended to gather respondents' demographics and opinions on the phenomenon under investigation. A five-point Likert scale, which included options ranging from strongly agree to disagree strongly, was used to assess the participants' level of agreement with the statements on the questionnaire. The questionnaire items were internally consistent, with a high reliability estimate of Cronbach alpha ranging from 0.78 to 0.88. The Likert scale of 1-5 was utilised in the structured questions to determine the degree of agreement with the items.

3.5. Data Analysis

The analysis of the quantitative data in this study involved a two-step process. The initial step involved using descriptive statistics, such as frequencies, percentages, means, and standard deviation, to examine the participants' personal data and background information. The second step focused on applying inferential statistics, such as independent sample t-tests and a one-way between-groups ANOVA.

4. Results

4.1. Research Question One: How do teachers perceive the impact of incorporating ICT into the teaching and learning process in Ghanaian senior high schools?

The effects of incorporating ICT into the instruction in senior high schools were examined in this study, and the findings are presented in Table 2. The minimum and maximum scores, on the other hand, were 32.5 and 97.5, respectively. Table 2 presents the mean and standard deviation of teachers' perceptions of the impact of incorporating ICT into teaching and learning.

Table 2: Mean and Standard deviation on the Teachers Perceptions of the Impact of Incorporating ICT into Teaching and Learning

Variable	Mean	SD	Min	Max.	Skewness	Kurtosis	Alpha
ICT Integration for Teachers	76.00	13.15	32.50	97.50	-1.17	2.48	.78

This suggests that the mean score is closer to the highest score, indicating it is negatively skewed. This means that most teachers highly perceive the impact of integrating technology into teaching and learning exercises. The perceived effect of integrating ICT into teaching and learning, as perceived by teachers, is buttressed by an average

score of 76%. Thus, integrating ICT positively impacts teaching and learning, according to the teachers' perceptions.

4.2. Research Question Two: What is the perceived influence of ICT incorporation on teaching and learning among male and female teachers in Ghanaian senior high schools?

Table 3 illustrates the outcomes of comparing ICT usage among the genders of educators about teaching and learning. The data indicates a substantial statistical difference in the mean scores of male and female educators concerning their perceived influence of ICT incorporation on the teaching and learning process [t (73.94) = -2.69, $p < .05$].

Table 3: The ICT Incorporation in Teaching and Learning among Male and Female Teachers

	Independent Samples t-test			Comparing male and female		
Gender	N	M	SD	df	t	P
Male	74	75.03	14.18	73.94	-2.69	.009
Female	16	80.47	4.67			

The study found that female teachers perceived ICT integration to impact teaching and learning than their male counterparts significantly. Specifically, the mean rating of the perceived effect of ICT integration on learning and teaching was higher for female teachers (M = 80.47, SD = 4.67) than for male teachers (M = 75.03, SD =14.18), indicating a statistically significant difference [t (73.94) = -2.69, $p < .05$]. The results suggest that, on average, female teachers rated the impact of ICT integration on teaching and learning at 80.47%, while male teachers rated it at 75.03%.

4.3. Research Question Three: What are the differences in the use of ICT in teaching and learning among educators from various school categories (Category A, B, and C)?

A one-way ANOVA was conducted to investigate the differences in the adoption of ICT among teachers from different categories of schools, and the results are presented in Table 4. According to the results presented in Table 4, no significant difference was observed between teachers from categories A, B, and C schools in terms of their utilisation of ICT in teaching and learning.

Table 4: One-way ANOVA test comparing teachers in the three categories of schools on ICT integration

Categories of Schools	N	M	SD	df	F	p
Category A	50	76.40	10.51	3.86	1.01	.39
Category B	24	73.85	16.42			
Category C	16	73.89	18.88			

The analysis of variance using a one-way between-groups design was carried out to determine if there were any significant differences in the impact of ICT integration on teaching and learning among educators from the three categories of schools. The results in Table 5 indicate that no statistically significant differences were found [F (3, 86) = 1.008, $p = .393$]. Therefore, there are no significant disparities in the perception of the impact of ICT integration on teaching and learning across the three categories of schools.

4.4. Research Question Four: What are teachers' views on using ICT in teaching and learning across different school categories?

This question aims to explore and compare the perceptions and attitudes of teachers towards the use of Information and Communication Technology (ICT) in their teaching practices. Specifically, it seeks to understand the perceived benefits, challenges and barriers, usage patterns, support and resources, and their views on the overall impact of ICT on student engagement and learning outcomes across different school categories. This is meant to provide

meaning and understanding to the statistical results generated by the quantitative method, and to triangulate the findings. Interviews were conducted involving six (6) teachers (two from each of the categories of schools). This is because interviews allow for multiple sensory channels, including spoken, non-spoken, auditory, and visual; interviews are a versatile technique for gathering data (Cohen et al., 2005). Guest et al. (2006) found that basic elements of metathemes emerged as early as six interviews, which influenced the choice of conducting six interviews in this study. A semi-structured format was employed to make sure the interview was controlled but still allowed for some spontaneity. The interview guides gathered more detailed information through a more flexible, in-depth dialogue with teachers. The interview also allowed the teacher to express their views regarding how ICT integration enables or hinders their teaching activities. The 90 teachers were arranged in ascending order using their means on the self-report questionnaire. The first 10 teachers at the top and the first 10 at the bottom of the table were shortlisted. Similarly, 10 teachers from the middle of the continuum (i.e., 41st to 50th positions) were likewise shortlisted. The 30 shortlisted teachers cut across all three categories of schools. Volunteers for the interviews were solicited from the shortlisted teachers from all three categories of schools. Out of the four teachers who volunteered for category A, only two were selected—one male and one female. The same approach was used to shortlist interviewees for categories B and C. This was to maintain gender balance among the participants. Common themes were used to analyse the data gathered in response to the question.

The interview data revealed different benefits from the perspective of teachers for integrating ICT into teaching and learning practices. Some of the teachers' opinions are presented as excerpts. The researchers coded the interviewees, starting from the low-achieving schools. For the coding, TrC_1 means "teacher from Category C school 1", TrC_2 means "teacher from Category C school 2". TrB_1 means "teacher from Category B school 1", TrB_2 means "teacher from Category B school 2". TrA_1 means "teacher from Category A school 1", TrA_2 means "teacher from Category A school 2".

The interview responses reveal several key themes related to the integration of ICT into teaching and learning in Ghanaian senior high schools. Three themes, in all, were highlighted: benefits of ICT integration, challenges of ICT integration, and resource disparities.

4.5. Benefits of ICT Integration

All six teachers from the three categories of schools attest to the fact that the integration of ICT promotes learning. Although their expressions may differ, the opinions all converge at the same point. For example, TrC_1 indicated that:

> *Sir, it enhances student engagement. ICT can make learning more interactive and engaging. Students can use digital tools to collaborate, research, and create content, which can improve their motivation to learn. My students claim it helps them understand the content better.*

In this expression, engagement, collaboration, and motivation on the part of the students were emphasised. The teacher from Category C School 2, TrC_2, expressed a similar sentiment:

> *"It enables personalized learning: With ICT, teachers can provide differentiated instruction to cater to individual learning styles and abilities. For instance, they can use educational software and online resources to tailor learning activities and assessments."*

Similarly, TrC_2, highlights the benefit of incorporating ICT in teaching and learning activities by focusing on the advantages of ICT to teachers while preparing their lessons and assessments. The fact that it helps teachers provide differentiated instruction that promotes learning aligns with the views of TrC_1.

Furthermore, TrB_1 considered the general benefit of incorporating ICT for both the teachers and the students by emphasising up-to-date access to data and information. That is:

> *"It facilitates access to information. The internet and other digital resources provide a wealth of information that can be used to support teaching and learning. With ICT, students can access up-to-date and diverse information from various sources."*

Moreover, TrB_2 indicated that ICT is beneficial as it provides an avenue for acquiring skills that can lead to the development of digital entrepreneurs.

> *It helps to develop digital literacy. ICT integration can help students develop digital literacy skills such as searching for and evaluating online information, creating digital content, and using digital tools for communication and collaboration.*

The opinion expressed by TrB_2 goes beyond the immediate usage of ICT in classroom activities. The teacher sees ICT as a tool for providing life-long learning opportunities for the students.
Similarly, TrA_1 approached the benefits of the incorporation of ICT as providing students with critical thinking and problem-solving skills. This position echoed TrB_2's stance:

> *It promotes critical thinking. ICT can foster critical thinking and problem-solving skills. For instance, students can use digital tools to analyse data, conduct research, and create multimedia presentations.*

Finally, TrA_2 is of the opinion that integrating ICT into classroom activities has the potential to transform the entire educational system for the better. TrA_2 argues that "*ICT incorporation helps teachers teach without stress, and learners also learn without tears. It is the magic box of the 21st century*."

In summary, integrating ICT in teaching and learning in high school has the potential to improve student engagement, enable personalised learning, provide easy access to information, foster digital literacy skills, and encourage critical thinking. The opinions of the teachers regarding the incorporation of ICT into classroom activities are similar, irrespective of whether the teacher is in Category A, B, or C school.

4.6. Challenges of ICT Integration

Integrating ICT in teaching and learning can benefit high school students and teachers. However, it can also present some challenges. There are numerous challenges mentioned by the teachers. Common challenges include limited access to technology, outdated equipment, technical issues, insufficient training, resistance to change among teachers, student distraction, and concerns about privacy and security.

4.7. Resource Disparities

Differences in resources and support available to teachers in different school categories (low-achieving, medium-achieving, and high-achieving) were noted, affecting the extent and effectiveness of ICT integration. Schools in the same category highlighted similar challenges, as observed. For example, in low-achieving category schools, TrC_1 bemoaned the inadequacy or scarcity of some of the modern technological tools. According to TrC_1:

> *We have limited access to technology. Some high schools may need more adequate access to technology or may have outdated equipment. This can limit teachers' ability to incorporate ICT into their lessons effectively. The cost of using ICT in Ghana is very high and unaffordable for most schools.*

Similarly, the teacher in the second low-achieving category school, TrC_1, expressed frustration at the malfunctioning of the technological tools that are available in their school. The excerpt from TrC_1 highlights pain and agony:

> *We have technological issues. Technical issues such as connectivity problems, software glitches, and hardware malfunctions can disrupt lessons and create frustration for teachers and students. I am in a rural area, and the connectivity could be better. This affects internet use in the classroom, and it is very frustrating. I sometimes climb trees or put my phone on a long pole to enable me to have connectivity for my ICT integration in the classroom.*

In addition, medium achieving schools' problems are alike. In one situation, lack of training was the issue, while in another situation, it was the resistance of the teachers to adapt to the new demands and approach to teaching. The excerpts are presented accordingly:

TrB_1 indicated:

> *There needs to be more training. Many high school teachers may still need to receive adequate training on effectively integrating ICT into their teaching practice. This can lead to a lack of confidence and skills to use technology effectively in the classroom.*

TrB_2 claimed:

> *Some of us are afraid to change. Some teachers may resist change and hesitate to incorporate new technology into their teaching practice. This can be due to a lack of familiarity with technology, a preference for traditional teaching methods, or concerns about the potential disruption to their teaching routine.*

The high-achieving schools have their challenges as well. Although they have the necessary technological tools and resources, they are either faced with classroom management, ethical, or privacy issues. One of the teachers (TrA_1) lamented:

> *…we experience student distraction. The use of ICT in the classroom can also lead to student distraction and a lack of focus on the lesson content. Teachers need to be mindful of this and ensure that technology is used to support learning and engagement. I have observed that when I use it virtually, students join the class and leave at will. This is worrying because I see that some of the students pretend to be online, but they are not present.*

The second teacher, TrA_2, expressed worries over the safety of the students:

> *… privacy and security are my concerns. The use of technology in the classroom raises issues around privacy and security, such as the protection of student data and the risk of cyberbullying. Some people engage in online activities that involve stealing other people's data. I always advise my students to protect their personal information online, such as by using strong passwords, being cautious about the websites they visit and the emails they open and keeping their software and security tools up to date."*

Overall, teachers from various school categories expressed positive views on the potential of ICT to transform education, despite the challenges faced. They emphasised the need for adequate infrastructure, training, and support to maximise the benefits of ICT in education. The interview data suggest that there may be differences in the resources and support available to teachers in different schools. Thus, integrating ICT in teaching and learning in high schools can bring significant benefits. However, teachers, head teachers, and other stakeholders need to be aware of the challenges involved and take steps to address them effectively. This may include providing training and support, ensuring access to adequate technology, and adopting a mindful approach to using technology in the classroom.

5. Discussion

The integration of Information and Communication Technology (ICT) in senior high schools in Ghana has shown significant potential to enhance teaching and learning processes. The quantitative data from this study reveal that teachers perceive ICT integration as having a positive impact, with a mean score of 76% indicating high levels of approval. This aligns with previous research by Anderson and Dexter (2005), which highlights the diverse modalities ICT offers for delivering instructional content, catering to various learning styles, and providing a more personalised learning experience.

Gender-based differences were evident, with female teachers perceiving a greater impact of ICT on teaching and learning than their male counterparts. This finding is consistent with the work of Liu and Wang (2018), who noted

similar gender disparities in ICT integration. Addressing these differences through targeted training and support could ensure more equitable ICT adoption across genders.

Qualitative data from interviews further support these findings. Teachers emphasised the benefits of ICT in enhancing student engagement, enabling personalised learning, and providing access to up-to-date information. For instance, one teacher noted, "ICT can make learning more interactive and engaging" (TrC_1), while another highlighted that "ICT integration can help students develop digital literacy skills" (TrB_2). These insights echo the sentiments of Ertmer et al. (2012), who found that educators recognise ICT's role in enhancing pedagogical practices and developing 21st-century skills.

However, challenges such as inadequate infrastructure, limited access to technology, and insufficient training persist. Teachers from low-achieving schools particularly highlighted these issues, with one teacher lamenting, "We have limited access to technology… the cost of using ICT in Ghana is very high and unaffordable for most schools" (TrC_1). This is consistent with the findings of Oduro (2019), who noted similar barriers to ICT integration in Ghanaian schools.

In conclusion, while ICT integration holds promise for enhancing education in Ghanaian senior high schools, addressing infrastructure and training challenges is crucial for maximizing its benefits. By providing adequate resources and support, policymakers and educational stakeholders can ensure the effective integration of ICT, ultimately leading to improved educational outcomes and preparing students for the demands of the 21st century.

6. Conclusion

The integration of Information and Communication Technology (ICT) in education has been widely recognized as a transformative force, particularly in enhancing pedagogical strategies, student engagement, and overall educational outcomes. This study investigated the perceived effects of ICT integration on teaching and learning among senior high school teachers in the Greater Accra Region of Ghana. The findings reveal several key insights that contribute to our understanding of the impact of ICT in educational settings. Firstly, the study found that the majority of teachers perceive ICT integration as having a positive impact on teaching and learning. The mean score of 76% indicates that teachers highly value the role of ICT in enhancing instructional practices. This positive perception is crucial as it underscores the potential of ICT to revolutionise traditional teaching methods and foster a more interactive and engaging learning environment. Teachers' recognition of the benefits of ICT is a significant step towards its successful implementation in schools. Secondly, the study highlighted gender-based disparities in the use of ICT for educational purposes. The study revealed a statistically significant difference in the mean rating of female teachers (80.47%) compared to their male counterparts (75.03%). This finding suggests that female teachers may be more inclined to embrace ICT tools and integrate them into their teaching practices. Understanding these gender-based differences is essential for developing targeted interventions that can support both male and female teachers in effectively utilising ICT. Thirdly, the study investigated the differences in ICT utilisation among educators from various school categories. The results indicated no significant differences in the perception of ICT integration across Category A, B, and C schools. This finding suggests that regardless of the school's category, teachers generally hold similar views on the impact of ICT on teaching and learning. However, it is important to note that while perceptions may be similar, the actual access to and availability of ICT resources can vary significantly between schools, potentially influencing the extent of ICT integration. The study also identified several challenges that hinder the effective integration of ICT in education. These challenges include inadequate infrastructure, limited access to ICT resources, and insufficient training for teachers. Addressing these challenges is crucial for maximising the benefits of ICT in education. Providing adequate infrastructure, ensuring equitable access to ICT resources, and offering comprehensive training programs for teachers can significantly enhance the successful integration of ICT in schools. In conclusion, the findings of this study underscore the positive impact of ICT integration on teaching and learning in senior high schools in the Greater Accra Region of Ghana. Teachers' perceptions of ICT as a valuable tool for enhancing instructional practices highlight the potential of technology to transform education. However, addressing the challenges related to infrastructure, access, and training is essential for realising the full benefits of ICT. By fostering a supportive environment and providing the

necessary resources, policymakers and educational stakeholders can ensure the effective integration of ICT, ultimately leading to improved educational outcomes and preparing students for the demands of the 21st century.

7. Recommendations

The government and educational institutions should invest in robust ICT infrastructure. This includes high-quality hardware and software, reliable internet connectivity, and maintenance services to ensure the smooth operation of ICT tools in schools. Continuous professional development programs should be established to equip teachers with the necessary skills and knowledge to effectively integrate ICT into their teaching practices. This training should cover both technical skills and pedagogical strategies for using ICT to enhance learning. All subjects should seamlessly integrate ICT into their curriculum. This involves developing lesson plans that incorporate ICT tools and resources, promoting interactive and engaging learning experiences for students. Educational policies should support ICT integration in schools. This includes providing adequate funding, creating supportive policies, and establishing a help desk or support team to assist teachers and students with ICT-related issues. Schools should foster a collaborative environment where teachers can share best practices and resources related to ICT integration. This can be achieved through professional learning communities, workshops, and online forums.

8. Limitations of the Study

The study has several shortcomings that may limit the findings' generalisability to other regions and educational contexts in Ghana. The study depended on self-reported data from teachers, that could be biased by social desirability. This could affect the validity of the findings. The fact that data were captured at a single point may limit its reliability. This may limit the ability to draw conclusions about the long-term impact of ICT integration on teaching and learning. The study primarily focused on teachers' perceptions of ICT integration. It did not include the perspectives of students, administrators, or other stakeholders, which could provide a more comprehensive understanding of the impact of ICT in education. Addressing these limitations in future research could provide a more holistic view of ICT integration in education and its effects on teaching and learning outcomes.

9. Implication for practice

The integration of ICT in education, particularly at the senior high school (SHS) level in Ghana, has several practical implications. Continuous professional development programmes are essential to equip teachers with the necessary skills and knowledge to effectively integrate ICT into their teaching practices. This includes training on how to use various ICT tools and platforms, as well as strategies for incorporating technology into lesson plans. Schools need to invest in reliable ICT infrastructure, including high-quality hardware and software, to support the effective use of technology in the classroom. This also involves ensuring that there is adequate technical support to maintain and troubleshoot ICT systems. Therefore, we should design the curriculum to integrate ICT in a manner that enhances learning outcomes. This includes integrating ICT into various subjects and creating opportunities for students to use technology in meaningful ways, such as through project-based learning and collaborative activities. There may be a need to adapt traditional assessment methods to accommodate the use of ICT in education. This could involve developing new assessment tools that measure students' digital literacy and their ability to use technology to solve problems and create content.

10. Suggestions for future research

There is a need to conduct longitudinal studies to track the long-term impact of ICT integration on student learning outcomes and teacher practices. This would provide valuable insights into the sustainability and effectiveness of ICT initiatives over time. It may be necessary to compare the effectiveness of ICT integration in different educational contexts, such as urban vs. rural schools or public vs. private schools. This would help identify best practices and potential challenges unique to different settings. Furthermore, investigating and understanding the gender differences in the use and perception of ICT in education can inform targeted interventions to ensure equitable access and utilisation of technology for all students. In addition, explore innovative pedagogical

approaches that leverage ICT to enhance teaching and learning. This could include research on the use of virtual reality, gamification, and other emerging technologies in the classroom. Finally, examining teachers' attitudes and beliefs about ICT integration and how they influence their teaching practices has the potential to identify factors that motivate or hinder teachers from effectively using technology in their classrooms.

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Impacts of Technological Devices Use in Children of Early Education

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Abstract
The use of technological devices, such as tablets, smartphones, and televisions, has increased significantly among preschool-aged children. This article analyzes published information on the screen time and habits of children aged 4 to 5 years, including the most commonly used technological devices by families over the past decade. Databases were searched in Latindex, ScienceDirect, Springer, Scopus, and Web of Science, covering research published between 2015 and 2025. The search criteria for publications were (a) use of technological devices in children aged 4 to 5 years, (b) educational and recreational contexts, (c) and (d) among children. Sixty studies reviewed indicate a trend that moderate and supervised use of electronic devices can promote digital and educational skills. However, excessive or uncontrolled use of educational technologies is associated with attention problems, sleep disorders, impaired social relationships, and risks to children's physical health. It concluded that the use of technological devices in children aged 4 to 5 years should be regulated and guided, encouraging activities that complement their overall development and avoiding prolonged unsupervised exposure.

Keywords: Attention Problems, Excessive Use, Overall Development, Screen Time, Technological Devices

1. Introduction

Education is considered the most valuable legacy parents can offer their children. However, when children begin to seek attention, love, care, understanding, and material gifts in return, complications arise. The lack of direct human contact can hinder a child's ability to adapt to their social environment. Therefore, the misuse of technology can be detrimental to brain plasticity, as children miss out on experiences that are crucial for their emotional, affective, rational, social, and psychological development (Cerisola, 2017). Therefore, encouraging movement, exploration, contact with nature, and interpersonal connections are essential for their overall development. Furthermore, preschoolers who frequently watch television or use a mobile phone or tablet screen are prone to pathological risks such as cognitive, language, or motor development delays (Mendieta, 2017). The risk of exposure to constantly changing images is linked to the development of executive functions, problem-solving,

poor academic performance, limited physical activity, poor nutrition, and body overweight (Aveiga et al., 2018). Therefore, every parent needs to keep in mind that, although technology is an important and functional tool, it is their responsibility to control their children's exposure. Thus, problems arise when this technology is used by children without educational reasons, causing them to lack attention and low cognitive skills development. Therefore, parents or responsible adults need to be aware of the impact of technology on child development. The idea that caregivers believe a few hours of screen time will not affect children's development is challenged, as children require time to play, learn, explore, and be creative (Calderón, 2019). However, it is necessary to recognize that the internet has revolutionized the way information is accessed on a global scale. This accessibility has made it an invaluable tool in the educational field. However, when it comes to children and their affinity for technology, experts warn of the harm caused by excessive exposure to technology. Furthermore, the ease of access to content inappropriate for children under 5 requires parental vigilance.

On this point, Fung Fallas et al. (2020) state that studies show a persistent global trend of children's overexposure to screens, which generates emotional, behavioral, and sleep disorders, and poor cognitive and physical development. This research niche addresses the limited availability of studies reviewing the specialized literature on the impact of technology on the development of children under 5 years of age.

The methodology used in this article is based on an exhaustive review of the scientific literature related to the effects of the exposure to technological devices on children aged 4 to 5 years. To this end, hermeneutics was used and a systematic selection of articles was carried out, structured in the following stages: (1) identification of publications, (2) elimination of duplicates, (3) filtering according to the 2015-2025 period, and (4) targeted selection. In the publication identification stage, the following academic databases were considered: Latindex, Scielo, ScienceDirect, Springer, Scopus, Web of Science, and PubMed, covering research published between 2015 and 2025.

The initial search criteria for publications were: (a) use of educational technology in children, (b) impacts of the use of educational technology, (c) samples under 5 years of age, (d) articles in Spanish, Portuguese, and English, (e) period 2015-2025. The review focused on studies examining the link between (1) use of electronic devices, (2) mental health, (3) cognitive development, (4) memory and attention, and (5) executive functions in children between 4 and 5 years of age.

In the elimination stage, the collected information is used to eliminate studies that were repeated in multiple databases or languages other than those specified. The screening stage consisted of an initial review of the titles and abstracts of the remaining articles. Papers addressing the use of technology and cognitive and socio-emotional development in children aged 4 to 5 years or preschoolers were grouped and reviewed in a second round to identify information that contributes to the objective of this research. In the final stage of specific selection of publications for review, controls implemented with more specific criteria to ensure their relevance to the research objective, prioritizing those that focus on screen time in different contexts (a) recreational and academic use of screens, (b) usage patterns that may influence brain development, and (c) academic performance of children who use screens. The initial database search process identified a total of 120 articles. After eliminating duplicates in the corresponding phase, a record of 60 unique articles was obtained. After applying the selection, filtering, and targeted criteria, the corpus was reduced to 30 publications, which were considered for the research.

The objective of this work is to analyze published information regarding the screen time and habits of children between 4 and 5 years of age, including the technological devices most commonly used by families in the last 10 years.

2. Development

2.1. Children's exposure to screens

The impact of excessive screen use has been linked to adverse effects on neurodevelopment and cognitive performance, particularly in children and adolescents. Thus, studies conducted by Hideya Yamamoto et al. (2018)

show that cognitive dysfunction begins when people use mobile devices for the first time, where the intensity of use is a possible factor in cognitive decline. This can affect learning, memory, and mental health, even contributing to neurodegeneration in extreme cases (Neophytou et al., 2019). Authors such as Zargaryan and Arakelyan (2019) and Arakelyan (2019) agree that the term dementia manifests itself in brain disorders, which cause long-term brain deterioration that can be irreversible and severely affect the individual's autonomy. This involves thought processes and short-term and long-term memories. On this point, Arakelyan (2019) points out that the diagnosis of digital dementia presents with symptoms similar to those of Alzheimer's.

Digital dementia is a real neurological phenomenon, a psychological condition based on the frequent and prolonged use of digital communication technologies. Malfred Spitzer (2020) attributes these phenomena to the underutilization of the brain; however, this causality has not been proven yet. On this point, Sandu and Nistor (2020) found a correlation with the virtualization of social space and a series of phenomena related to digital dementia, the relocation of interactions, and their depersonalization. Thus, the negative impact that digital devices can cause becomes more evident at an early age, where brain plasticity is greater and functional structural changes are more sensitive to external influences. For their part, Small et al. (2020) ratify that the consequences of intensive use of digital technology can alter brain function, affecting areas such as the prefrontal cortex, which is essential for emotional regulation and cognitive control in humans. The neurocognitive changes can cause academic development and social interaction in children who spend time in front of screens.

Another crucial aspect relates to the integrity of white matter in the brains of preschool-aged children. In this sense, Hutton et al. (2020) demonstrate a negative correlation between screen time and the integrity of these brain structures, which are essential for the transmission of information between different areas of the brain. Furthermore, Fung Fallas et al. (2020) argue that children's prolonged exposure to screens promotes a sedentary lifestyle and directly affects motor skills. These are situations that also affect families' quality of life. Salum and Ponce (2021) point out that the brain neuroplasticity of children under 6 years of age is affected when they misuse smartphones, because this is the period of life when the greatest number of modifications in the shape of the brain's gyri and sulci occur, which manifest in intellectual, attitudinal, and behavioral processes. Consequently, they experience low self-esteem in relation to the limited cognitive level they achieve compared to their classmates. Furthermore, this can lead to a reduction in social interaction and other opportunities that contribute to language development, therefore, this impacts the linguistic development of infants (Taco et al., 2021). For their part, Araque-Barboza et al. (2021) emphasize that the quality of sleep is directly related to human quality of life and directly influences cognitive performance. This is because the brain's prefrontal cortex has not yet fully formed. Therefore, it is necessary to generate information campaigns and promote ongoing monitoring of the use of technological devices, especially at night.

Skulmowski and Xu (2022) point out that excessive time spent on digital learning activities increases "extrinsic cognitive load," a situation that impoverishes the assimilation of new concepts due to the large amounts of visual and auditory information a student must assimilate. Furthermore, McArthur et al. (2022) add that prolonged use of screens can lead to cognitive fatigue, which translates into a decrease in motivation and performance. Students who spend more time studying on digital platforms may experience problems such as poor information retention, difficulty staying focused, and slower information processing.

Another aspect to consider is presented by Castro et al. (2022). They state that ocular exposure to blue light plays a major factor in brain activation during the day, thanks to the production of melatonin by the pineal gland, which is responsible for regulating the circadian cycle. However, when this light comes from electronic devices, melatonin secretion is significantly reduced. This phenomenon induces the brain to perceive a fictitious daytime environment, which disrupts the biological clock. Similarly, the study by García-Real and Losada-Puente (2022) recommends reducing children's exposure time before bedtime to improve sleep quality. Furthermore, Hernández and Loayza (2023) argue that minors are exposed to the use of technological devices between 3 and 5 hours a day, the opportunities for interaction with the people present in their context are reduced, such a situation can cause limitations in information processing, spatial location and oral expression. It should be remembered that it is common to find children who, from the age of 3, are more entertained on a cell phone instead of manual toys.

They remain removed from the reality in which they operate. Therefore, caregivers are required to manage the control and accompaniment of minors (Ulloa-López and Rosales, 2025).

2.2. Benefits of Technology in Educational Development

Regarding the positive effects of using technological devices, it is emphasized that technologies in education lie in their ability to transform the educational environment and adapt it to the demands of the 21st century. According to UNESCO's EDUCATION 2030 report (2016), the use of ICTs in education is essential to preparing students for an increasingly interconnected and technological world. Screens, such as television, video games, computers, internet connections, and smartphones, are essential tools for accessing information today.

The effects of screen use are varied, depending on the type of screen, the way they are used, the length of time they is used, and the specific characteristics of each child. However, it should be noted that a large proportion of children and adolescents are in contact with all of them (AAP, 2016). Thus, screens are instruments for visualizing data, games, and sounds, providing an inexhaustible source of ideas and knowledge, allowing users of all ages to interact with realities and people different from what they encounter in their current environment. Furthermore, they are a source of entertainment, and their appropriate use promotes socialization and interpersonal relationships (Chassiakos et al., 2016).

In this context, gamification applications are teaching tools that incorporate game elements to enhance students' logical thinking, memory, and attention. Thus, Espinosa and Gregorio (2018) argue that gamification offers interactive learning through the use of technological tools, becoming an excellent resource for achieving more meaningful and successful learning. Early childhood education faces increasingly complex challenges, not least of which is the need to capture and maintain children's attention in a dynamic and constantly changing educational environment. In this context, gamification is presented as an innovative and effective tool for improving teaching-learning processes, especially in the development of fundamental skills in children aged 4 to 5. The fundamental characteristics of gamification, according to Romero and Espinosa (2019), are motivation, fun, and collaboration, which make up a dynamic and participatory educational environment. Thus, motivation is demonstrated in the interest and attention paid to learning through objectives, incentives, and rewards. Fun is crucial as it is a meaningful and lasting experience. It enhances teachers' actions to effectively capture students' attention. Collaboration can be fostered through games, promoting teamwork and interaction among participants.

Therefore, it is important to note that gamification in early childhood education offers numerous advantages for both children and teachers. For children, gamification rewards work and effort, allowing each child to learn at their own pace and develop their own skills and abilities. It fosters motivation through technological tools integrated with play and fun, thus improving computer use to facilitate the achievement of the objectives set out in the educational curriculum (Jiménez et al., 2019). For teachers, gamification provides various strategies for delivering lessons in a dynamic and meaningful way, moving away from traditional methodologies, facilitating children's motivation, promoting active participation, and offering rewards that maintain their attention. It also improves interaction between teachers and students. It is an accessible and affordable tool that can be easily implemented in the classroom.

In this sense, gamification is defined as a teaching strategy that uses game elements and dynamics in non-game educational contexts. On the other hand, Valenzuela (2021) conceptualizes gamification as fun-centered learning, using play as the main driver to establish meaningful and motivating experiences. They search for their favorite cartoon without supervision from a responsible adult. However, this search must be supervised to prevent access to unwanted content. According to Rodríguez Sas and Estrada (2021), children have the right to explore solutions through trial and error and to navigate the path to adulthood in their own time. Meanwhile, adults must learn to tolerate the wait and uncertainty that comes with supporting them throughout their development. She adds that meaningful interaction between parents or caregivers and children is a fundamental stimulus that contributes to child development. Therefore, the amount of screen time children spend is associated with cognitive delays and correlates with poor performance in children under 5 years of age. It is the responsibility of social institutions and government policies to implement regulations, recommendations, and outreach and awareness programs. Authors such as Vargas-Murillo (2020) argue that the key to optimizing access to the benefits of using digital devices lies

in selecting the appropriate presentation strategy. Hassinger-Das et al. (2020) argue that understanding the content and contexts in which screen devices are used helps us better understand their impact on interaction and communication between children and adults.

Among other benefits, it has been proven that these devices enable the exercise of critical thinking and can improve the quality of the teaching-learning process. Zamora (2020) adds that another relevant aspect to consider relates to the knowledge that teachers and caregivers have regarding the use of digital tools. Villafuerte-Holguín (2022) argues that the use of video games and computer applications contributes to improving the concentration time of children who have or have not been diagnosed with Attention Deficit Hyperactivity Disorder. Finally, Escobar et al. (2024) argue that digital tools should be recognized as contributing to the development of cognitive skills and fostering equitable access to information globally.

According to Hamp et al. (2025), mothers tend to use digital media more than fathers as a socioemotional buffer to calm their children's behavior. This practice increases in large families or in families where the primary caregiver's time is limited. However, it has been found that parents who are unsure of their parenting skills tend to use digital media as a tool to distract their children.

2.3. Parents' Role in Regulating the Use of Technology Devices in Early Childhood

The American Psychological Association [AAP] (2016) strongly states that young children should not be exposed to digital devices before the age of 18 months. And between 18 and 24 months, such exposure should be monitored by caregivers. Actions to prevent overexposure include implementing rules for device management, controlling content selection, allocating a maximum of 2 hours of TV viewing per day, and ensuring the constant presence of parents. The removal of TVs from bedrooms and not using them while meals are being served should be explored. The use of age-inappropriate content blocking software should be explored, and the distance between the TV and the user should be at least 6 times the diameter of the screen (Garmendia Larrañaga et al., 2016).

Thus, Seo and Lee (2017) and Pérez (2019) argue that parental mediation, or the type of training or parenting intervention regarding children's technology use, can take different forms. The most common is restrictive, which occurs when caregivers use rules to control children's device use; for example, they decide the timing, content, and length of use.

Despite the positive effect of co-use mediation on child development, it is rarely used. Some caregivers even find it difficult to practice because they often provide children with devices when they are busy and unable to engage in activities with them (Mendieta, 2017). Therefore, it is argued that parents are a vital factor when teaching children how to use devices, considering that children would spend a lot of time self-exposed to screens in the absence of a supervisor (Bartau-Rojas et al., 2018; Nimrod et al., 2019). Furthermore, Peñafiel Rodriguez (2021) argues that games motivate children to participate in learning activities. They allow teachers to develop new teaching and learning strategies that enhance professional practice.

According to Pons et al. (2021), changes in child-rearing habits are currently observed due to work and academic reasons faced by parents. Thus, a reduction in the time allocated to child-rearing is observed; therefore, children during this time are immersed in technological life, making their development within society increasingly difficult.

In this sense, daily routines are recommended to maintain order in children's development (Romero et al., 2020). Therefore, active mediation by parents and educators is crucial to teaching children to use technology appropriately (Vanden Abeele et al., 2020).

According to Moreno Carmona et al. (2021), there are two types of recommended mediation: instructional mediation, in which the caregiver provides recommendations and suggestions on device use, in addition to helping the child identify appropriate and inappropriate content, and co-use mediation, characterized by the presence and attention of caregivers when the child uses the device.

For their part, Twenge & Farley (2021) recommend that adults supervise device use and encourage physical and social activities, as the appropriate use of educational technology can contribute to the development of useful skills without compromising mental health or cognitive development.

The second form of parental mediation is supervision; caregivers stay in the same room as the child and constantly monitor what they are doing with the device (Nimrod et al., 2019; Mata Calderón and Carmiol, 2022). Furthermore, teacher training, which includes a review of theoretical approaches, lays the foundation for achieving more meaningful learning through the development of memory that, over the years, will enable abstraction, reasoning, assimilation, and problem-solving in educational processes (Velásquez-Pérez et al., 2023). However, studies provide evidence that the use of educational technology can improve student participation, motivation, and academic performance; however, its ubiquitous nature creates distractions and decreases users' ability to concentrate, which impacts academic performance (Clemente-Suárez et al., 2024). Other effects of uncontrolled digital device use are linked to physical health, cognitive abilities, and language development. Therefore, it is emphasized that parental involvement and the quality of parent-child interactions can mitigate the impact of digital devices on children's cognitive and psychological development (Fumagalli et al., 2024).

Socioemotional skills significantly influence children's interpersonal relationships and social adaptation (Alwaely et al., 2020). According to Castro et al. (2022), studies have not been able to determine the cause of the increase in myopia in children due to the existence of multiple factors. However, it is recommended to avoid prolonged exposure to screens because it can cause this and other health impacts.

This is confirmed by Fung Fallas et al. (2020) when they state that the omnipresence of ICTs has made them commonly used tools for communication. It is expected that parents, aunts, uncles, and cousins will show their children photographs of themselves using their cell phones. They suggest that technological devices can be used to deal with emergencies. Children should be prevented from being contacted by strangers to avoid grooming, cyberbullying, sexting and sextortion, unwanted online purchases, and access to websites with inappropriate content. Device usage schedules should be encouraged, access to applications inappropriate for minors should be controlled, and geolocation should be enabled on devices to track the child's location.

According to the WHO, screen time for children under 4 years of age should be limited to 1 hour per day and under the supervision of a caregiver. For children between 5 and 12 years of age, no exact limits on screen time have been established. However, the need to engage in activities that keep them away from a sedentary lifestyle and ensure adequate sleep is ensured is emphasized (World Health Organization, 2019). Jiménez-Morales et al. (2020) suggest that the educational and professional level of mothers and fathers is a factor that favors a better understanding of the use of smart screens, which foster critical thinking and digital media literacy.

Changes in the labor market and technological advancement have changed child-rearing styles, with the latter falling heavily on grandparents. The risks of this order may be higher in rural contexts where children are often abandoned for hours. Thus, Shi et al. (2025) present four digital parenting and grandparental parenting styles among caregivers of abandoned and non-abandoned infants: (1) restrictive mediation, (2) permissive mediation, (3) guidance, and (4) supervision. It is striking that the results show that the supervisory style decreases the likelihood that abandoned infants will experience cognitive delays, while the permissive digital parenting style increases it (Shi et al., 2025).

For their part, Ruijia et al. (2025) found that the impact of ICTs has shown positive results in the development of language, subject knowledge, and students' cognitive skills.

According to Adam et al. (2025), interactive learning media based on digital technology significantly enhance cognitive development in primary school students. They assert that success factors for maximizing educational impact are teacher training and infrastructure support.

3. Conclusions

Based on the results of this review, the authors of this study indicate that there are numerous articles confirming the existence of a high prevalence of excessive screen time in children and adolescents, which can lead to irreversible impacts on physical and emotional health, including emotional syndromes, sleep disorders, and behavioral disorders, which affect children's cognitive development. Therefore, health professionals and teachers should disseminate knowledge about children's screen use and exposure time to improve their quality of life.

Consistent with the position of Fung Fallas et al. (2020), who stated that children's overexposure to screens can affect their mental and physical health in the medium term, the authors emphasize the need to implement awareness-raising actions for the population. They add that this encourages sedentary behavior, as well as instructing parents and caregivers to act as role models, creating an environment that promotes and models physical activity.

Promoting healthy habits should be a central objective in prevention strategies, integrating approaches that include both education about the negative effects of technology and the encouragement of alternative activities that promote physical and emotional well-being. These interventions must be adapted to the cultural and family realities of each community, taking into account the specific values and contexts that affect children and young people's behavior regarding the use of electronic devices. Regarding public education and health policies, these should include the implementation of regulations that regulate screen time in school and family settings, offering spaces for digital health and wellness education that allow students to learn to manage their time in a balanced way.

In line with the statements by Rodriguez Sas and Estrada (2021), the authors emphasize that educational programs should place greater emphasis on the importance of activities and sports to improve children's health. Only through a comprehensive approach that balances technology with healthy practices will we contribute to a more balanced and sustainable lifestyle for future generations. On this point, the authors agree with the position of Velásquez-Pérez et al. (2023) that professional educators must consider the contextual and personal needs of their students and implement timely and consistent learning strategies. Thus, teachers need to guide families regarding the impact of children's overexposure to screens.

This work found that factors such as age, gender, and socioeconomic status affect the use of digital devices on cognitive development (Clemente-Suárez et al., 2024). Studies consider the variables of parental education, marital status, employment, and child behavioral variables such as emotional activity and urgency. Research on human-computer interaction identified individual predictors of smartphone use habits, personality, attachment style, and executive functioning. In this sense, the position of Taco et al. (2021) is ratified when they state that the overexposure of minors to digital devices impacts the components that make up language, such as the formulation of sentences and use of grammatical rules, the articulation of phonemes, limited vocabulary, and reduced social and communication skills. Therefore, it is suggested that corrective interventions involve parents in children's language practices from their family and surrounding environments.

In line with the experience of Franz-Torres et al. (2023), a limitation of this systematic review is the selection of keywords used in the search for publications. In conclusion, the review conducted provides insight into the landscape of screen use of children under 5 years of age and opportunities to understand the different methodological approaches in the review of the studies considered. The authors propose a line of research for future studies focusing on Anxiety and children's exposure to screens.

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Pragmatic Features of Appositions in English

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Abstract
The article discusses the pragmatic features of appositions in English. This article analyzes the pragmatic features of apposition constructions, examines how they are used in various communicative situations, and how they affect the informational relationship between the listener and the speaker. The article also notes that appositions are used for various purposes. Appositions can also be used to emphasize a word, to bring it to a clearer focus. Appositions are considered to be a type of definition in modern English.

Keywords: Appositions, Pragmatics, Speech, Definition, Syntactic Units, Context

1. Introduction

In modern linguistics, the study of syntactic units not only from a structural perspective, but also from a functional and pragmatic perspective is of particular relevance. In this regard, appositions do not only provide explanatory information within a sentence, but also have pragmatic properties such as regulating the flow of information in a speech act, directing attention, and specifying the topic. The pragmatic processing of appositions varies depending on the speaker's intention, context, and purpose of communication. Through these structures, the speaker gains the opportunity to emphasize certain information, make a tacit assessment, or refer to previously known knowledge about the topic. The pragmatics of appositions in English mainly covers how and for what purpose we present additional information in speech and writing. This article analyzes the pragmatic properties of apposition constructions, examines how they are used in various communicative situations, and how they affect information relations between the listener and the speaker.

2. Discussion and results.

Appositions are a grammatical tool that allows us to express a sentence more clearly and more emphatic. When writing sentences or any text, care should be taken to make them clearer, readable, and informative so that everyone can understand them more clearly. (Modern Azerbaijani Language, 1981).

For example: *Newton made his three great discoveries – the discoveries of the branches of Mathematics, the nature of white light and the law of gravitation. The combination of the discoveries of the branches of Mathematics, the nature of white light and the law of gravitation* used in this example is an apposition to the word discoveries, and

by using this apposition, we provide the reader with more detailed information about Newton's discoveries. The fact that these appositions and apposition combinations express clearer and more emphatic information in sentences helps the reader understand the essence of the sentences. An apposition is a noun or a noun combination that clarifies, explains, describes, or, in other words, gives it a new name.

For example: In the sentence *"My son Samir is a student*.", the word *Samir* is an apposition expressed by a noun. This suffix determines that the last word is *Samir,* and both words, that is, both the last and the word *Samir*, express the same person. Substitutions are used so that a word expressed by a certain noun or pronoun can be replaced either by an easier word or by another word with the same meaning.

For example: *Jane got a job as a secretary for Lowis, a Kenyan scientist, who appreciated her careful way of working and her interest in animals.* Substitutions are used for various purposes. Substitutions can also be used to emphasize a word and bring it to clearer attention. By repeating the noun given at the beginning of the sentence or a certain part of the sentence, we emphasize that we think something is important.

For example: The sun, the clear bright sun, was rising in the morning behind the mountains. In the given example, if we do not use the suffix, that is, the word the clear bright sun, the meaning of the sentence will not be affected. However, when we use the suffix, the meaning of the sentence becomes more noticeable and it is indicated that the clear, bright sun is rising behind the mountains. This further increases the impact of the sentence.

Appositions have the properties of the member to which they belong and carry their character. In other words, appositions are an additional subject next to the subject, an additional completeness next to the complement, and an additional adverb next to the adverb. That is why appositions cannot occupy a special place among the members of the sentence. There is no general idea about appositions in modern English. Thus, some linguists consider additions to be a type of definition, while others consider them to be a separate, independent member of the sentence. O. Musayev gives the following definition of appositions in English: "*A word or word combination that provides additional information about this or that member in a sentence, explaining it, is called an addition."* (Musayev O,1996). O. Musayev is one of those linguists who also considers appositions to be a separate member of the sentence. He notes that appositions differ from appositions in some of their characteristics. "The main one is that while an addition is expressed by any main part of speech existing in the language, an apposition is almost always expressed by a noun, provides additional information about the noun to which it belongs, clarifies it." (Musayev O,1996).

For example: *Isaac Newton, one of the greatest scientists of all times, was born in 1642 in England.* In this example, the word one of the greatest scientists of all times is an apposition to the word Isaac Newton. Because that apposition provides additional information about Isaac Newton, explains him. O. Musayev shows that another feature that distinguishes appositions, especially free appositions, from determinations is their separation by a comma. M.A. Ganshina, considering appositions as a special type of determination, notes that appositions are expressed by a noun, and sometimes by a pronoun, since they denote the same person or thing as the word they determine. M.A. Ganshina shows that there are two types of appositions. (Ganshina M.A, 1964) 1) a detached (loose) appositions 2) non-free appositions (close appositions) T.A. Barabaş considers appositions to be a type of determination in modern English. He emphasizes that appositions are words expressed by a noun that indicate the group, class, or object to which the noun it belongs belongs. These appositions can be titles, military ranks, arts, professions, kinship ties, names, geographical names, etc. Appositions can be used both before and after the words they define. (Barabash, T.A. 1975) E.M. Gordon and L.P. Krylova divide the adverb itself into two groups: close and loose. They show that words used as appositions define the noun, and sometimes the pronoun, and give them certain characteristics. (Gordon E.M., Krylova, 1974).

For example, let's pay attention to the examples: *Once the bright days of summer pass by, a city takes on that sombre garb of grey. I saw the girl out of the window, dancing in the yard.*

According to these authors, the appositions *bright and sombre* in the first sentence are considered close, and the apposition *dancing in the yard* in the second sentence is considered loose, that is, free appositions. The apposition

in the first sentence is considered to be non-free because it is used next to the words it defines. In the second sentence, *dancing in the yard*, loose, that is, free apposition, is considered to be a free apposition, because it is located at a certain distance from the word it defines.

These authors note that appositions are expressed by nouns, and these appositions specify the meaning of the noun by providing additional information. In this example, no information is given about the types of appositions, and the authors consider only free appositions as appositions. In our opinion, this way of posing the issue is incorrect. Because free and non-free additions are in opposition to each other. Therefore, it may be more important to study both types of appositions together, in a comparative manner. On the one hand, appositions are used next to the word they belong to and come closer to it, and on the other hand, they are used at a certain distance from the words they belong to, and move away from them, especially. B.L. Kaushanskaya and others consider appositions as a type of definition, while B. Ilyish considers them as separate members of the sentence. Taking all this into account, the following definition of appositions can be given. "*A word, phrase, or sentence that provides additional information about or explains this or that sentence member is called an apposition."(* B.Ilyish, 1971).

For the first time, Nargiz Nazim gizi Muradova conducted research on the topic of appositions in Azerbaijani English studies. She approached this topic from the perspective of pragmatic-cognitive linguistics, which is relevant in modern times. In her research work, she determines the place of appositions in the system of secondary sentence members and at the same time notes the linguistic and extralinguistic factors that affect their processing. In a sentence, appositions are used in the same function as the member to which they belong. This means that if an apposition is used next to a predicate, it is used as an apposition to the predicate, if it is used next to a complement, it is used as an apposition to the complement, etc. *"Therefore, an apposition cannot show itself as a special sentence member and is not included in the list of sentence members as a sixth sentence member."* (Modern Azerbaijani Language, 1981).

If we separate the apposition from the sentence member on which it depends, then both the apposition and the sentence member cannot express their previous meaning. The meaning completeness, meaning breadth and scope of the sentence decrease. Appositions are used to explain and clarify the sentence member that precedes them. From this we can conclude that there must be a sentence member that needs to be explained and clarified before the apposition. This is evidence that the apposition is dependent on some sentence member. That is why we can say that appositions are not independent sentence members. Appositions depend on some sentence member both in terms of their meaning and the place where they are used in the sentence; appositions are sometimes used in the sentence next to the subject, sometimes the complement, sometimes the apposition, etc. and explain them. N. Muradova shows in her research on apposition that the place of appositions in the language system is also controversial. It is true that some linguists consider appositions to be a special type of definition, while others consider them to be a separate sentence member, but there are also contradictory points between these opinions.

N. Muradova gives such an example as "*I was sick once – typhoid*." She notes that in no case can the word *typhoid* be considered a type of definition at the same time as an apposition. (Muradova N.N, 2015). We also agree with this idea that in this sentence the word typhoid cannot be considered both apposition and a type of apposition.

These ideas coincide with the ideas of B.A. Ilyish, because B.A. Ilyish also considers such appositions not as a type of appositions, but as a separate sentence member, and therefore such words should be studied as a separate sentence member. If appositions are considered secondary members, then the number of sentence members should be six, not five. (B.Ilysh) However, the analysis also shows that B.A. Ilyish and O. Musayev have very few supporters on this issue.

There are certain allomorphic features between appositions and attributes. Thus, it is possible to express the same idea both through appositions and attributes. Therefore, in both Russian and English linguistics, appositions are studied as a type of attributes, but in Azerbaijani there are certain differences between appositions and attributes. *"Being a subgroup of attributes, they are syntactic units with wider syntactic possibilities. Because the means of expression of appositions are very diverse. An apposition can be expressed with a word, a word combination, or*

a separate sentence." (Muradova.N.N, 2015).

There is also a certain closeness between an apposition and attributes. It is possible to express the same idea with the help of both an appositions and attributes. Therefore, in Russian linguistics, an apposition is explained as a type of attributes. However, even if we take into account that appositions and attributes are close in meaning in Azerbaijani, we see that there are serious differences between them. [14] The following differences can be seen between appositions and attributes used in modern English.

1) In English, an apposition can be used both before and after the word it defines. For example: *a dancing girl and the girl dancing in the hall.*

In the first combination, *dancing* is used as an attribute, before the word it defines (pre-position), and in the second combination, the word dancing is used after the word it defines (post-position). Appositions are usually used after the word they belong to.

2) In English, there is little, almost no pause between the attribute and the word it defines, but there is a pause between the apposition and the word it belongs to, especially between free appositions. That is why punctuation marks are used between them in writing.

3) In English, if we leave the word that the attribute defines out of the sentence, the meaning of the sentence is broken, but removing the apposition from the sentence does not harm the meaning of the sentence.

The author of a great scientific work on appositions is C.K. Aguna-Farina. According to this scientist, appositions are undeveloped noun combinations. In non-free appositions, only nouns are used as appositions. That noun defines the noun it belongs to, explaining it from various aspects, and these appositions are pronounced together with the words they define. When these suffixes are pronounced together with the words they define, there is no pause between them, so no punctuation is used. These suffixes usually indicate a profession, occupation, military title, etc.[15]
For example:
A British teacher Rowland Hill had the idea of a postage stamp with glue on the back.

Sometimes a sentence member and the dependent appositions are confused in sentences with homogeneous members. Because both the apposition and the word on which the apposition depends are related to the same sentence member as homogeneous members and answer the same question. Therefore, sometimes the relationship between the attribute and the apposition is confused in sentences with homogeneous members. However, there are isomorphic features between appositions and homogeneous members. Let's look at the examples:
1) It was his neighbour, Mr.Smith, well-known in the City.
2) Old Gordon and Oliver were close neighbours and friends.

In the first example given, the word Mr.Smith is used as an apposition of the word neighbour, they mean the same person, and the use of the apposition Mr.Smith explains and makes the word neighbour more specific. In the second sentence, Old Gordon and Oliver are completely different people, these words do not mean the same person, they mean different people, therefore these words are considered homogeneous members. The words neighbors and friends given in that sentence are also considered members of the same gender. Because in this sentence it is mentioned that those people are both neighbours and friends.

Not all appositions have the same character. One group of appositions is separated from the words it explains and specifies by a certain pause and intonation. Another group of appositions is separated from the words it explains by neither pause nor intonation. (Musayev O,. 1996).

In English, appositions have both grammatical and pragmatic functions in speech. From a grammatical point of view, an apposition is another noun or a combination of words that explains or identifies a noun or a group of nouns. From a pragmatic point of view, appositions carry different shades of meaning depending on the purpose

of the speech, the intention of the speaker, and the status of the information to be transmitted to the listener. In English, appositions are divided into two groups.

1. Restrictive appositions. The information provided through these appositions is important for the sentence; if these appositions are not used, the idea given remains incomplete and incomplete. For example: *My student Sona is going to London tonight.* Here, the word *Sona* is an apposition and defines *who my student is*. From a pragmatic point of view, this structure introduces new and important information.

2. Non-restrictive appositions. These appositions provide additional information to the sentence, but do not affect the main meaning of the sentence. For example: *Sona, my student, is going to London tonight.* In this sentence, *my student* adds already known information to the sentence and has the function of emphasizing and expressing attitude.

In modern English, O. Musayev also shows that there are two types of appositions.

1*) loose appositions*
2) close appositions

Most of the non-free appositions replace the member they are attached to, and in this case the sentence is not broken. Others cannot replace each other, and when they are replaced with each other, the meaning of the sentence is broken.

The names of the types of appositions are studied in linguistic literature under various terms, namely free and non-free, special and non-special in Azerbaijani, and close and loose, restrictive and non-restrictive, essential and non-essential in English.

Non-restrictive appositions provide necessary information about the noun or pronoun they explain. For example, let's pay attention to this example:

My brother Jhon is a simple man.

When analyzing this sentence, it becomes clear that I have many brothers, and John is one of them.

Free (non-restrictive) appositions add information that may not be very necessary. [9, p.396] For example:

My brother, Jhon, is a simple man.

Such appositions are separated from the words they explain by a comma, and its use in this sentence means that John is my only brother.

Free appositions are appositions that, even if omitted from the sentence, make it clear to whom the writer is addressing them. Free appositions simply provide additional information and are separated from the words they explain by commas.

Appositions can provide additional information about the noun they explain, but they can also be repeated for the sake of emphasis. For example:
He is a mean one, a hard down mean one.

Although the word a hard down mean one is used as an affix in the given sentence, it actually explains the word mean one and strengthens the meaning by being repeated.

In his research, foreign linguist Zlatan Kojadinovich shows that the first person to provide information about non-free affixes, namely in 1952, was W. Li.

In his research, W. Li provided information about free and non-free appositions, and since then this controversial issue is still being studied. This topic has also caused many disputes. This topic was touched upon by linguists before W. Li.

In early grammar books about appositions, for example, in 1928 by H. Poutsma, in 1931 by Kurma V.N. Kurma was given information by O. Yesperson in 1949.

However, these authors gave brief descriptions of appositions, which were later extensively analyzed by W. Lee. (Muradova.N.N. 2015)

There are also different approaches to the description of a large number of very similar two-membered compounds classified as free and non-free appositions in the literature.

Examples of such expressions are *the student Leyla, the poet Nizami, my sister Sona, we Azerbaijanis, you teachers*, etc.

Different linguists believe that compounds with the same formal features also have the same categories. These compounds consist of two elements, one of which is called a proper noun, and the other is called a countable noun.

Together, these two components create an intonation unit, and there is no connecting element between these two components.

There are a large number of different analyses of non-free appositions in the linguistic literature.

Although the subject of non-free appositions is a somewhat controversial topic in the literature, many linguists agree that these compounds should be definite. Some linguists even note that the determining word should be a definite article.

A description of the formal features of non-free appositions and the semantic relationship between these two elements cannot be considered productive without considering them within a broader discourse (Muradova N.N. 2015).

It is considered acceptable to consider these two-member compounds within the context. For example, let us consider the following examples:

1) The writer Tom has been invited to the wedding party.
2) A writer Tom has been invited to the wedding party.
3) Through Aunt Ann's compressed lips a tender smile forced its way.

In these examples given above, non-free appositions are used. However, as can be seen, the first and second sentences are formally identical, but in the first sentence, the definite article is used with the non-free apposition, and in the second sentence, the indefinite article is used with the non-free apposition.

The use of the definite article with a non-free adjunct means that both the speaker and the listener in the discourse know who the writer Tom is and that they are familiar with him.

The use of the indefinite article with a non-free apposition means that the listener does not know which Tom is invited to the wedding party. In the second sentence, the use of the indefinite article with a non-free apposition means that the listener is given new information.

In the third sentence, the word aunt is used as an apposition, which is also a word that expresses a kinship relationship.

We do not use appositions spontaneously in a sentence. The use of the apposition depends on the background knowledge of the speaker and the listener. When we speak, we use an apposition when the information we convey about the apposition word is not at a level that the listener can understand.

That is why it is necessary to know its role at the discourse level in order to determine the correct use of apposition.

The new information presented in the discourse may be assumed to be familiar or unfamiliar to the listener. Informal appositions, which are given as new information in discourse, can be compounds expressing certainty or uncertainty.

Information that is new to the listener indicates information that is not expressed in the given discourse.

Thus, the speaker does not seem to be convinced that the listener has any knowledge of this information. Therefore, the use of the indefinite article in informal appositions indicates that the speaker considers this information to be new to the listener.

From the traditional description of informal appositions, it is clear that the subject of informal appositions, and in particular the relationship between the two components that form these appositions, is a controversial topic.

It is sometimes difficult to say which of the two components that form informal appositions is the main word, and the question of whether there is a main word in this compound generally arises.

If one of these components is the main word, then the second component must determine it. This raises such a question. If both components are at the same level, how can one of them be considered the main meaning?

Both components of non-free appositions are nouns, one of which is a common noun and the other is a proper noun. As a result, we can say that in non-free appositions, both components have the same structure.

Another type of apposition is called free or specific appositions.

Specific appositions are also a type of apposition, they are similar to descriptive apposition clauses. However, despite such similarity, there are isomorphic features between specific apposition and descriptive apposition clauses in both form and content. Let's look at the examples:
1) The ten rooms of the house were occupied by himself, his wife Julia and his son and daughter, George and Jessica.
2) Aunt Polly, who had nobody, did everything herself at home.

The words George and Jessica used in the first example given are specific appositions, and the sentence who had nobody given in the second example is a descriptive apposition clause.

The similarity of these examples is that in the first sentence, the sentence is enriched with additional information through the apposition, and in the second sentence, through the descriptive defining clause.

The difference is that in the first sentence, the apposition is expressed by a conjunction, and in the second sentence, the apposition is expressed by a clause with a predicate and a predicate.

When analyzing the examples shown, it can be concluded that punctuation marks - commas, semicolons, colons, dashes, and sometimes periods - are used precisely in the use of the apposition as a special addition. The order of use of these marks depends on the purpose of the apposition.

Sometimes there are cases when another apposition is needed to clarify, explain, or strengthen the meaning of a sentence member. There can be two appositions to a word in a sentence. For example:

The other half of this picture came when young Blyford, son of Blyford, the soap manufacturer, walked home with her.

Such appositions are called parallel appositions. The use of an apposition in a sentence serves to expand the meaning of the word expressed by the noun. The sequential use of two appositions serves to expand and more emphatic the meaning of this issue.

Such sentences are often found in fiction and serve to expand the meaning of the defined word.

Taking into account the above, we can note the pragmatic features of appositions as follows.
a) The feature of distinguishing new or familiar information. By using appositions, the speaker indicates that one piece of information is already known to the listener, and the other is new. For example: Australian animals, koalas, live in trees and look like little bears.
b) The feature of expressing an emotional or evaluative attitude. For example: Our guest, that is, John, joined us yesterday. These types of appositions create pragmatic clarity and clarify understanding.
c) The feature of using irony or humor. For example: My lovely cat, the destroyer of furniture, has struck again. Here, the apposition creates humorous shades and expresses the speaker's attitude to the idea.
d) The feature of regulating formal and informal style. For this purpose, appositions are often used in official texts. For example: An American businessman and philanthropist, Warren Buffett, is considered to be the most successful investor of the last two centuries.

Thus, appositions are not only a syntactic element, but also a pragmatic tool that reflects the intention of communication, the structure of information and the emotional attitude of the speaker.

From a pragmatic point of view, appositions can be used to achieve the following goals.
1) To clarify information or specify it. For example: *Sara, a teacher, lives in the village.* Here the listener understands more precisely who *Sara* is, that is, the *teacher Sara.*
2) To show the level of familiarity. In this case, if additional information is required, then the listener does not know that person or concept. For example: *Tom, a third-year student has come again.*
3) To shape the structure and flow of the text. For example: *Bill Gates, the co-founder of Microsoft company, is one of the world's richest men*.
4) In written speech, appositions can change the rhythm and structure of a sentence, making it richer and more expressive. For example: *Tuvalu, a country consisting of nine small islands is in the west-central Pacific Ocean.*
5) To express a conclusion or attitude. Sometimes appositions express the author's or speaker's attitude to an idea. This attitude can be negative or positive. For example: *Esperanto is different from other languages because it has a particular author. Its creator is L.L. Zamenhof, a Polish eye doctor.*

3. Conclusion

From the research, we conclude that in English, appositions are not only grammatical functional units, but also carry an important pragmatic load in terms of the speaker's intention, attitude and method of presenting information. Through restrictive and non-restrictive appositions, the speaker conveys to the listener the degree of familiarity, level of importance and emotional attitude of the information. Appositions play an important role in structuring information, and sometimes in emphasizing it. This gives grounds to characterize them not only as syntactic, but also as a communicative tool of the language. The study shows that correctly understanding and using the pragmatic properties of appositions increases the effectiveness of communication, serves the correct transmission of information between the listener and the speaker and the achievement of the speaker's goal. Considering all the above, we can say that appositions, like other problems in linguistics, remain a controversial problem. Future studies may discuss the role of appositions in discourse.

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Leaderships' Role in Quality Assurance Moderating Curriculum Implementation: Perspectives and Preferences of Headteachers and Teachers in Basic schools in Ghana

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Abstract
The purpose of the study was to explore the moderating influence of quality assurance (QA) in curriculum implementation in basic schools in Ghana. Specifically, the study intended to determine strategies used through quality assurance (QA) by school leaders to enhance quality in basic school curriculum implementation. The study employed concurrent mixed-method design to collect data from 260 respondents, selected through stratified and proportional sampling techniques, using interview guides, questionnaires and documentary review. Thematic, descriptive and inferential statistics were used to analyse the data collected. The study reveals that, leaders background characteristics support how quality assurance moderates curriculum implementation, and quality assurance practices within the schools. It also supports leaders in engraving quality assurance culture in schools to support effective implementation of curriculum. It was concluded that leaders in school must have an identity with reference to background information, known quality assurance practices, engraving quality culture, hence it is recommended that leaders of school need orientation to support engraving culture of quality assurance to support effective implementation of curriculum.

Keywords: School Quality Assurance, Curriculum Implementation, Moderating Influence, Engraving Culture, Quality Assurance Standards

1. Introduction

Curriculum implementation is the core function of every training institution. It is a well-organized course of study necessary to achieve the desired performance. A curriculum is a programme of goals in which certain skills, knowledge and attitudes are imparted to learners so as to accomplish a certain level of training. Mulenga (2020) provides a solid foundation for academics seeking both theoretical and practical guidance in understanding the concept of curriculum. He defines curriculum as a carefully selected, planned, integrative, creative, and evaluative set of educational experiences that are consciously or unconsciously offered to students within the control of the school, aiming to achieve specific learning outcomes. This means that delivering quality education to all learners in various educational environments has been recognised as arguably the most challenging yet vital issue globally today, hence quality assurance (QA) becomes crucial in such endeavours. In Ghana, successful curriculum

implementation relies on teachers actively being involved in both the development and implementation of the new curriculum to ensure quality. Their dedication plays a key role in making these changes effective. This is supported by Eshun et al (2022) when they claimed that QA within the education sector can be explained as the systematic review of educational provision to maintain and improve its quality, equity and efficiency, which encompasses self-evaluations, external inspections, teacher and leadership reviews, and student assessments.

Ryan (2015) believed that quality assurance practices could boost educational institutions in achieving excellence. Expatiating further, Ryan in a research explored the role of leaders in creating a culture of quality assurance practices and how these practices can flourish in the implementation of curriculum. In support, problems may arise due to cultural differences when the leader implements quality measures that may impact efficiency (Lagrosen, 2003), however creating a standard quality assurance model in the institution is still essential, and the best practices to overcome any irregularities are critical to the leader. This research therefore will focus and explore on the question: how educational leaders support the creation of culture of quality assurance that seeks to moderate curriculum implementation in line with Ryan and Lagrosen espoused in the Ghanaian context where literature is scanty on.

Leaders play crucial role in how QA influences the implementation of curriculum. Ahmad and Ahmed (2023) has it that leaders' personal attributes affect the implementation of quality assurance (QA) mechanisms, Matebe Tafere Gedifew (2023)thinks principals (leaders)significantly impact educational quality in academic planning and teacher support; Burra and Fanuel (2021) emphasise the role of School Quality Assurance Officers (SQAs) in enhancing curriculum implementation in Tanzanian secondary schools. These arguments support Quality assurance ensuring systematic review of educational programmes and processes to maintain and improve their quality, equity and efficiency" (European Commission 2017, p. 2).

While approaches to quality assurance vary according to their purpose and context a number of common elements are evident in the literature. Common features of quality frameworks include quality standards (also referred to as quality indicators, evaluation criteria, and statements of effective practice), internal evaluation and improvement process; data gathering tools; resources to support improvement and an external evaluation mechanism (OECD 2013). Hence in the implementation of curriculum, QA needs critical consideration for effectiveness. Stakeholder involvement in the curriculum development, clearly outlining vision and purpose, authenticity of content, logical sequencing of content, comprehensiveness of content, inclusion of directions for teaching and opportunities for review and refinement are issues QA becomes important to ensure quality. Quality assurance (QA) has significantly influenced curriculum implementation worldwide by promoting accountability, consistency, and continuous improvement in educational systems. *Leonard et al (2021) believe how* QA mechanisms have mediated curriculum implementation across various regions. The initiative highlighted the importance of stakeholder engagement in identifying enablers and barriers to curriculum delivery, fostering a culture of continuous improvement. The Tanzania case (Burra & Faneil, 2021) aims to enhance quality assurance mechanisms through internal inspecting documentation feedback ad shape how curricula are enacted. In Kenya, (Otieno, 2016), QA include regular school visits, conducting seminars, and providing advisory services. Studies have also shown that QA' involvement positively influences students' academic performance by ensuring adherence to curriculum standards and enhancing teaching practices. In Saudi Arabia (Abdulah, 2016) and the UAE,(Oerlemans et al, 2023) saw cross-cultural collaborations have been pivotal in curriculum development for higher education. These collaborations have focused on aligning curricula with employability and entrepreneurship goals, ensuring that QA frameworks are adapted to local contexts while maintaining international standards. All these attempts are usually found in secondary or higher education institutions hence this study is focused on the case in basic schools in Ghana.

2. The Problem Statement

With the onset of the implementation of the standards-based curriculum in the Ghanaian basic schools, various attempt that include PLCs, have been provided to support quality of teaching and learning. This is because there is the need for quality of delivery in how teachers, volunteers, or staff deliver programmes. (Mihalic et al, 2004)

claimed, this might be difficult to guarantee the delivery of high-quality programmes due to number of reasons such as institution's inadequate resources and support, students' lack of desire and program's complexity leading to the implementation of low-quality programmes (Kayyali, 2023). In support, Nevenglosky et al. (2019), in the quest to identify barriers preventing full implementation, affirm the notion that teachers modify both the prescribed content and methods of curricula they teach, weakening their effects. Further, meaningful curriculum change, on the other hand, challenges stakeholders' cultural beliefs and compels critical engagement with educational administrators', school leaders', and teachers' professional beliefs and values. In order to guarantee quality, QA is essential, since it entails putting in place robust procedures and frameworks that maintain and raise the standard of instruction provided by establishments (Kayyali, 2023).

It is unknown if the lack of a common culture of quality assurance practices within schools where leaders see to adhere to the QA tenets in the implementation process has any functioning curriculum implementation cultural setting that the leadership team should formed. In Ghana, the effective implementation of curriculum depends significantly on the support structures and leadership within schools. Headteachers or school leaders play an indispensable role in translating curriculum intent into actionable classroom practices (Mensah et al, 2025; Boateng, 2012; KITUR, 2021). Their leadership influences resource allocation, teacher collaboration, and professional development, all of which are pivotal for successful curriculum implementation. In addition, headteachers are positioned as key actors in shaping the institutional culture that sustains reforms making their role both strategic and operational in nature (Donkoh et al., 2021; Abedi & Ametepey, 2024). in view of this, if new staff members are not oriented on the practices and standards of the institution when they join the staff, there is inconsistency in decision-making, and guiding policies therein. From the foregoing there appears to be a disconnect between QA and curriculum implementation, the purpose of the study therefore was to explore leadership/headmaster's role in how quality assurance moderates curriculum implementation at the basic schools in Ghana. This will attempt to resolve issues of conflicts in roles and responsibilities based on teachers' experiences with the quality assurance practices that are being used internally. A systematic analysis of challenges facing leaders for effective realisation of the implementation of curriculum process and the corresponding mitigation measures to alleviate their impacts through QA will be investigated and will be appropriate, hence the study.

3. Conceptual framework

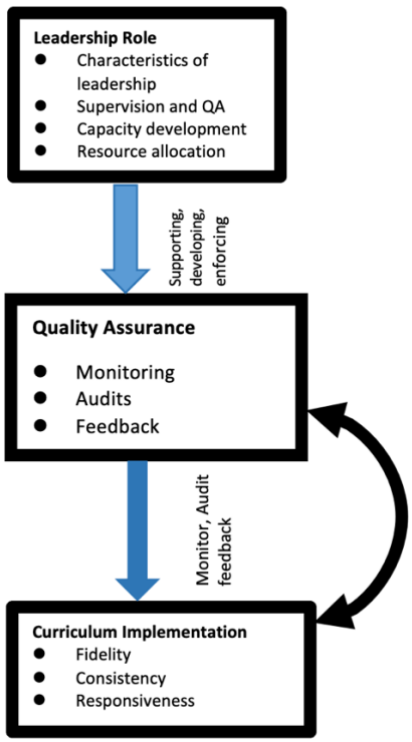

Figure 1: Conceptual Framework for the study

Fig. 1 outlines the conceptual framework surrounding this research and includes the use of leadership roles in creating an expected QA culture in the institution to enhance curriculum implementation. This research focuses on the leader's role in creating an environment that stimulates change and a sustainable educational environment. Lakhera and Kumar (2020) believe that current leaders should have the ability, knowledge, and skills to effectively manage the challenges they face in a dynamic environment. For leadership in creating a quality culture and improving the perceived value of the institution. Onugu (2009) cited by Lawrence 2025 states that school inspectorate currently termed as quality experts is a key component of overseeing, managing, monitoring and controlling education system and curriculum implementation. From Fig 1, Leaders develop, support, and enforce QA systems and ensure that QA is active, continuous, and aligned with institutional goals.

On the part of QA processes (e.g., monitoring, audits, feedback) do not directly change the curriculum or its implementation but influence the strength and effectiveness of implementation, leadership thus enhances how QA moderates implementation by ensuring that QA supports implementation fidelity, consistency, and responsiveness.

4. Literature uptake

4.1. The role of leadership

Bendermacher*et al*. (2017) believe that quality management in education supports, assures, develops, enhances, and monitors the quality of teaching and learning. The role of the leader must be straightforward and communicated to the staff members for the leader to be effective. Lawrence (2025) citing Rosowsky and Hallman (2020) agrees that institutions need to be able to effectively communicate how the culture of QA policies and culture are, and give a clear understanding of who they are and what they stand for. This supports the perspectives about their roles in leadership and their shared understanding of how leaders' integration of diverse perspectives with stakeholders' innovation and creative potentials (Van Knippenberg, 2017). However, the support leaders can directly interact with their team, can influence how they approach colleagues from diverse backgrounds. Leaders can be proactive and considerate in guiding their staff to create a structural framework to manage diversity and target the inclusion of all to improve the institution (Nishii *et al*., 2018; Van Knippenberg *et al*., 2020).

4.2. Quality assurance in Basic Schools

QA has been explained variously. (Ariani, 2003) is of the view that QA is the whole plan and systematic actions that are important to provide the confidence used to sat1isfy certain needs of quality. These needs, it is believed, are a reflection of what needs to be achieved, maintained, and improved so that it becomes quality service and this rests on the leader of the institution to ensure that quality requirements have been met

Alzafari and Ursin (2019) in terms of education describe QA as a systemic and integrated activity by educational units or programs, organizers of educational units or programs, in support of what Permendiknas (2009) espoused. This means QA is all planned and systematic actions that are implemented and demonstrated to provide sufficient confidence that the resulting product will satisfy the needs of practitioners (Prakash, 2018).

In Ghana, QA in basic schools is structured through a multi-tiered system involving national policy, regional supervision, district-level management, and school-based practices. This structure ensures that education delivery meets national standards and promotes continuous improvement. At the apex, the Ministry of Education (MoE) provides policy direction, strategic frameworks, and guidelines for quality assurance in basic education. The Ghana Education Service (GES), under the MoE, implements QA policies and coordinates with its sub-agencies to supervise schools. MoE (2020) developed the Education Strategic Plan (ESP) 2018–2030, which outlines quality improvement as a core objective, emphasizing teacher professional development, curriculum review, learning assessments, and school inspections. Involved with the activities are: National Inspectorate Body: National Schools Inspectorate Authority (NaSIA), National Schools Inspectorate Authority (NaSIA) responsible for inspecting pre-tertiary schools, including basic schools, to assess performance, compliance with standards, and

effectiveness of teaching and learning processes, district level supervision the municipal/district education directorates at the GES, circuit supervisorsplay a supervisory role by monitoring schools, supporting headteachers, and ensuring implementation of national QA policies through school improvement planning (SIP) and School Performance Improvement Framework (SPIF) as well as School-Based Quality Assurance Practices where Headteacher through supervision and performance monitoring. There is also stakeholder engagement (PTAs, SMCs, community) and continuous Professional Development (CPD) for teachers. In conclusion QA in Ghana's basic schools is structured from national to school level, with collaboration among MoE, NaSIA, GES, District Directorates, and schools. This multilayered approach fosters accountability, policy alignment, performance monitoring, and continuous improvement.

4.3. Curriculum Implementation and the Roles Played by Leaders Across the Globe and in Ghana

Curriculum implementation refers to the actualization of the planned curriculum in schools, involving the translation of curriculum content into classroom activities and learning outcomes. Globally and in Ghana, the success of curriculum implementation heavily relies on the leadership and support systems embedded within education systems. Fullan, 2007 reports that leadership provides vision and direction where school leaders globally play a central role in interpreting national curriculum policies and ensuring that teachers are equipped to deliver content effectively. He continued that leaders ensure alignment between teaching practices and curriculum goals. In another aspect, **c**apacity building is crucial and leaders need to facilitate professional development to build teacher capacity for effective curriculum delivery using their prior involvement in school activities. For example, in Finland and Singapore, leaders invest significantly in continuous teacher learning (Darling-Hammond et al., 2017). In terms of Monitoring and Evaluation, as stated by Sahlberg, 2011, countries like Canada and Australia, the principals and curriculum coordinators supervise teaching and evaluate how well curricular goals are being met. Leaders as well ensure the creation of collaborative culture based on their prior experiences, where effective leaders encourage teamwork among staff, especially nurturing Professional Learning Communities (PLCs) that support reflective teaching and shared responsibility (Hargreaves & Fullan, 2012).

With curriculum implementation and leadership roles in Ghana, curriculum implementation follows a centralized model led by the Ministry of Education (MoE) and the Ghana Education Service (GES), with support from various stakeholders at the school level. Within this frame there is policy direction and curriculum design where the MoE and the National Council for Curriculum and Assessment (NaCCA) are responsible for curriculum design and guidelines, while heads of schools interpret and implement these at the school level (MoE, 2020). There is also instructional leadership where headteachers and circuit supervisors provide instructional leadership, ensuring teachers understand the curriculum content, apply appropriate pedagogy, and assess learners effectively (Dampson, Armah, & Anthony-Krueger, 2018). On supervision and quality assurance, school leaders work with District Education Directorates to monitor and support curriculum delivery. According to Eshun et al. (2022), effective supervision practices have a direct influence on curriculum implementation quality. Leadership is also seen in capacity development. Leaders facilitate teacher training workshops organized by GES and NGOs to align instructional practices with curriculum reforms (Tafere, 2023). In resource allocation and motivation, heads ensure the provision of teaching and learning materials and promote teacher motivation, which significantly affects curriculum delivery (Chapman & Hadfield, 2010).

4.4. Constructive Alignment

Constructive Alignment (CA) is the theoretical frame supporting this study, The concept developed by John Biggs (1996, 2003), is a pedagogical model where learning outcomes, teaching/learning activities, and assessment tasks are aligned to ensure effective learning. It offers a powerful framework to support the role of educational leaders in quality assurance (QA) and curriculum implementation. CA supports clarity of learning, hence in curriculum implementation, one needs to start with well-defined Intended Learning Outcomes (ILOs). Here Leaders can ensure that Curriculum objectives are clear, measurable, and aligned with national or institutional standards, Teachers design lessons and assessments that reflect these goals, QA policies review whether actual practices reflect intended outcomes. In support Biggs (2003) emphasizes that alignment helps ensure coherence and transparency, which leaders can use to guide curriculum reviews. In addition there is educational leadership

support for curriculum coherence, which is about aligning policy, practice, and pedagogy across the school with the aim of developing a framework to standardize curriculum delivery and promote equity in learning experiences. There is also the conduct of QA audits to see if teaching strategies and assessments are aligned with learning goals.

Further, according to Nevenglosky, Cale, & Aguilar (2019), effective instructional leadership involves aligning instructional practices with student achievement targets which is core to CA, where there is a need for professional development and capacity building. In doing so leaders use CA to identify, gaps between expected and actual teaching practices, needs for training teachers on outcome-based teaching and assessment design, structures for peer reviews, lesson observations, and QA mechanisms tied to alignment. In conclusion, Chapman & Hadfield (2010) highlight how leadership fosters learning cultures that align teaching practices with institutional goals.

CA model supports Evidence-Based QA where leaders monitor the effectiveness of curriculum implementation by aligning QA indicators (such as lesson quality, assessment validity, feedback systems) to the learning outcomes. This shows that QA processes are formative, not just evaluative as espoused by Eshun et al. (2022) who found that Ghanaian school leaders who adopted an alignment-based QA system improved curriculum delivery outcomes. In effect, CA provides leaders with real-time data for decision-making, supports data-informed QA processes and is responsive to learner needs where Biggs & Tang (2011) argue that aligned assessments guide both student learning and teacher development, which leaders can use for strategic QA by creating a culture to support the activities.

5. Purpose

The research sought to answer the question, how do educational leaders create a culture of quality assurance practice and standards in the implementation of curriculum to improve the perceived value of the institution?

Research Questions
RQ1: To what extent do leaders/headteachers' backgrounds influence the quality assurance practices in basic schools in Ghana?
RQ2: How can a known quality assurance practices for basic school leaders in Ghana contribute to the implementation of curriculum?
RQ3: How can basic education leaders engrave a culture of quality assurance practices in implementing curriculum in basic schools in Ghana?

6. Methods

6.1. Research Approach and Design

The views of the participants that hinges on pragmatic worldview underpin the study and the approach as this view arises out of actions and consequences, which aligns with a mixed-method research approach (Creswell, 2018). The population comprises 18037 teachers, (both headteachers and classroom teachers), in schools in the Eastern region that were randomly selected. The sample size included 260 participants, selected by using Krejcie and Morgan (1970) formula, comprising 230 teachers and 30 headteachers. They are also representatives of the varying leadership roles that exist. Stratified and Proportional random sampling techniques were was used in this research to include the most appropriate participants in the study's specific context (Johnson et al., 2020). Majority of these persons were identified through referrals. Information was collected using interviews, questionnaires and document review. These tools provided deep research to support the conceptual framework.

6.2. Development of research instruments

Data for the study were collected through the following.

1. Online questionnaire
2. Semi-structured interview guides for the heads and some teachers from the selected schools
3. Document-meeting minutes

The questionnaire was self-constructed based on the research questions of the study. The sections included biographic data, known quality assurance practices for basic school leaders, culture of quality assurance practices in implementing curriculum in basic schools in Ghana. Items were structured using a 5-point likert scale using Google form for online administration. The questionnaire went through various validation processes including submission of feedback from reviewers. A pilot test was conducted with selected teachers in the district not used for the study to check consistency of response and the internet connectivity issues.

Similar approach was adopted to develop semi-structured interview guides in line with the research questions of the study. Two guides were developed for teachers and headteachers selected for the study. This was done to capture diverse roles and responsibilities undertaken in the implementation of curriculum. As part of the validation process, teachers and headteachers who were not part of the study examined the interview guides and made significant input, which was used to refine each guide. This was done to ascertain the dependability of the responses

6.3. Fieldwork

Following the development of the instruments, the questionnaire was administered online via a bulk messaging system after contacts were solicited from the district office. A consent form was sent to the participants through messages to indicate their readiness to participate in the study, which participants read and consented to before participating in the study. A total of ten calendar days were used to collect data. There were few challenges, including transportation across the districts, access to some key informants due to busy schedules.

As the researcher I was intricately involved in the research process, which may introduce bias, strategies, and ethical issues experienced in the data collection process (Locke et al., 2013). Bias was alleviated with reflexivity in formulating questions to ensure participants are guided to share their experiences especially with the interviews. Triangulation, respondent checks, and data cleaning were used in the data collection process to alleviate the bias in the research. The respondents were guided during the interviews in a particular direction to avoid sidetracking as well as to position myself as an outsider researcher.

6.4. Data processing and analysis

The analysis followed a step-by-step approach to effectively analyze the vast amount of data collected to ensure the process was efficient and detailed, as posited by Cresswell (2018) who views that the process of data analysis requires sequential steps that allow the researcher to move from specific to general analysis. Ethical conduct was maintained to protect the respondents' rights and the profession of teachers' integrity. Approval was sought from the regional and district offices of GES to carry out the studies in the region and districts. Once consent was given, a formal letter was sent to the selected participants through the bulk messages requesting their consent to be part of the study as well as permission to conduct the research on their premises and use of relevant, meeting minutes, records. The questionnaire responses were downloaded from Google forms into MS Excel sheet and transported to SPSS software as a quantitative data file. The data were then cleaned, computed, re-coded and explored to remove incomplete and missing values. To address the research questions, the data were analysed using percentages, flow and pie charts to examine background influence on the quality assurance tenets of the role of the headteachers in the implementation of the curriculum. Further analysis using Chi-Square analysis was done to ascertain any significant differences in observed perception of the roles of the leaders and those characteristics expected of them during the implementation using QA tenets.

For the qualitative data analysis, the audio recordings of interviews were transcribed using F4 software. The transcribed data were uploaded into Taguette (a qualitative analysis software) for coding and the generation of themes for analysis.

6.5. Limitations

This research was limited by the following:

1. Access to some research participants was limited due to busy schedules and work-related engagements outside their locations that made them unable to avail themselves for interviews within the period for data collection. To resolve these challenges, efforts were made to find other alternatives to meet them for interviews. However, these challenges did not significantly influence the entire data collection process.
2. Response to the online questionnaire survey was low, possibly due to challenges with internet coverage. This necessitated the sending of a reminder message (with the questionnaire) to the target responses in order to get the required sample responses for the analysis.

7. Results

7.1. RQ1: To what extent do leaders/headteachers' backgrounds influence the quality assurance practices in basic schools in Ghana?

From the analysis of emerging data, the leadership background that influences how QA moderates curriculum implementation is explained in a cyclical manner with some parallel activities. The five-step explanation begins with interpretation of policy regarding curriculum implementation and ends with eagerness to participate in any review, as shown in Figure 1. Responses from the data indicate that leaders from the selected schools use such processes.

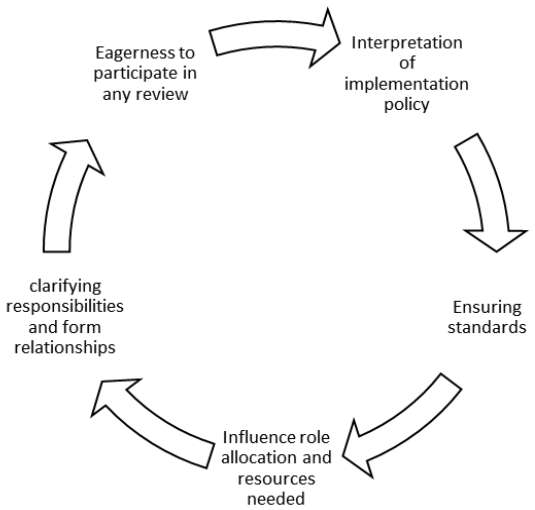

Figure 1: Headteachers' background influence on QA moderating Curriculum implementation

7.1.1. Interpretation of implementation policy

Although other activities happen prior or parallel with the what the respondents believed to take place in reference to the implementation process, headteachers who normally lead the implementation process need to interpret what the process will be about, hence orientation session for the staff is organised. One respondent describes the stage this way:

> *Prior to the official start to implement what the policy says the headteacher gives an orientation on what is to be done. Then the teachers also request for interpretation on issues teachers do not understand so they will be aware on what to do. (Htr #2)*

Other respondents corroborated this claim in these statements:

> *Initial meeting are held for briefing on the intended implementation by headteachers. (Htr#4)*

Yes, because erm when it's getting to time, we inform the teachers of an impending meeting. Then, when it's time we inform teachers on the meeting. So it's not something like it's kept in the dark or unless you don't… (Htr#6)

Checks on the meeting minutes corroborated these statements. Usually, when the meeting is scheduled teachers are informed and the agenda given. However, some of the headteachers complained about the enormous nature of their work to include such meetings. For example, a headteacher in school C had this to say:

I thought it was the duty of the headquarters to organise such meetings so I didn't know until the last minute when I was asked to brief teachers to do for am meeting. I don't know whether to invite any of the officials from the headquarters or not, but finally one of my colleagues in another explained it to me. (ht6).

The survey data with the teachers corroborated these statements. In fact, when the teachers were asked to rate the adequacy of the orientation, their responses were almost split, with a significant 55.0% expressing dissatisfaction, as seen in Figure 2.

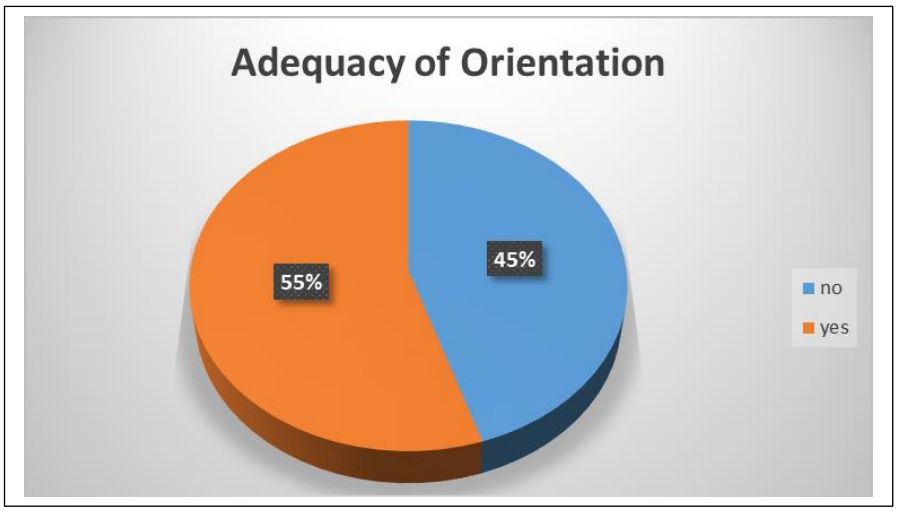

Figure 2: Teachers' perception of the adequacy of Orientation

Source: Fieldwork (2025)

7.1.2. Ensuring Standards

After the orientation, ensuring standards was another issue that came out of the data. Respondents came out to talk about it.

Implementation policy comes with standards that need to be used, hence I need to let my teachers adhere to such standards (Htr#11)

There some pedagogical issues hence I make sure teachers go by such issues. One cannot do what he/she likes (Htr#15)

Lesson preparation, ;\lesson delivery are hallmarks of every teacher hence I ensure teachers do what is required (Htr#25)

These remarks are collaborated by the survey data as found in Figure 3

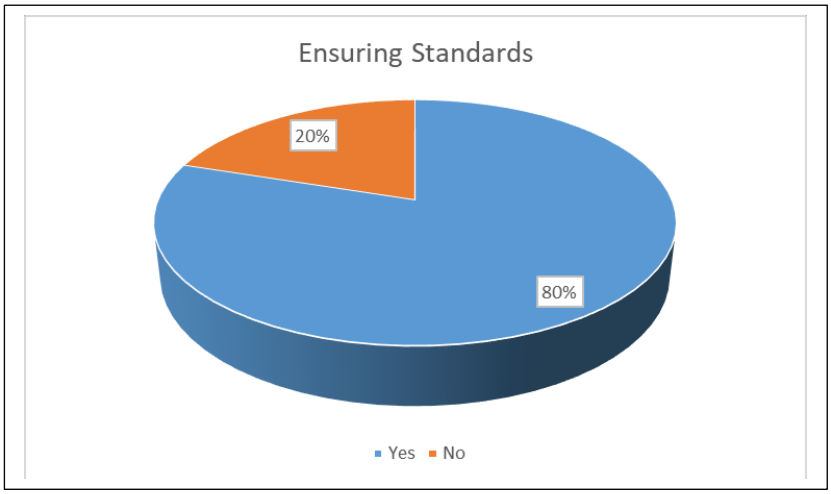

Figure 3: Perception of teachers on how standards are ensured.
Source: Fieldwork (2025)

From Figure 3, the majority of the teachers felt that ensuring standards are necessary

7.1.3. Clarifying responsibilities and collaboration

Headteachers, at times, engage experts and consultants to support them in assigning responsibilities. The use of such officials enables selecting competent ones to support with the selection. One headteacher had this to say:

Specific teachers are given the responsibility to work on specific subjects depending on the teacher's background information. Experts in the specific subjects are invited to help in a collaborative way to prevent favoritism as teachers lament a lot (Htr#12).

Due to these unpleasant experiences, the headteachers engage expert(s) to peruse the background information of all teachers to do the allocation of responsibilities especially heads of department. However, some of the headteachers still make decisions on selecting lead curriculum experts. Besides, the headteachers follow a structured procedure related to appointment. A headteacher described the process in detail:

We now have a clearly defined way of appointing subject leaders in collaboration with subject experts from the district offices. (Htr#23)

The other theme that focuses on the eagerness to participate in any review resonates with what Lawrence (2025) thinks is one of the background information that a leader needs to possess. The participants believed that such background is crucial during curriculum implementation. Headteacher participants #7 and teacher participant #9 stated clearly that leaders "*were eager to participate in any review that would address the quality assurance issues"* and "*as for my headteacher he has the skill to review any information to suit our environment in any implementation"* respectively. Similarly, headteacher #2 thinks "*reviewing but not changing meaning of any rule or document in relation to curriculum implementation has been my way of supporting the implementer"*

Participants believe school's leadership must use the various background possessed which is supported by Bendermacher *et al*. (2017) and Lawrence (2025) research findings. Additionally (Adams and Velarde's 2o21; Lawrence, 2025) studies showed that school leaders play a critical role in creating an environment with shared core values that guide the institution's vision when leaders are eager to participate in any implementation of curriculum process.

7.1.4. Perception of headteachers and teachers on the role in adherance to QA in curriculum implementation

Table 2: Perceptions of respondents on headteachers role in adherence to QA in the implementation of curriculum

Variable	Category	Perceptions of respondents on the adherence of QA in implementation of curriculum				Chi-Square test statistics
		Disagree	**Not Sure**	**Agree**	**Total**	
Teachers	Headteachers	3(10.0%)	7(23.3%)	20(66.7%)	30(100%)	χ^2 =47.654 df=2, p<.001
	Classroom teachers	21(10.2%)	39(16.9%)	170(73.6%)	230(100%)	
	Total	**24(9.23%)**	**46(17.69%)**	**190(73.07%)**	**260(100%)**	

Source: Fieldwork (2025)

As shown in Table 2, the respondents have varied perceptions about how QA moderates curriculum implementation. As many as 73.6% and 67% of the teachers and headteacher respondents, respectively, agreed with adhering to QA tenets in curriculum implementation. The difference was significant (χ^2 =47.654, df=2, p<.001), indicating that the role of headteachers perceived ensuring QA in curriculum implementation as crucial.

Interview data appeared to suggest that the headteacher's role in ensuring that QA needs to be used to moderate curriculum implementation was crucial. Respondents had this to say:

Ok for me from where I am sitting I need to ensure that quality is ensured in implementing whatever curriculum entails under whatever risk I find myself. (Htr#18)

The challenges were plenty. I, for instance, by then I was not sure of my capabilities, however with continuous practicing and support from my headteacher, I now know what to do to ensure quality is achieved in implementing any curriculum. (Tr# 5)

I had a challenge of not knowing the exact strategy to use to teach a particular issue in the new curriculum, but with support from the headteacher I was able to overcome the challenge hence headteachers have a role to play to ensure quality in the implementation of any curriculum. (Tr#7)

The experiences of headteachers and teachers portray issues of the role headteachers need to play to ensure quality in implementing any curriculum. These comments from the headteacher and teachers seem to suggest that they found issues with the role of the leaders in implementing the curriculum very necessary.

In conclusion, per the cyclical nature of the leader's background, opportunities exist after each cycle to evaluate the headteacher's background and make the necessary adjustments. It is this mechanism that the role of leaders is made more purposeful to make it have better experiences.

7.2. RQ2: How can a known quality assurance practices for basic school leaders contribute to the implementation of curriculum?

Two themes that were significant of the known quality assurance practices were; use of previous relevant knowledge and the passion for reviewing policy during implementation of curriculum.

Use of previous relevant knowledge (RPK) of monitoring evaluation of PLCs

As regards the use RPK from PLCs the following were some of the responses:

During my participation in PLCs, I saw that there were many issues like being able to collaborate with my colleague teachers to ensure quality in some pedagogical skills, ..collaboration with colleagues understanding my leadership skills and many more has given me the know-how when leading my teachers. (Htr#9)

During our PLCs interactions my headteacher showed some transformational skills and this has given me and my other colleagues that in trying to address some challenges to ensuring quality in implementation of the new curriculum, I saw the headteacher exhibiting such skills. To me the quality of skills exhibited by my head is from our PLC meeting and this is making him play good role. (Tr#2)

Corroborating these claims, Tr1 who has been part of PLC said the headteacher is using his previous knowledge to alert us when we go wrong on some issues

7.2.1. Passion for reviewing policy on implementation

There were claims and counterclaims about how the headteachers role was very key in the study. Some of the respondents felt that what is being exhibited as role of the headteacher was what the policy demands from heads with regards to QA in practical terms while others felt that, because they were not given any guideline on the role of headteachers regarding QA moderating curriculum implementation, as there was no link. Here are some excerpts:

We need someone to lead us as prescribed by the implementation document to ensure that everything is done according to the required. If you look at the entire document, all these areas have a direct bearing on our curriculum. The methodology, and the application aspects of whatever the assessment tools are all given hence it was for us to go through it. (Htr# 6)

There is a connection, you know we are also looking at how effective we go by effective implementation and the standard required, we need directions from an experienced one. (Htr#1)

As for the implementation, it is about professional attitude from we the teachers, but I am of the view that we need someone with requisite skills like the headteacher (Tr#8)

We are always told to follow what comes with the document for implementation (Tr# 4).

It will be observed that respondents here were all teacher educators who alluded to the relatedness of implementing any curriculum. However, some other respondents shared divergent views on the linkage between the QA and the implementing curriculum. Their main concerns had to do with the standards required by QA:

We need to know more about the QA standards. For instance, what are the standard teaching skills for a particular subject like maths and English. Per each subject, , there is no specific way to teach it, it all depends on the teachers' skills. So, imagine a teacher teaching home econs, do you expect that teacher to use the skills that me a maths teacher to use, No. (Tr# 2)

In all what we do, it is the leader whose characteristics can support what we do. I am saying if teachers have challenges they should consult their heads period. . (Tr#3)

As for me I would not have a problem with the essential skills because it is basically education. But looking at the implementation quality skill is very much needed. (Tr# 9)

While the respondents agreed to ensuring quality, they had reservations about the role of headteachers against ensuring quality. However, in a rebuttal, a headteacher downplayed the thinking of the teachers by saying:

Some teachers don't even attend meetings and orientation programmes, hence the head should always be there directing and ensuring quality. (Htr #11)

In sum, respondents expressed satisfaction with the role leaders play in ensuring quality. Respondents believed leadership role cannot be taken for granted and ought to be given the needed attention.

7.3. RQ3: How can basic education leaders engrave culture of quality assurance practices in implementing curriculum in basic schools in Ghana?

Table 3: Headteachers' and Teachers' perceptions on leadership roles to engrave a culture of QA practices in implementing the curriculum

S/N	Statement: Headteachers…..	Headteachers (#,%)		Teachers (#,%)	
		Agree	**Disagree**	**Agree**	**Disagree**
1.	develop ethos of domain in quality culture based on values beliefs and expectations towards quality implementation of curriculum	30(100)	0(0)	120(92)	10(8)
2.	organize and support continuous professional development programs toward curriculum implementation.	30(100)	0(0)	115(88)	15(12)
3.	**a**re responsible for ensuring that teachers adhere to educational standards and policies curriculum implementation.	28(93)	2(7)	120(92)	10(8)
4.	**ensures fostering** collaborative decision-making. .	25(83)	5(17)	126(97)	4(3)
5.	identifying and allocating resources necessary for curriculum implementation	30(100)		110(85)	20(15)

Source: Fieldwork (2025)

As shown in Table 3, perceptions of respondents on ethos of domain in quality culture based on values beliefs and expectation towards quality implementation of curriculum, facilitating professional development, ensuring compliance with QA standards in education, stakeholder engagement and communication and resource allocation and support had most positive perceptions on how leaders can engrave QA culture in schools towards the implementation of curriculum. Both headteachers and teachers rated the perception between 100% to 83% for headteachers and 97% to 88% for teachers. The process of release of results was highest with 83% considering it favourable. This statistic corroborates narratives shared earlier about the background skills of headteachers in research question one. It is important that the issues of the engraving culture of QA are highlighted for the attention of QA moderating curriculum implementation.

8. Discussions

8.1. To what extent do leaders/headteachers' backgrounds influence the quality assurance practices in basic schools in Ghana

The five themes that came out for RQ1 showed how the participants believed were the characteristics of the leaders that support QA moderating the implementing of the curriculum. These qualities were what could support QA moderate curriculum implementation in Ghanaian basic schools. These supported the findings from Dogan, Pringle & Mesa (2016) who believed that with leadership support and strengthening QA practices, teachers improve curriculum implementation via shared standards, collaborative planning, and evidence-based teaching. Further in Hairon & Dimmock (2012) study the critical role of school leaders in facilitating teacher development and ensuring accountability and instructional quality. This suggests that QA moderates curriculum implementation when leaders enforce accountability, support innovation, and align teaching with expected goals. In doing so a common culture is developed, and this is supported by Vilcea's (2014) and Stacy Ann (2025) research, where common culture in an institution comprises staff commitment, shared values, and a structural framework. With standard QA influences curriculum reforms.

8.2. How can a known quality assurance practices for basic school leaders contribute to the implementation of the curriculum?

The participants' responses, outlined from the responses coded and patterned ensured the use of previous relevant knowledge(RPK) and the passion for reviewing policy during implementation of the curriculum. These themes reflected the need to use RPK and passion for reviewing policies as standard in quality assurance which could result in efficient basic schools in Ghana. The findings aligned with what Lawrence (2025) emphasis what Fullan (2015) has claimed as the importance of using previous educational reforms and contextual knowledge in change process(es). He further argues that successful curriculum implementation requires reflective leadership and the ability to review and adapt policies based on prior lessons, where QA provides a system for revisiting and refining policies using lessons from practice implementations. This will support leadership to ensure that the feedback from QA is translated into policy improvements. Again McLaughlin & Talbert (2006) highlight how school leaders use institutional memory, accumulated knowledge from past policies and practices, to inform current curriculum implementation. Their passion for ongoing review and adjustment of policies aligns with QA principles. It is in line with Chapman & Hadfield (2010) study where effective leaders draw on past initiatives and policy insights to guide present reforms. They argue that such leaders are often passionate about using this experience to challenge and refine existing policies during implementation phases.

8.3. How can basic education leaders engrave culture of quality assurance practices in implementing curriculum in basic schools in Ghana?

The themes from the responses to research question three are about leaders fostering QA culture to support curriculum implementation. The dominant issues include ethos of domain in quality culture based on values beliefs and expectations towards quality implementation of curriculum (Lawrence, 2025), facilitating professional development where educational leaders organize and support continuous professional development programs, enhancing teachers' competencies and ensuring effective curriculum delivery. As another support for the study leaders need to identify gaps in teacher competencies and organize workshops and in-service training aligned with quality assurance indicators as posited by (Hairon, & Dimmock, (2012). This aligns with the Ministry of Education (MOE) & Ghana Education Service (GES) during curriculum rollout (GES, 2019), where the results support ensuring compliance with educational standards (MOE, 2020).

In the foregoing in the buildup culture, leaders must be responsible for ensuring that schools adhere to national educational standards and policies, they need conduct regular evaluations and audits to verify that curriculum implementation meets the required benchmarks, fostering consistency and excellence across educational institutions. Leaders ensure that curriculum implementation aligns with national quality assurance standards, through internal audits and self-assessments. Developing school culture will support leaders play a crucial role in identifying and allocating resources necessary for curriculum implementation as espoused by Dampson, et al (2018)

9. Conclusions

The results revealed that leaders within the basic schools in Ghana must have an identity such that his/her background, known QA practices and being able to engrave culture in the schools can undoubtedly contribute to how QA moderates curriculum implementation. A model of quality to improve efficiency and effectiveness depends on the role the leader positions him/herself to ensure effective implementation of curriculum with QA moderating so that each school incorporate the requisite values and standards.

10. Recommendation

1. The role played by leaders is growing due to globalization as curriculum reforms are now dynamic hence leaders in basic school need new orientation and so the dialogue need to focus on leaders who can ensure effective moderation of QA on curriculum implementation.
2. Additional research is needed to ensure that the schools continuously meets global guidelines in quality assurance standards
3. Schools should first employ a quality assurance manager to assess the quality culture that exists in the institution and oversee how it can be integrated into curriculum implementation
4. School leadership team should also include staff members in initial talks on implementing a shared culture of quality assurance standards.

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Implementing Project-Based Learning in English Lessons*

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Abstract
Project-Based Learning (PBL) has established itself as a dynamic, student-centered educational approach, especially in English language teaching. Based on constructivist theory, it encourages students to engage in real-world tasks that integrate language skills with critical thinking, collaboration, and creativity. The research aims to offer a comprehensive analysis of concepts, characterizing and highlighting key aspects of Project-Based Learning on English instruction to support educators and researchers in developing and energizing classrooms with evidence-based practices and flexible educational projects. Furthermore, it is relevant to include active strategies with achievable and independent activities, innovative and creative sessions, so that students are encouraged to recognize errors in their English learning and work cooperatively to improve. The conclusion is that Project Based Learning significantly promotes the development of oral competence in English and in turn generates active learning, collaborative work, metacognitive strategies, creativity and motivation for learning which are involved in the PBL Method, thus providing key content during the research, planning and preparation phases which is conclusive, since it is a crucial scaffolding technique.

Keywords: Project-Based Learning, Planning, Student Engagement, Education, Competencies

1. Introduction

One of the main difficulties faced by English as a foreign language (EFL) students in their learning is the lack of opportunities to practice speaking outside of the school setting. Therefore, project-based learning (PBL) is presented as an option for teaching speaking, as it is a collaborative and student-centered method that provides students with more opportunities to share their ideas and support each other in overcoming their speaking

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difficulties while developing practical projects (Cahyana et al., 2022; Mafruudloh et al., 2020; and Ratna et al., 2019).

It is an educational approach whose main purpose is the creation of a final product that responds to a real challenge (Segura, 2021). Teachers analyze and consider the work process according to the characteristics of their students, ensuring that they have the necessary resources to address it. The process includes exploration, reflection, problem identification, teamwork, interpretation of information, and evaluation, among other activities, and is the result of collaborative work between students and teachers. Furthermore, Sanz and Sánchez (2021) consider PBL to be one of the most effective and practical approaches, closely linked to the communicative approach (CA) or communicative language teaching (CLT). Furthermore, it allows students to become the center of their own learning, fostering their autonomy and critical thinking. It's not just about memorizing or collecting data; it's about young people learning by doing, placing great importance on the acquisition of skills and attitudes. Starting with a question, a challenge, or a problem and carrying out a process until obtaining a final product generates a sense of achievement in students, reflects the effort expended, and produces meaningful learning.

Project-based learning (PBL), frequently used in English language teaching (ELT), has significantly improved, adapting to different educational contexts and demographics. These adaptations highlighted both the advantages and limitations of the approach, especially in relation to diverse student populations and cultural contexts. For this reason, Mujiono (2023) points out that English teachers implement various methodologies to engage students in learning experiences. Project-based learning, which is based on social constructivism and Lev Vygotsky's 1962 learning theory, uses a project or activity as a tool that facilitates the transfer of students' knowledge and skills through interactions and experiences. As Vygotsky emphasized, knowledge is created through human action, reality is jointly constructed by members of a society, learning is an active and social process, people generate meaning through interactions with others, and meaningful learning occurs when people participate in social activities.

Most theoretical and empirical studies come from Eastern European countries and focus on research into how problem-based learning (PrBL) improves students' participation, cooperation, and communication skills. Therefore, it represents an opportunity for English as a foreign language (EFL) teachers to contribute to the development of their teaching experience. In the Latin American context, where the implementation of PrBL is relatively recent, there is an urgent demand for communication skills applicable in diverse everyday settings, preparing students for the complexities of an increasingly globalized and interconnected world.

In Latin America, it is also necessary to overcome mechanistic educational approaches. For Marrero (2019), *fragmenting the traditional teaching-learning model into a theoretical-practical subject in order to activate self-directed instruction in a holistic and comprehensive manner requires creating a common thread between prior knowledge and new information.* Indeed, the educational process must be a space that fosters an environment that inspires motivation and participation in students.

According to Villao et al., (2025)some of the obstacles to successful English learning include a lack of ongoing exposure to the language, a lack of adequate educational resources, and insufficient practice in real-life contexts. These factors can hinder the development of strong language skills and the fluency necessary to communicate effectively in English. For Philominraj et al., (2022)another important factor is the lack of ongoing exposure to the language, which is a common obstacle in Latin American countries. Without regular and consistent practice, students find it difficult to internalize the grammatical structures and vocabulary necessary to achieve fluency. Furthermore, many educational environments do not offer sufficient opportunities for language immersion, which limits students' ability to develop listening and speaking skills in a real-life context.

An added challenge for this approach is the insufficient educational resources. In various regions, students don’t have access to proper teaching materials or technology that enables interactive learning. This lack is made worse by traditional teaching methods not being engaging or encouraging enough for the students to take active part or confidently participate in conversational practice. As a result, psychological factors such as anxiety, lack of

motivation, and low self-esteem can make it even more challenging for students to open up and learn. These challenges demonstrate the need to implement more interactive and engaging approaches, applying innovating strategies and cultivating a positive learning environment

In Ecuador, a low level of academic performance has been observed, placing it 80th out of 113 countries, with an index of 460 out of 800, considered a low level of English proficiency. Since English is not the native language in the country, language learning can be a challenge in the context of public education, due to a number of factors, such as overcrowding in each classroom, lack of attention, and low motivation for learning. It has also been observed that, to improve these conditions, it is necessary to combine educational activities with gamification and digital environments. Furthermore, it is necessary to include active strategies with flexible and independent activities, innovative and creative sessions, so that students are encouraged to recognize errors in their English learning and work cooperatively to improve.

This systematic review aims to collect and examine relevant publications in a specific area from the students' perspective, gathering essential information for research. Consequently, this review aims to investigate project-based work in English as a foreign language (EFL) classrooms to identify pedagogical methods and teaching experiences during their implementation. The keywords used to search for information are: Project-Based Learning (PBL), planning, student engagement, education, competencies. The research team selected 60 articles that met the specified criteria. The research examines ideas, describes, and highlights the most important aspects of project-based learning and English language teaching. The research provides fundamental, reliable, and verifiable data through the analysis and interpretation of data in a specific population (Chicaiza, 2020). It is necessary to remember that the purpose of literature reviews is to generate new knowledge through a process of searching, analyzing, and interpreting information obtained by different researchers from print, audiovisual, or digital sources.

The research questions driving this research are: (1) How does PBL contribute to the learning of English by students from diverse cultures? ; (2) What difficulties or impediments to the implementation of PBL have been identified in different educational settings? ; and (3) What adaptations are suggested to make PBL more inclusive? The aim of this research is to offer a hermeneutic analysis of concepts, characterize and highlight key aspects of project-based learning and the English language in order to support educators and researchers in developing ways to energize the classroom with evidence-based practices and flexible projects.

2. Theoretical framework

2.1. Concept of Project-Based Learning (PBL)

It is part of the active and innovative methodologies used by many educational institutions around the world to transform conventional teaching. Currently, there is no single definition of PBL. Likewise, Conard (2018) states that the methodology is collaborative, since it uses group or individual work situations, exposing students to real problems to find possible solutions. Thus, Bueno (2018) expresses that PBL is an integrative methodology that considers three fundamental elements to achieve meaningful learning: student interests, a pre-established curriculum, and the needs and context of the educational environment.

It is worth mentioning that Chicaiza (2020) points out that the Project-Based Learning methodology arises from the idea of progressive education, promoted by philosophers and pedagogues who were key in the creation of educational reforms at an international level to implement in the teaching and learning of second languages, as well as in other subjects and areas of study.

According to Xiangyun et al. (2020), the principles of Project-Based Learning involves three different aspects: (1) a cognitive approach, (2) a content-based approach, and (3) collaborative learning. First of all, the cognitive approach refers to an essential problem with to the completion of a project, allowing students to gain knowledge through experiences in real life situations. On the other hand, a more content based approach relates to learning that goes beyond traditional disciplines and methods, tightening the connection between theory and practice. Finally, the social or collaborative approach involves active group participation and involvement.

To Orosz et al. (2018), it is essential to enhance students' English learning in real-life contexts so that their educational experience is meaningful. It is essential for students to be actively involved in their learning, as this process is dynamic. Students learn best when they discover the meaning and application of knowledge in their lives. Likewise, Díaz and Hernández (2002)assert that it is the learner who selects and relates the information provided to their prior knowledge; therefore, the teacher is the one who must provide the spaces for meaningful learning to occur in students. In this way, collaborative work between educators and students will lead to a substantial teaching-learning process.

According to research conducted by West (2018), teaching English as a foreign language has its own mechanism within the teaching-learning process. In a single class, more than one skill or even all of them, listening, speaking, reading, and writing, can be addressed, depending on the activity being developed. English classes require more than theory, but also constant practice both inside and outside the classroom. This ongoing practice demands teachers and students engaged in the educational process, as well as the use of strategies and techniques from an active methodology that promotes holistic English language learning. In addition, West (2018) points out that active learning in the teaching of another language requires a teacher who is reflective and critical of their own practice and a student who is committed to their learning. Reflective teachers question their practice, both yesterday's and today's, and seek mechanisms to improve or adjust their next practice. This teacher must be willing to change and, under these conditions, educate, which implies educating students by considering their intellectual and moral dimensions. In this sense, the student's commitment to their training is fundamental since active learning provides students with greater responsibility and decision-making power, which gives the learner greater autonomy.

For the authors, Zambrano and Mendoza (2022), PBL is a teaching methodology that has been implemented in different contexts and levels of education, for those who have taken the step toward this way of understanding education and teaching that entails the construction of knowledge through interaction with reality. Cáscales and Carrillo (2018)consider that PBL provokes a pedagogical and social change, establishing itself as an option to transform traditional teaching strategies.

On the other hand, Fernández (2017) states that PBL is an active methodology that makes it possible to reduce student demotivation. It can be structured as a teaching strategy that allows students to engage in research processes independently, minimizing the limitations of traditional teaching. It is worth highlighting that in this approach, both the teacher and the student play an important role, although the focus shifts to the student.

Likewise, Flores and Juárez (2017)agree that by using PBL as a teaching strategy, skills and competencies are strengthened, such as teamwork, communication, independent learning, critical thinking, problem-solving skills, research skills, use of technology, information search, coordination, planning, organization, among others. They agree with these authors in conceiving that through this type of learning, students develop competencies and new capacities that serve their personal and social development, while the teaching-learning process becomes more practical and interactive.

In this teaching process, the teacher will support the students in their role as a guide or advisor of the activities done by the students, "Interacting with them whenever necessary and fostering a more horizontal, dynamic style of communication. On the other hand, Salcido et al. (2024) mention that PBL is shown as an innovative option to enhance the educational process in schools. PBL is concentrated on the interests and experiences of the students aiming to improve academic results but also to cultivate critical skills such as critical thinking, problem-solving, and teamwork, and fundamental competencies growing today. Marra et al. (2014) states that PBL is active, Student-centered teaching methodology is characterized by promoting student learning through authentic problem-solving. The diverse profiles and previous educational experiences among students in semi-schooled high schools poses unique challenges in terms of identifying and meeting each student's individual needs. In this context, PBL offers flexible ways for educational interventions designed to address these needs more effectively. Giving as a result an inclusive and reasonable education.

PBL learning is an innovative opportunity for enhancing the educational process inside the classrooms. That centers its attention to the interests and experiences of the students, aiming to improve academic performance and

developing skills like critical thinking, problem solving, and teamwork, compulsory skills for the booming competencies in our current society. Traditional methods divide knowledge into multiple subjects; teachers typically impart knowledge orally and assess students through written tests, placing greater importance on the outcome of the activity than on the proces. It means that teachers can quickly convey information to a very large number of students at once, but at the same time, it also entails a series of obvious limitations, such as a lack of discipline, a deterioration in critical thinking, and even a distancing of students from the application of knowledge. Therefore, PBL is relevant for teachers to implement in the classroom.

2.1. Educational projects

According to Béjar (2018), the fundamental elements for the creation of a project are known as "The Six A's of Project Design", developed by Adrya Steiberg in 1998, and include the following concepts: Authenticity, Academic Rigor, Applied Learning, Active Exploration, Connections with Adults, and Assessment Practice. First, authenticity in the creation of a project arises from a question or problem that is relevant to the student, allowing them to develop something of personal or social value that transcends the academic field. This occurs because a question that sparks interest and motivation adds more meaning to what they are learning, leading them to absorb the learning rather than memorize it.

About applied learning, Basilotta and Gómez (2018) state that the implementation of projects gives students interactive problems to solve, giving them the opportunity to work independently or in teams, which is essential because it puts in their hands the ability to analyze and solve a problem or look for help to solve something in collaboration. Basilotta and Gómez (2018) argue that the key to effective assessment of student learning is for teachers to express their goals and aims from the beginning of the project setting a bar. In this way, students can point their own learning and recognize the goal they must reach through the project. This is supported by Chicaiza (2020) who indicates that academic rigor in a project enhances the development of critical thinking skills and appropriate mindsets, challenging students to use research methods in various disciplines.

Macías and Arteaga (2022) point out that, to develop projects, students must conduct practical research using various technological tools that foster their interest in fieldwork. Furthermore, a commitment to responsibility and interest must be fostered, since, in the end, students are expected to demonstrate what they have learned through effective and dynamic presentations. Regarding interaction with adults, when starting a project, students must understand the reality of the problem or situation addressed, since it is essential that they share their doubts with members of the educational community in order to communicate and seek solutions or proposals for the final product.

Therefore, Olarte and Guzmán (2022) point out that learning techniques are considered one of the most accepted psychological concepts by specialists in recent decades, since student performance is strongly influenced by the methods that the teacher uses to impart knowledge. They include planning processes that encompass attention, comprehension and knowledge acquisition, and together they make up action strategies that must be applied in the classroom to improve both the students' attitude and their academic performance, which will subsequently allow them to carry out a critical analysis of their own learning process.

Project-Based Learning can also be described as a task-centered teaching and learning method, a collaborative process of negotiation among participants, whose fundamental objective is the creation of a final product. It encourages individual and autonomous learning within a framework of clear objectives and procedures. Students take responsibility for their learning, identifying their preferences and strategies throughout the process. They also have the opportunity to participate in decisions related to learning content and assessment.

According to Segura (2021), the findings indicate that adequate teacher training is a significant issue. It also shows that many educators lack the tools and methodologies necessary to create effective projects, manage collaborative groups, or comprehensively assess communication skills. Some attempt to implement PBL but end up reproducing outdated dynamics, such as assigning group tasks that are, in reality, individual divisions of labor. In addition, teachers need at least 40 hours of practical training to understand PBL principles and apply them effectively.

To Indahsari Active (2020), learning in English helps students stay motivated, calm, and minimize stress because practical exercises improve their communication skills, reduce their use of Spanish, and allay fears of poor pronunciation. Additionally, entertaining exercises supported by multimedia techniques are integrated into this active methodology to reinforce learning. Chaves (2023)provides an example: a podcast simulation with an English-speaking visitor about community-based tourism showed evidence of fluency in dialogue and listening comprehension. Therefore, Sandoval and Diaz (2020)point out that podcasting supports English language learning, specifically listening skills. It is also a strategy that proactively impacts language teaching and significantly improves students' fluent pronunciation.

Investigations by Chica (2023) demonstrated the relevance of the active methodology in English learning. In her efforts to explain how active methods can be used to improve language comprehension, she emphasized that for students to be active and build independent and meaningful learning, it is necessary to adopt various cooperation and collaboration strategies, and that a single approach is not sufficient. Similarly, Guillermo, (2024)when examining the influence of the flipped classroom on English learning, emphasized that this active learning approach promotes student participation and teamwork. These strategies have revealed that students are confident and calm during activities to develop English communication skills, and it also promote collective enthusiasm and active participation.

On the other hand, Moslemi and Sarani (2023), indicate that with respect to the didactic strategy of problem-based learning (PrBL), barriers were found that prevented English teachers from using PBL. Their limited knowledge of this methodology was revealed, which made it difficult for them to design their planning based on PBL and connect it with English communicative skills. While it is true that there is a lack of creativity or knowledge to contextualize didactic planning with PBL, however, the greatest barrier that emerged during the observation was the excessive number of students in each course, the lack of Internet connectivity and, above all, the scarce technological infrastructure, characteristics that limit learning in any educational discipline, especially when studying a language other than the mother tongue.

On the other hand, Jiang and Kalyuga (2022) found that active learning was effective in teaching English, helping to improve writing and strengthen working memory. Similarly, Ahmed (2023)found that collaborative learning positively impacts students' motivation and anxiety control, helping them with reading comprehension, reading skills, and calmness in the learning process.

In the study directed by Salcido et al.(2024) they revealed that the surprising majority of students (77%) believe that Problem-Based Learning (PrBL) could be an effective strategy to cover educational gaps in high school. This positive perception is based on the belief that PrBL offers many significant benefits. Starting with the fact that PBL is perceived to promote active learning by engaging students in a dynamic and participatory process. Students engage with their peers and match points of view finding new perspectives and learning from one another students feel more motivated and engaged in their education, which can contribute to reducing educational gaps.

Added onto this, PBL projects provide students with the opportunity to develop practical skills. This real experience which can help them build a better understanding of their own abilities and the things they are capable of preparing them to face the challenges of the future workplace and academic world. Another notable aspect is the stimulation of creativity and innovation that it offers. Confronting problems found in real life, students are challenged to think creatively and find innovative solutions, which contributes to their holistic development as individuals. Finally, PBL is perceived as a strategy that considers students' individual interests and needs. By designing PBL projects relevant to their interests and contexts, their participation and commitment to learning can be significantly increased, which in turn can contribute to reducing educational attainment. In addition, Zambrano and Mendoza (2022) recognize that project-based learning focuses on students' ability to acquire skills and abilities. It highlights its potential to enhance the development of: The student's internal motivation towards studying, Interaction and collaboration between group members, Fluency in the oral and written presentation of their ideas and assessments, The student's responsibility in solving tasks, The expansion of the spectrum for your work location, The link between theory and practice, Spaces for the joint construction of knowledge and skills, Social skills that multiply the dimensions of your communication with others and the environment, Analytic

perspectives to solve the problems it addresses, Self-confidence, based on the recognition of one's strengths and weaknesses.

Besides, Salcido et al. (2024) indicate that students aknowledge role of teachers in the implementation of Problem-Based Learning (PrBL). They see how teachers play multiple fundamental roles in the success of this methodology overlooking progress and guiding the improvement of the projects. The value carried by the guiding and orienting role that teachers must play during the development of PBL projects is so significant that students might feel a bit lost without it at first. They expect to receive the support and feedback necessary to advance their projects, as well as guidance to overcome potential obstacles. Furthermore, students emphasize the teachers' responsibility to provide the appropriate resources and materials to successfully carry out their projects. This provision of resources is crucial to ensure that students have access to the tools necessary to develop their skills and achieve their goals.

The use of PBL in the classroom offers teachers the opportunity to update their teaching strategies through meaningful theoretical and practical activities. Teachers must continuously monitor students' progress throughout this process and, with their support, enhance the skills they acquire during the development of their projects. Undoubtedly, through this support, teachers will discover significant experiences and lessons learned from their students, which the research activity inherent to PBL generates in the teaching-learning process. This strategy involves planning the phases of a project in the teaching-learning process according to the educational context in which it will be implemented, in order to achieve the objectives proposed in the teaching process.

3. Material and technological elements used in Project-Based Learning

PBL also has the potential to change unfavorable educational circumstances. Guzmán and Olarte (2022) document its implementation in a rural, under-resourced school, where projects focused on the needs of the local community. E.g., tour guides for visitors from other countries. Despite the limited infrastructure, a single projector for the entire school, the creativity of teachers and students compensated for these shortcomings. Results indicated that, even without advanced technology, PBL managed to increase oral skills, as assessed by standardized tests, by 35%. This example is representative of contexts with similar constraints.

Time presents perhaps the biggest challenge, as Ortega's (2024) research measured that teachers need 30% more hours to prepare significant projects compared to traditional teaching. Students also require longer periods to complete said projects, at least eight weeks, suggested by the data, to complete full cycles of research, creation, and review. In educational environments focused on curriculum constraints, this timeframe crashes with the pressure to cover content quickly. The researchers' proposal is to reconsider curriculums and adapt them so that project-based learning is a main focus over which the learning is done and progressed, rather than a secondary activity.

Finally, Arochman et al. (2024) present an interesting point of view: the fusion of PBL with Content and Language Integrated Learning (CLIL).This combination proved particularly effective in secondary education, where projects on scientific topics. E.g., climate change experiments, allowed students to practice English while learning and applying concepts from other subjects. Students not only improved their language skills but also understood better the topics taught in their curriculum, strongly suggesting that PBL can function as a link between different areas of knowledge.

Active learning is considered one of the most important elements of PBL, as it generates a more participatory and dynamic role on the part of the student, which in turn increases their participation in learning. Thus, from the perspective of Yang and Puakpong (2016), the adoption of the PBL methodology is a process that requires time, given that the interests and needs of students determine the learning spaces both inside and outside the classroom. For this reason, it is believed that the student, being normally immersed in passive learning, in which he only receives the content that the teacher presents, decreases his motivation to investigate, explore or acquire knowledge independently.

Guslyakova et al. (2021) highlight a common problem faced by many students learning English as a foreign language: their lack of vocabulary limits their effective participation in project activities, leaving them relying on their native language and trying to apply their native language rules which many times ends not being optimal. To address this situation, educators should make prior preparation a must by introducing relevant vocabulary and phrases, thus reducing dependence on the native language during PBL tasks. Furthermore, Solorzano and Loor (2023) propose holding additional sessions outside of regular school hours to help students students' understanding and competency development in the context of the project. The point of teachers playing a crucial role by providing essential content and creating opportunities that inspire more participation and the strengthening of language skills necessary for project success once again naturally makes appearance.

On the other hand, according to Chicaiza (2020), motivation represents a very significant advantage, as it allows students to increase their confidence and self-esteem in appropriate environments, avoiding the fear of making mistakes in front of their peers and improving their verbal communication in the classroom. Furthermore, it is relevant to mention that students, with the aim of strengthening their participation, take the initiative to use technological tools, such as applications or programs, that contribute to the process of linguistic production. In other words, strategies for exploring, reading, and analyzing information from different sources, such as newspapers, magazines, and news, are expanded, which generates prior knowledge that enriches conversation or intervention on any topic.

In the classroom, each student faces diverse realities that directly impact their academic performance. Therefore, PBL seeks to improve such performance through projects that facilitate the understanding of various subjects. Narváez and Díaz (2024) indicated that students who implemented the methodology achieved superior academic results compared to those who followed a traditional methodological approach. Therefore, it is evident that practical techniques are effective in motivating students and fostering cooperation, autonomy, curiosity, and effective feedback among them; however, all these elements are only developed if student motivation is high; otherwise, the aforementioned objectives will not be achieved.

On the other hand, Indahsari (2020)mentions that active learning is an educational approach that directly engages students in the learning process through activities and hands-on experiences. For Chaves, (2023)it is different from traditional teaching methods, where students are passive recipients of information. Active learning transforms students into active participants, encouraging them to interact with the material, reflect on what they are learning, and apply their knowledge in real-life situations.

Sandoval and Diaz point out (2020)that the methodology is extremely useful in education because it fosters a deeper understanding of content, as students not only memorize information but also contextualize and integrate it into their prior knowledge. Furthermore, active learning improves critical skills, such as critical thinking, problem-solving, and collaboration, as it often involves group work, discussions, and practical projects. They are essential for success in the workplace and in everyday life. In this way, this method increases student motivation and engagement by making learning more dynamic and relevant to their interests and needs.

Active learning uses a variety of methodologies to effectively engage students. They focus on active student participation for improving knowledge understanding and retention but also developing essential skills for independent learning and success in diverse contexts. Some of the key methodologies employed in active learning include:

Project-Based Learning.- Involves students working on extensive, meaningful projects that often address real-world problems. Students research, design, and create solutions, allowing them to apply theoretical knowledge to practical situations.

Problem-based learning.- is similar to project-based learning, but more focused on solving specific problems. Students are faced with a problem and must research, discuss, and collaborate to find a viable solution, developing critical thinking and problem-solving skills in the process.

Class discussion and debate. - These activities give students the challenge and opportunity to express themselves, hear different perspectives from other classmates, and argue their points of view. Not only improving their understanding of the topic but also developing their communication and critical thinking skills.

Cooperative learning. - In this methodology, students work in small groups to achieve common goals. Each group member assumes specific responsibilities and contributes to the group's success, fostering teamwork and collaboration skills.
Simulations and Role-Playing. - Students participate in activities that simulate real-world situations or take on specific roles. This allows them to experience and learn hands-on, developing decision-making and adaptability skills.
Case Study. - Students analyze and discuss real-life or hypothetical cases that illustrate key concepts or problems. This methodology helps connect theory with practice and promotes critical and analytical thinking.
Flipped classroom. - In this approach, students first study the material independently, often through online resources, and then use class time for interactive and collaborative activities that reinforce and apply what they have learned.

From the perspective of the author Travieso and Ortiz (2018), some of the most important advantages that the method has for teaching can be established, which is a gradual process to establish optimal learning for students, which is:

1. Project-based learning enables globalized and relational knowledge. From this perspective, educational projects facilitate the processing of information relevant to each student and also enable them to establish their own relationships between different content, based on problems or hypotheses , which facilitates the construction of their own knowledge.
2. It is geared toward the needs of teachers and students; it is realistic, recreational, and flexible in terms of resources.
3. It promotes integration between learning processes, so that the subject content acquires meaning in action.
4. Stimulates mental activity.
5. It encourages students' commitment to their achievement.
6. It constitutes a realistic activity.
7. It involves several people, which encourages interaction.
8. It develops students' autonomy, as it stimulates their initiative and creativity.
9. It stimulates tenacity, as it allows you to face the completion of a task, including its evaluation, from beginning to end.

Placing the participants in the teaching and learning process, the teacher is seen as a facilitator, taking care and an active role in the "learning moments." Added to this, an essential characteristic is the learning that occurs on the part of the teacher during this process. As for their part, students take on a leading role, as investigators, gathering all the information, being the key subjects in the construction of their own knowledge, and ultimately responsible for their learning.

According to Solorzano (2024), the study examines how digital inequality impacts the implementation of PBL: while urban schools with internet access can use tools such as video conferencing or collaborative platforms, rural institutions frequently resort to printed materials. Interestingly, the study revealed that the lack of technology is not a total obstacle (as mentioned in the previous section), although it does limit the types of projects that can be carried out. The authors suggest a gradual strategy, in which institutions begin with low-tech projects and, as they progress, integrate digital elements according to available resources.

Teachers and students play a very relevant role in this approach, contributing significantly to and cooperating with the learning process. The teacher connects, observes, analyzes, and transmits information. They also ask questions to express different opinions about the topic of interest. Students acquire and apply new knowledge by identifying and resolving conflicts, analyzing, synthesizing, and finally evaluating them. To conclude the PBL methodology, a series of phases must be established to ensure the project is successful and to meet all the objectives set at the outset.

4. Conclusions

The Project-Based Learning (PBL) methodology, significantly promotes the development of oral proficiency in English, as it incorporates elements such as active learning, teamwork, the development of meta cognitive strategies, creativity, and motivation. Thus, Mujiono (2023) and Bueno (2018) agree that this type of learning generates authentic communication situations that allow for the real use of English and facilitate the exchange of ideas and opinions among students. Furthermore, the implementation of PBL is oriented toward a process of continuous inquiry, which provides answers to questions, solves problems, or creates products, focusing on deepening topics and developing essential skills.

On the contrary, Chicaiza (2020)argues in his research that the current educational system has undergone continuous changes in its pedagogical approach, therefore, individual and social characteristics have changed. Therefore, it is necessary to reconsider the teaching strategies used in the classroom. In this sense, the analysis carried out investigated the Project-Based Learning (PBL) methodology. This methodology deviates from traditional models, as it prioritizes participatory activities in which the student becomes the central axis of the learning process. For this reason, many educational institutions have decided to integrate PBL, mainly due to its focus on promoting creativity, collaboration, and role change between teachers and students. Providing key content during the research, planning, and preparation phases is conclusive, as it is a crucial scaffolding technique.

Project-Based Learning (PBL) is an educational approach that has seen attempts of being progressively integrated into the Ecuadorian education system in recent years. While it is not yet widespread and by no means properly stablished, it has gained interest among educators, who see and value the benefits this approach brings to student learning. For PBL to be effective in teaching English, it is essential for teachers to be able to plan projects carefully, and implement them within their curriculum providing students with the support and guidance they need. Projects must be aligned with students' interests and needs, facing them with challenges on par with their capabilities.

Teaching the PBL method involves the students' ability to address a real-life problem, research, learn, and apply knowledge to resolve similar situations. According to research conducted by Fernández (2017) and Villao et al., (2025)they state that learning to write involves the following actions: selecting a topic to write about, searching for information to provide solid arguments, writing a first draft, revising it, and editing it as many times as necessary to produce a clear text and convey the message. The didactic strategies considered viable for learning to write are dialogue, motivation, and feedback. Teachers apply these strategies during the teaching-learning process and create a reliable and optimal environment for an academic relationship between students and teachers, where students feel motivated throughout the learning process, freely express their concerns and questions, receive feedback on the topics learned, and acquire meaningful and effective learning.

The implementation of PBL in a classroom has been a valuable experience; however, in the research by Salcido et al., (2024) they point out that challenges are identified, such as project planning, since it requires attention to ensure the clarity of objectives and activities; the equitable distribution of roles and responsibilities is crucial for the good performance of the teams; and the development of skills to search and select reliable information is essential for effective research. It is important to highlight that the teacher plays a crucial role as a guide and support during PBL, facilitating communication, collaboration and teamwork, providing necessary resources and materials and evaluating student performance fairly and constructively. To strengthen PBL, it is essential to dedicate more time to project planning, implement strategies for the equitable distribution of roles and responsibilities, provide tools and resources to develop skills to search for reliable information, continue research on PBL and evaluate its impact on long-term student learning.

On the other hand, the research conducted by Zambrano and Mendoza (2022) shows a result in which the lack of diversity in methods and media used limits the potential of teamwork. Learning is a social act, an act of communication with others, and we always learn from others. Therefore, providing moments of exchange and joint reflection complements the vision of the problem being studied. Each individual carries a personal history whose experiences and experiences are enriched by interaction. Hence, it is suggested that the tasks planned to develop the PEA should be designed taking into account the aforementioned theoretical and methodological requirements.

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Artificial Intelligence in Education for Teachers, Academics and Students in Turkey: A Systematic Review

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Abstract
This research aims to examine the current state of integrating artificial intelligence into education and training processes from the perspectives of teachers, academics and students. The systematic review method, a qualitative research approach, was employed in conducting the research. An evaluation was conducted based on research theses in Turkey, focusing on education and training, and including artificial intelligence in education (AIEd) applications for teachers, academics, and students. As a result of the search in the Council of Higher Education (YÖK) thesis center, 71 theses were identified by searching the keyword "artificial intelligence" in the title and abstract sections of the theses related to "Education and Training". The data obtained from the theses were analyzed by the content analysis method. An evaluation was conducted on the use of artificial intelligence technologies in education by examining their distribution according to years, sample groups, study areas, topics, variables addressed, and the results of these variables. According to the findings, there has been a significant increase in the studies on the use of AIEd in the last year. Artificial intelligence is primarily used in language teaching, followed by studies in computer programming and science. Artificial intelligence supported teaching environments, creating course materials with AI, and using tools such as chatbots in teaching processes are among the popular topics. Studies on AIEd have examined numerous variables, examining students' cognitive, skill-based, and affective learning outcomes. While the use of AI has been found to positively impact academic achievement, metacognitive behaviors, and sustained learning, skill-based learning has also yielded positive results in variables such as writing and reading skills in foreign language teaching, problem-solving skills, and creativity, as well as affective learning outcomes such as attitude, satisfaction, and motivation. While teachers and academics' awareness of AI is high, their readiness and anxiety levels are moderate. While teachers stated that they need practical in-service training on the educational use of AI, they have been identified as having some pedagogical, ethical, and technical concerns regarding the use of AIEd. These results are thought to guide new research on the use of AIEd.

Keywords: Artificial Intelligence, Artificial Intelligence in Education, Graduate Theses, Systematic Review

1. Introduction

The integration of artificial intelligence (AI) into the education system and classrooms offers a vision for teachers and students to acquire valuable skills (Pandey, 2023). For contemporary education to be creative, analytical,

competitive, and research-oriented, teachers and students need to utilize AI in the educational environment to meet current needs (Marrone, Taddeo & Hill, 2022). Although new technologies have been introduced into educational classrooms and the use of technology in education has been utilized for decades, it is revealed that a large percentage of teachers are not able to ensure the use of digital tools in their lessons fully, in this case, the lessons continue to be taught with traditional methods such as rote learning or repetition, so some students have difficulty in adequate critical thinking and creating new ideas (Castro & Pajares, 2022). Most students report using digital technologies to communicate with their peers, but not to develop sustainable lifelong learning skills (Krikun & Krikun, 2023). The fact that many current teachers do not provide pedagogical support for the use of technology in lessons is seen as a barrier to adequate digital transformation in educational settings in the future (Monteiro & Leite, 2021). To eliminate these barriers, teachers and students must be familiar with new technologies and know how to utilize them effectively. Technologies such as augmented reality, virtual reality, 3D printers, cloud technologies, the Internet of Things, humanoid and educational robots, and AI, which entered our lives with Education 4.0, which means the realization of digital transformation in the world of education, and the contributions that these technologies can offer to education cannot be ignored. Education 4.0 is significant in that it promotes creativity and innovation in teaching, enhances research opportunities, and aligns educational practices with technological advancements, ultimately preparing students for evolving industrial processes (Ulloa-Duque et al., 2020). In this respect, it is inconceivable that education and AI do not coexist in the age of information and technology.

Users who first encountered AI when OpenAI published the first demo of ChatGPT on November 30, 2022, discovered what they could do in this AI chat environment that can generate text in response to natural language inputs. The use of the ChatGPT chatbot increased rapidly as users shared examples of AI use on social networks (Avisyah et al., 2023). This increase allowed users to explore the potential of AI and gain experience in various AI application areas. In the process, various AI-based applications, including chatbots, virtual assistants, productivity tools, and language translation tools, have emerged. AI simulates human cognitive functions, such as logical reasoning and learning, and automates tasks that require human intelligence (Morandín-Ahuerma, 2022). This reveals the potential for AI to permeate and have a significant impact on various sectors. The education sector is one area that is likely to be significantly impacted by AI (Timms, 2016). Upon examining the literature, it becomes apparent that studies on AI applications in education have gained momentum in recent years (Du Boulay, 2023). These technologies have the potential to personalize learning and offer the opportunity to create a teaching environment that is more adaptive to the individual needs of students (Meylani, 2024). For example, with AI, we can analyze students' learning patterns and provide simultaneous feedback, which allows for more accurate and effective pedagogical interventions (Chichekian & Benteux, 2022). The integration of AI into education can be critical for students' future career success by increasing their digital literacy (Sağlam, 2024). To capitalize on these opportunities, it is essential to create environments that facilitate AI integration in schools, implement policies that support these environments, and address the ethical use of AI for both teachers and students (Abdulmunem, 2023).

1.1. Artificial Intelligence and Teachers, Academics

The primary task in integrating AI into education falls on teachers and academics at universities. It is essential to consider their views, past experiences, and expectations to ensure the successful integration of AI into lessons (Holmes et al., 2019). In order to achieve this, teachers need to have AI awareness and skills to use AI by blending it with pedagogical infrastructure and be willing to integrate it into the educational environment. The transformation of the roles and pedagogical practices of teachers and academics by AI is something that will become clear over time, as a result of ongoing research. While the question "Is AI a threat that will completely change the role and value of the teacher, or is it a powerful enabler to increase his/her impact and student achievement?" is being debated, OECD (2021) reports emphasize that the integration of AI-enabled tools into classrooms is accelerating. Similarly, many studies have been conducted in recent years on the impact of AI on the teaching profession (Luckin, 2018; Holmes et al., 2019, Mujiono, 2023; Meylani, 2024, Tillman et al., 2024). Beyond a simple technological adaptation, this question is a pedagogical issue that requires addressing pedagogically and necessitates deep reflection on teacher competencies and the fundamental human values of education. The concerns and negative views of teachers and academics about the use of AI in classes will

negatively affect the effective collaboration that should be established between them and AI. On the one hand, research reveals the opportunities offered by AI in educational settings: personalized learning environments can be provided by analyzing student data through algorithms (Holmes et al., 2019), and AI can be utilized to create teaching materials for courses (Chang et al., 2022).

Administrative burdens such as grading and reporting can be automated (Luckin, 2018), and real-time feedback systems can respond to students' immediate needs. These developments offer teachers the opportunity to dedicate their time to strategic and creative activities, such as in-depth discussions, social-emotional guidance, and project-based learning design (Zhang & Zhang, 2024). On the other hand, significant challenges and controversies remain. Ethical concerns such as student data privacy, the risk of algorithmic bias (Baker & Xiang, 2023; UNESCO, 2019), the importance of "human-specific" skills such as critical thinking, creativity, empathy, ethical reasoning (Hamilton et al., 2023), and the inequalities that the digital divide may cre-ate in access to AI tools are frequently highlighted in the literature (Gellai, 2022, Luan et al., 2020). Moreover, some critics are concerned that over-reliance on AI may lead to a weakening of the fundamental pedagogical and emotional bond between teacher and student (Selwyn, 2022). Teachers' concerns about AI need to be addressed by resolving the ethical, egalitarian, and readiness issues surrounding its use in the classroom, recognizing that it has the potential to completely transform teacher education (Suna et al., 2025). The effective use of AI in education is crucial for enhancing the quality of education and ensuring that educators are prepared for the digital age (Singh & Ram, 2024).

1.2. Artificial Intelligence and Student

Intelligent tutoring systems and personalized learning algorithms. The use of AI in education enables content to be tailored to individual student needs, providing opportunities to promote higher student engagement in lessons while creating a personalized learning environment that meets the unique needs of each student (Singh, 2025). Furthermore, AI contributes to a more effective learning experience by providing immediate feedback, facilitating interactive learning environments, and creating more dynamic and engaging learning experiences (Harry, 2023). Providing timely feedback allows students to understand their progress and areas for improvement (Mallillin, 2024). By addressing individual learning needs, AI can enhance students' academic performance by providing adaptive learning mechanisms that improve student attitudes towards learning, increase motivation, guide students and provide feedback for better academic outcomes (Londoño, 2024; Zhang, 2024; Sasikala & Ravichandran, 2024; Elbadiansyah et al., 2024). However, while challenges such as data privacy, ethical concerns, and the need for equal access to technology persist, practical applications that utilize the transformative potential of AI may be complex to realize. Existing studies show that students foresee the role of AI in shaping their career prospects and see it as a transformative force in education (Almaraz-López et al., 2023). However, their concerns about the ethical use and potential disadvantages of AI persist and effective strategies are needed to integrate AI into educational settings (Dzhanigizova, 2024). Consequently, while the integration of AI into education provides numerous benefits, it is necessary to move the process forward by addressing the negative consequences and ethical considerations that may be encountered to ensure a holistic approach to enhancing student learning experiences (Singh, 2025).

Examining AI research on teachers and students, and making general assessments of their use cases, integration processes, and effectiveness, will benefit educators. AIEd use cases, teacher and student approaches, and teacher approaches in developing countries, such as Turkey, should be evaluated within their context (Hakimi & Shahidzay, 2024). Recent studies in the literature have examined AI research under general headings (Ateş, 2025; Yılmaz & Kaleci, 2025). No detailed studies have been found that include AIEd applications focusing on teachers, academics, and students. Analyzing the variables addressed for teachers and students, as well as the results related to these variables, will reveal the current situation and contribute to AIEd. For scientific development to occur, existing knowledge must be developed and new knowledge added to it. Today, this task is undertaken by universities, other scientific research institutions, and individuals interested in scientific studies. Theses prepared by university faculty members are among the most important primary sources that contribute to science. Theses are crucial for interaction among scientific communities, the dissemination of knowledge, collaboration, the development of science, and the pursuit of innovation. Theses contribute to the formation of collaborative networks

necessary for knowledge sharing and innovation by encouraging researchers to engage in discussions, share findings, and foster communication that enhances the overall scientific endeavor (Andrade et al., 2018). Innovation in sustainable education can significantly benefit from the integration of artificial intelligence, and AI technologies can play a significant role in achieving sustainability goals. Within the framework of social sustainability, where sustainability encompasses both "eco-nomic" and "environmental" and "social" dimensions (Elkington, 1994) the understanding that "technology is a tool for social benefit, rather than an end in itself" has emerged. Sustainable AI is a framework that fosters change with new ideas and applications in education and training throughout the lifecycle of AI products, emphasizing economic, environmental, and social integrity (Saheb et al., 2022). Therefore, discussing the use of AI in education is a necessity for exploring alternative paths to sustainability.

The purpose of this study is to examine the distribution of AI-related theses on teachers, academics and students in the field of Education and Training in Turkey between 2000 and 2024, their sample groups, fields of study and topics, the variables examined in these studies on teachers, academics and students, and the learning outcomes related to these variables. We evaluated how learning outcomes affect three fundamental dimensions: cognitive, skill-based, and affective (Kraiger et al., 1993; Wan et al., 2012). Cognitive outcomes include the acquisition of interdisciplinary knowledge and the development of cognitive processes. Skill-based outcomes focus on progress from skill acquisition to proficiency, while affective outcomes reflect students' attitudes, values, and motivations.

The study sought to answer the following questions:
In this context, the following questions were sought in this study:
Distribution of theses on "artificial intelligence" in the field of education and training in Turkey with teachers, academics and students as the sample:

1. What is their distribution by year and the sample groups?
2. What are the study areas and topics?
3. What are the variables examined and the results related to these variables?

To answer these questions, first examine in which fields and for what purposes artificial intelligence has been used, and then focus on the data obtained from teachers, students, and academics regarding the use of artificial intelligence in learning processes.

2. Method

2.1. Study Design

In this study, a systematic review method was used. A systematic review is defined as identifying scientific studies related to the research question, examining these studies in detail, and synthesizing the data obtained to answer a specific research question, taking into account predetermined criteria (Munn et al., 2018; Yılmaz, 2021). The process steps of systematic reviews are defining a research problem, clearly determining the inclusion and exclusion criteria of the studies to be examined according to the research problem, conducting a comprehensive literature review, and analyzing, interpreting and reporting all the studies selected according to these criteria in an unbiased and objective manner (Lasserson et al., 2019). The reason for using a systematic review in this study is to reveal the current state of research on "Artificial Intelligence" in the field of education and training.

2.2. Search Strategy

The systematic review was conducted by the PRISMA reporting guidelines developed by Page and friends (2021). After determining the research problem, the criteria for including and excluding studies were established.

The inclusion criteria for the thesis included in the systematic review were as follows:
1. Thesis conducted between 2000 and 2024.
2. Thesis in the field of "education and training."
3. Thesis containing the word "artificial intelligence" in the title or abstract.

4. Thesis containing the word "teacher, academic, or student" in the title or abstract and addressing the use of artificial intelligence in education.

The exclusion criteria for studies not included in the systematic review were as follows:
1. Theses without a complete thesis were excluded.
2. Theses containing the word "artificial intelligence" in the title or abstract but not addressing the use of AI in education or the use of AI by teachers, academics and students were excluded.

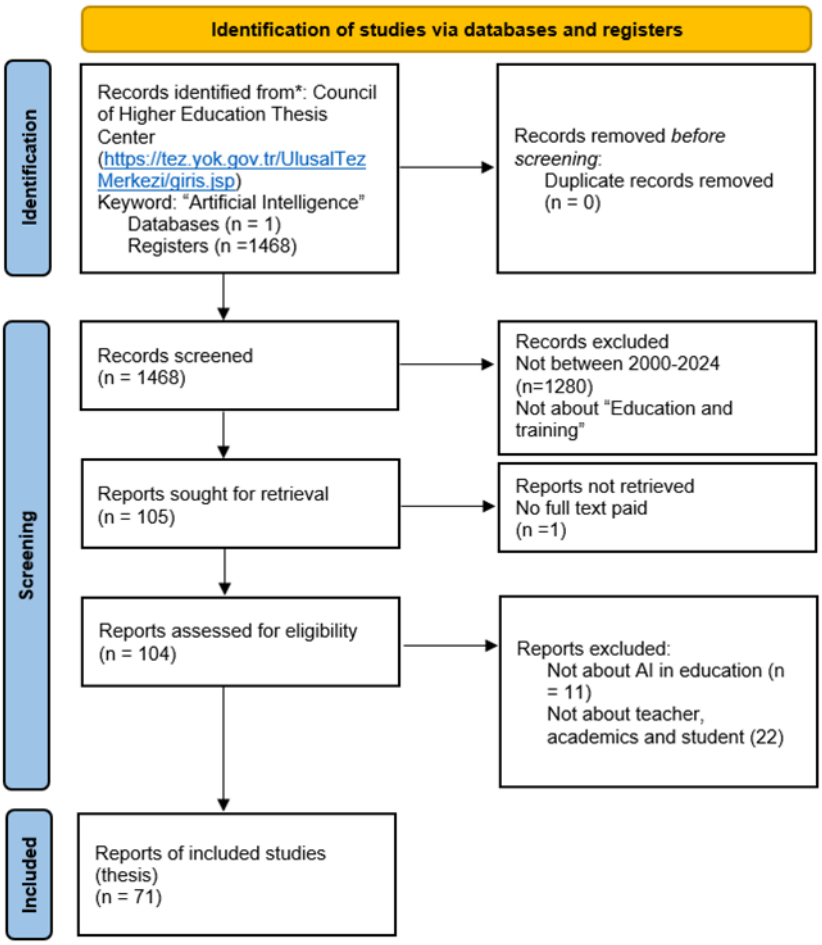

Figure 1: PRISMA flowchart for systematic review

2.3. Population and Sample

The universe of this study consists of all theses on "artificial intelligence" in the field of "education and training" prepared in Turkey between 2000 and 2024. A total of 105 theses were found on the subject of "Education and Training" in the thesis database of the Council of Higher Education Thesis Center (https://tez.yok.gov.tr/UlusalTezMerkezi/giris.jsp) between 2000 and 2024, which included the keywords "artificial intelligence" and "teacher, academician, or student" in their thesis titles and abstracts. The titles and abstracts of the studies were examined by the PRISMA reporting guidelines. When the theses were examined, it was determined that although 11 theses included the word "artificial intelligence" in their abstracts, they were not directly related to AI. 22 theses abstracts were not directly on AI in education, and a total of 33 theses were not included in the research. One thesis was also removed from the study due to a lack of access to its full content (Figure 1). The total number of theses was 71. Fourteen of these were doctoral theses and 57 were master's theses. The selected theses were saved in PDF format on the Council of Higher Education (YÖK) Thesis Center website.

2.4. Data Analysis

The data obtained from the theses were analyzed according to the content analysis method. Content analysis is a research technique that involves organizing, classifying, comparing, and drawing theoretical conclusions from texts (Cohen et al., 2013). Content analysis is a systematic, unbiased, and repeatable method (Krippendorff, 2004) that involves analyzing, coding, and interpreting data from similar studies within a specific framework of concepts and themes (Cohen et al., 2013). All the theses were examined in detail, and common themes were identified for analysis. This allowed for the revelation of both similar and different aspects of the studies. All these were examined in detail, and common themes were identified for analysis, thereby attempting to highlight both similar and different aspects of the studies. In this process, the thesis data were entered into an Excel file and shared with the field expert, after which interviews were conducted. Theme suggestions from field experts were received, comparisons were made, and consensus was reached. Data obtained from theses, analyzed through content analysis, were evaluated using descriptive statistical methods.

3. Results

The study's findings are presented below regarding its research purpose.

3.1. *Findings on the distribution of postgraduate theses on AI in the field of education and training according to years*

The distribution of postgraduate theses on AI in the field of education and training, by year, is given in Figure 2 below.

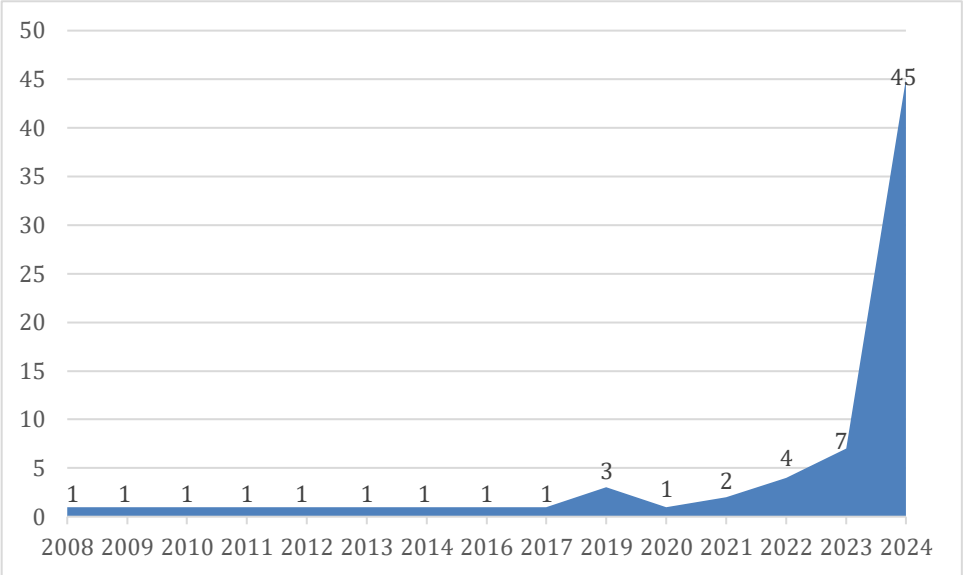

Figure 2: Distribution of theses by year

When Figure 2 is examined, the first study was identified in 2008. It is seen that 71 theses on AI for teachers/academics and students in the field of education and training were published between 2008 and 2024. There has been a significant increase in the number of theses on AI over the last year, with 45 theses published in 2024.

3.2. Findings related to the sample group of postgraduate theses on AI in the field of education and training

The sample groups used in postgraduate theses on AI in the field of education and training are given in Figure 3.

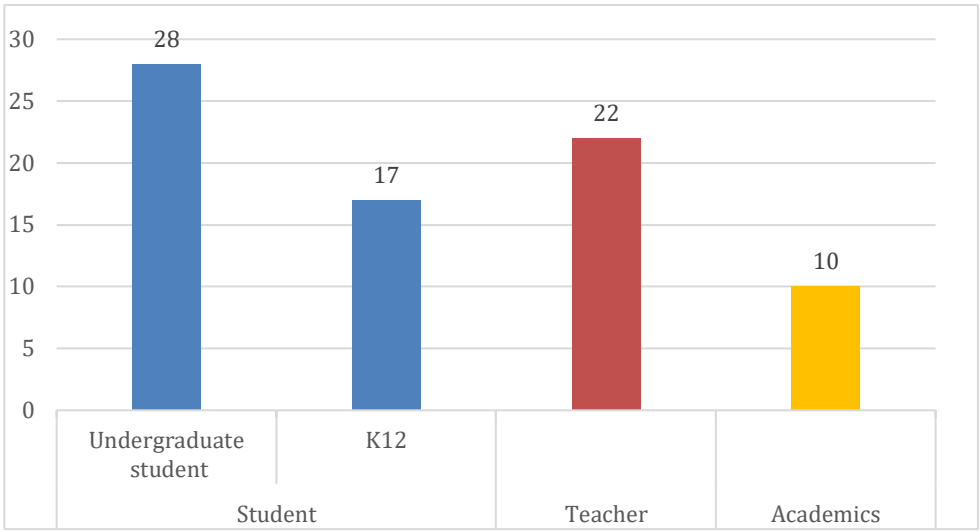

Figure 3: Distribution of sample groups

In these study on AI, data were mainly collected from students in 45 theses, while data were collected from teachers in 22 theses and academics in 10 theses. In the studies conducted with students, 28 theses were conducted with undergraduate students, 17 with K12 level students.

3.3. Findings related to the study areas and the topics of postgraduate theses on AI in the field of education and training

Table 1: Areas and topics of AI study in theses

Category	Theme	Theses number
Language teaching (f=23)	-Using the ChatGPT application in foreign language teaching (9)	36, 40, 41, 43, 47, 56, 58, 66, 68
	-Creating and using course materials with artificial intelligence (8)	11, 27, 28, 31, 43, 46, 59, 68
	-Examining the effects of using AI in language teaching on students' writing skills (9)	11, 27, 28, 41, 43, 56, 58, 59, 68
	-Gathering the opinions of teachers, academics, and students in foreign language teaching (5)	17,37,50,55,63
	-Using generative AI tools in foreign language teaching (2)	46, 59
	-Comparing ChatGPT/Generative AI feedback and teacher feedback in foreign language classrooms (1)	69
Computer Programming (8)	-Evaluation of the creation and implementation of intelligent tutoring systems (3)	1, 6, 32
	-Creation and implementation of machine learning models (2)	15, 26
	-Use of learning environments defined by fuzzy logic (2)	2, 8
	-Evaluation of generative AI-supported programming education in terms of different variables (1)	57
Science (5)	-Design and implementation of an AI-supported teaching and e-learning environment (2)	23, 64
	-Analysis of course literacy using an artificial neural network (1)	12
	-Development of AI-supported mobile application software (1)	42
	-Creating lesson plans with ChatGPT (1)	61

Mathematics (2)	-The effect of an artificial intelligence-supported learning environment on problem-solving skills (1)	7
	-Students' mathematical proof orientations with an artificial neural network model (1)	9
Art (Music, Painting, etc. (2)	- AI-supported solfege lesson planning (1)	29
	- An examination of AI's contribution to painting in fine arts education (1)	52
Social Studies (2)	-Artificial Intelligence-Supported Social Studies Teaching (1)	19
	- Predicting Achievement Test Results Using Artificial Intelligence Methods (1)	38
Physical Education (1)	-Obtaining the opinions of prospective teachers regarding artificial intelligence applications (1)	65
Pre-school (1)	-AI-based smart toy designs for pre-school children (1)	10
Special education (1)	-Intelligent teaching system design for the visually impaired (1)	4
Other (26)	-Obtaining the opinions of teachers, academics, and students regarding the use of AI and generative artificial intelligence and examining them with specific variables (14)	21,22,30,34,35,44,45,48,49,51, 53,54,62,70
	-Developing a teacher AI readiness and awareness scale and a student AI attitude scale (3)	14, 53, 67
	-Using artificial intelligence chat agents as student support services in distance education (1)	3
	-Analysis of learning styles and strategies used in e-learning environments using web usage mining (1)	5
	-Using ChatGPT in measurement and evaluation (1)	70
	-Creating a strategy decision model with AI in open and distance education (1)	13
	-Preparing a course plan for artificial intelligence education in schools (1)	18
	-Document analysis of the innovative effects of AI on teacher education (1)	16
	-Ethical use of artificial intelligence in teaching (1)	71

An examination of these theses on the use of AI in educational environments revealed that 23 theses focused primarily on foreign language teaching. The most common studies focused on the use of the ChatGPT chatbot in language teaching, the creation of course materials using AI, and the examination of AI's effects on writing skills. Additionally, the opinions of teachers, academics, and students were collected on foreign language teaching, and the use of generative AI tools in language instruction was examined. A comparison of AI feedback and teacher feedback was also conducted. Eight theses in computer programming created and used intelligent tutoring systems, machine learning models, and fuzzy logic learning environments. The effectiveness of generative AI-supported programming training was examined using specific variables. Two theses in science designed AI-supported teaching environments and mobile application software, and used ChatGPT to create lesson plans for science teachers. In mathematics, students' problem-solving skills, mathematical proof orientations, and the use of AI in solfege lessons in art disciplines such as music and painting, as well as the contributions of AI to painting in the fine arts, were examined. An AI-supported social studies course was designed, and another thesis predicted social studies achievement test scores. One thesis addressed the design of smart toys for preschool teachers, and another sought the opinions of physical education teachers on AI applications. An intelligent tutoring system was designed for students with visual impairments in special education. In general, studies not explicitly related to a specific field have primarily focused on gathering the opinions of teachers, academics, and students on the use of AI and generative AI, and examining these opinions in relation to specific variables. There are also scale development studies to assess teacher AI readiness and awareness, as well as to determine student attitudes towards AI. A small

number of studies have explored the use of AI chatbots as student support services in distance education, their use in assessment and evaluation, the creation of strategy decision models using AI, and the analysis of learning styles and strategies used in e-learning environments through web usage mining. When examining the topics of these theses in general, popular topics include AI-supported learning environments, the creation of course materials with AI, the use of tools such as chatbots in teaching processes, and the gathering of teachers' and students' opinions on the use of AI in classrooms.

3.4. *Findings related to the variables addressed for teachers/academics and students and results related to these variables in postgraduate theses conducted in the field of education and training on A*

The findings regarding the variables examined in postgraduate theses for teachers, academics, and students conducted in the field of education and training on AI, are presented in Figure 4.

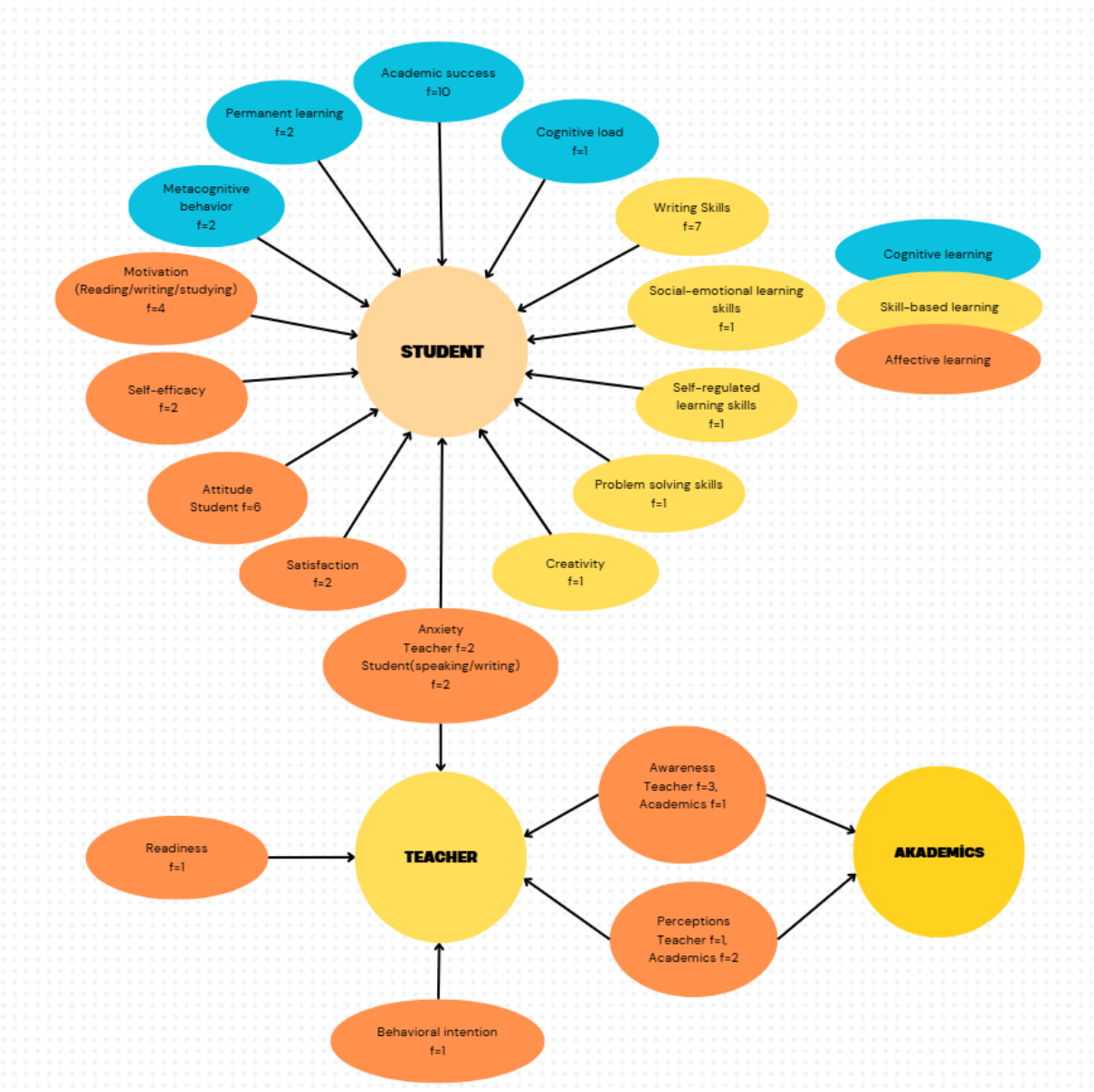

Figure 4: Variables addressed in theses

Studies have examined many different variables related to students. Among cognitive learning outcomes, the impact of AI on academic achievement has been the most frequently studied. Following this, studies have also been conducted to examine its impact on writing skills in language teaching, among skill-based learning outcomes,

and to determine attitudes, among affective learning outcomes. Additionally, among cognitive learning outcomes, metacognitive behavior, cognitive load, and its impact on learning retention have been examined. Among skill-based learning outcomes, problem-solving skills, social and emotional learning skills, self-regulated learning, and creativity have been examined. Among affective learning outcomes, other variables examined include reading, writing, or course motivation, students' self-efficacy perceptions, satisfaction, and anxiety. While teachers' AI awareness has been the most frequently examined, studies have also identified studies examining their readiness, behavioral intentions, anxiety, and perceptions. A limited number of studies have examined AI awareness and perceptions among academics. Teacher and student anxiety, as well as the awareness and perceptions of teachers and academics, have emerged as common variables.

Table 2 and Table 3 presents the main results of postgraduate theses conducted in the field of education and training on AI for students, teachers and academics.

Table 2: Results for students (Learning outcomes and results)

Sample group	Category	Theme	Theses Number
Student	Cognitive learning	There was a significant difference in academic achievement scores (10)	1,2,7,8,12,25,29,38,42,64
		Activities designed to support metacognitive behaviors had a positive impact on students' metacognitive behaviors (2)	18, 28
		Positive results were obtained in the permanent lear-ning of vocabulary in foreign language education.	36,39
		AI increased cognitive load (1)	57
	Skill-based learning	The use of AI had a positive impact on English writing performance/writing skills (8)	11,27,28,41,56,58,59,68
		Students developed problem-solving skills using AI (1)	7
		Social-emotional learning skills were positively affected (1)	32
		AI improved students' self-regulated learning skills (1)	34
		AI increased students' creativity (1)	52
	Affective learning	Students exhibited positive AI attitudes (6)	2,29,41,64,65,67
		Their motivation (reading/writing/study) increased positively (4)	31,38,39,43
		Students' AI self-efficacy levels increased (2)	12, 65
		Students' satisfaction with the use of AI in classes was high (1)	43
		Students' speaking and writing anxiety has decreased with the use of AI in language teaching (2)	40, 43

Studies have shown that the use of AI in educational settings positively impacts academic achievement, metacognitive behaviors, and enduring learning, which are cognitive learning outcomes. Skill-based learning outcomes have been found to positively impact writing skills, problem-solving skills, self-regulated learning skills, social-emotional learning skills, and creativity in foreign language teaching. Students exhibited positive attitudes toward the use of AI in classrooms, indicating increased motivation for writing and reading, increased self-efficacy, higher satisfaction, and decreased speaking and writing anxiety with the use of AI in language teaching.

Table 3: Results for teachers and academics

Category	Theme	Theses Number
Teacher	Teachers' awareness of AI was generally found to be high. These awareness levels were found to vary significantly across variables, including teachers' gender, age, graduation status, field of study, and professional experience (3)	44, 48, 55
	Their anxiety was moderate, decreasing as their awareness and self-efficacy increased. They stated that they needed practical in-service training on the educational use of AI (2)	20, 44

	As teachers' awareness of AI increased, their use of innovative pedagogy also increased (1)	33
	Their readiness was moderate. While their behavioral intentions were positive, they also expressed concerns about AIEd (1)	53
	They have a positive perception towards the use of AI in classes (1)	17
Academician	They have positive perceptions about the integration of AI into educational environments, such as the potential to reduce workload and save time. They also have ethical, technical, and pedagogical concerns regarding the use of AI in academic settings (3)	32, 49,50
	They have a positive perception towards the use of AI in classes (2)	50, 63
	Their awareness is high (1)	70

There are studies showing that teachers and academics have high awareness of AI, and their perceptions are generally positive, but their anxiety levels are moderate. Teachers' readiness for AI use is moderate, and it has been determined that as their awareness increases, innovative pedagogical practices increase. Academics have been identified as having some concerns about the use of AI in educational settings, such as professional responsibilities and ethical issues. However, academics and teachers have a positive perception of AI use in classrooms.

4. Discussion

In Turkey, it is evident that educational studies on AI have reached their highest level over the last year, showing a significant increase. There are many studies in the literature showing that there is a significant increase in the use of AIEd in many countries in 2023-2024 (Batubara et al., 2024; Derinalp, 2024; Doğan & Şahin, 2024; Durak et al., 2024; Kavitha & Joshith, 2024; López-Chila et al., 2023). Numerous studies have been conducted on the use of AI technology in educational environments in various countries, including the UK, India, Spain, and Germany, as well as in China and the USA (Durak et al., 2024; Guo et al., 2024). The reason for this increase is the growing interest in AIEd applications and the diversification of AI technologies, driven by increasing investment in the AI sector over recent years (Kaya, 2024). The opportunities offered by the use of AI tools, such as chatbots, generative AI tools, and intelligent tutoring systems, at every stage of education have been explored (Duarte et al., 2023) and continue to be explored. Upon examining the studies, it is noted that terms such as intelligent tutoring systems, personalized learning, and adaptive learning are frequently used (Durak et al., 2024). In another study, "generative AI" and "ChatGPT" are among the most popular topics (Kavitha & Joshith, 2024). This indicates that AIEd applications will remain popular for a considerable period.

While data were collected primarily from students in AIEd studies in Turkey, it was observed that the majority of them were undergraduate students, followed by students at the K-12 level. Upon examining the literature, it becomes apparent that more studies have been conducted at the higher education level (Guo et al., 2024). Considering the promising role of AI in supporting teachers' professional development for the future (Li & Su, 2020), it would be beneficial to increase the number of studies conducted with teachers, pre-service teachers, and academics in Turkey. Universities should increase participation in studies and guide to support the use, acceptance, and adoption of AI (Brown et al., 2025). This guidance will also contribute to the diversification of AIEd usage areas.

When the areas where AI is used in education are examined, it is found that most applications are made in foreign language teaching, and AI-supported courses are also taught in science and computer programming fields. Similarly, in the literature, it has been observed that AI studies are primarily focused on English language education, computer science, as well as science, technology, engineering, and mathematics (STEM) and language disciplines (Guo et al, 2024). The fact that AI is highly preferred in language teaching may be because chatbots such as ChatGPT and AI are highly knowledgeable in language processing and translation, work error-free, and provide fast turnarounds (Shi et al., 2020). This makes it possible to utilize them as an effective tool in language education processes, offering students a more interactive learning experience. In recent years, there have also been language learning applications in which you can chat with avatar characters in AI infrastructure in the language of your choice (Vy & Pham, 2024). Achieving positive results in reading and writing skills through correct

pronunciation, identifying deficiencies promptly, and correcting them supports the growth of AI-supported language learning platforms and their application in course environments (Aleedy, 2022). In another study, it was observed that fields such as computer science and social sciences stand out in AI studies in higher education, with a steady growth in these fields (López-Chila et al., 2023). In this study, it was observed that there are no existing studies on the application of AI in the field of social sciences in Turkey. In programming education, AI can provide efficient and effective solutions for identifying code errors and writing code in the desired software language according to prompts (Becker et al., 2023). Although studies exist in various fields, including mathematics, art, health, special education, pre-school, and physical education, these studies are limited in number. Considering that the primary purpose of using AI in education is to facilitate progress in education and learning, AI can be applied in various fields to provide solutions that offer convenience and save time for both teachers and students (Luckin & Cukurova, 2019). Although it is a concern to access cognitively ready information, it is an important point that AI can be utilized in every field as a supportive role in education (Xue & Wang, 2022).

It is believed that incorporating AI into course material creation processes can enhance practical teaching activities and interaction (Chang et al., 2022). Studies are showing that ChatGPT helps pre-service teachers, especially in generating ideas, and can be effectively used in courses during the digital material development process (Avşar Erümit & Yılmazer, 2024; Kartal, 2024; Bettayeb et al., 2024). Educators using ChatGPT-supported curriculum were found to have higher levels of creative ability and better performance compared to teachers in the control group (Liu et al., 2023). ChatGPT transforms the roles of educators, providing them with personalized help and guidance, allowing pre-service teachers to access innovative ideas and resources, improve their teaching strategies, and foster a more engaging learning environment for students (Jayasinghe, 2024; Kim & Adlof, 2024; Kiryakova, 2024). In Turkey, studies have been conducted that utilize AI in courses, primarily in language teaching, science, and programming, using ChatGPT and generative AI. Generative AI tools can increase student engagement by making the learning process more effective, fun and motivating by providing opportunities to create interactive learning experiences tailored to students, produce content in different languages, and quickly create high-quality educational materials in many formats such as videos, images, and presentations (Jadán-Guerrero vd., 2024; Sağın, et al., 2024). While generative artificial intelligence supports teachers in interacting more with their students by saving time and effort, it also facilitates teachers' lesson plan preparation processes (Nartgün & Kennedy, 2024). In addition, thanks to AI technology, teachers can accurately predict students' academic performance and benefit from AI in assessment and evaluation processes (Crompton, 2023). A limited number of studies have been conducted in this field in Turkey. It is necessary to analyze the challenges of using AI-supported tools in educational assessment and develop strategies to increase the effectiveness of AI in educational assessment (Owan et al., 2023). The application of AI in educational assessment can ultimately transform education, improve learning outcomes, and equip students with the skills needed to succeed in the 21st century. However, it emphasizes the necessity of ethical frameworks, transparent policies, and continuous evaluation to harness AI's potential for personalized learning, effective teaching, and streamlined administrative tasks (Marques-Cobeta, 2024).

The primary application areas of AI encompass educational robots, automated grading, recommendation systems, learning analytics, and intelligent teaching systems (Guo et al., 2024). In the theses examined, minimal studies have been conducted on intelligent teaching systems, creating expert system models, and no studies on educational robots have been found yet. More research is needed on this subject. Intelligent teaching systems assist teachers and students throughout the teaching process, thereby enhancing students' learning efficiency (Xu et al., 2022). For students with special needs, intelligent tutoring systems and generative AI tools can provide an opportunity to create inclusive, adaptive, and personalized learning environments that overcome barriers in the traditional education system (Habib & Janae, 2024). Generative artificial intelligence applications have helped new special education teachers prepare individualized education programs and use their time more efficiently (Rakap, 2024). In this context, the research revealed only one study on intelligent instructional system design for the visually impaired, indicating a gap in studies on AI for special education.

Exploring students' perspectives and experiences with AI will support the development of an innovative and inclusive education system (Dzhanigizova et al., 2024). Students' dispositions towards AI have been examined about various variables. Data have been collected on a variety of cognitive, skill-based, and affective learning outcomes, including the impact of AI on academic achievement, writing skills in language learning, problem-

solving skills, retention, course motivation, critical thinking skills, self-efficacy, and satisfaction, and positive results have been obtained. It has been observed that students with higher awareness of AI report more positive thoughts about integrating AI into their classrooms, while students with low awareness of AI tend to fear it (Marrone et al., 2022). In this context, examining AI by considering social, emotional, technological, and pedagogical factors, and embedding it into students' daily lives, enables them to use it in support of their cultures, course practices, and goals, potentially causing significant change in education (Roll & Wylie, 2016). In this context, it would be beneficial to increase students' AI awareness in studies and to consider it together with other variables. While the use of AI in education supports student-centered teaching (Fu, 2020), students can create personalized learning plans based on the intelligent teaching system, select learning content, and organize the learning process (Fang et al., 2019; Shpolianskaya & Seredkina, 2020). Positive results have been obtained. In these processes, it is important to improve educational processes by overcoming important obstacles such as a lack of basic technology and infrastructure to ensure equal access for all students and to plan educational processes by addressing the challenges and opportunities offered by AI (Farrelly & Baker, 2023; Huang, Saleh & Liu, 2021).

In this study, as in the international literature, the opinions of teachers and academics on the use of AI and its potential impact on their professions were explored in numerous theses (Chapagai & Adhikari, 2024; Plattner, Kosec & Bach, 2024; Ali & Okon, 2024). In this study, it was determined that teachers' AI awareness was high and their readiness was at a medium level. While taking these opinions, data were collected on many variables. In this study, while teachers' AI awareness and self-efficacy were found to be high, it was seen that they had a positive attitude towards AI. Teachers can use AI to fulfill their duties effectively by using AI to assess, improve their performance, and provide all the information needed for their students quickly and effectively (14). They can also use AI to review and grade students' assignments more effectively and efficiently (Chen, Chen & Lin, 2020). These situations support the integration of AI. However, it was found that teachers and academics expressed concerns about AI integration. Educators are uncertain about how to utilize AI pedagogically and its potential to significantly impact education and training processes (Akour, 2023). Similarly, while teachers and academics in Turkey are uncertain about what AI will bring in terms of the future of their profession, they have expressed concerns about how to integrate AI into their classrooms from a technical perspective, how to ethically ensure student information privacy, and how to incorporate AI into lesson plans pedagogically. For AI technologies to be utilized efficiently in educational management, training programs should be organized, and AI awareness activities for teachers and students should be increased. Additionally, ethical principles should be clearly defined. The need for teachers to possess the necessary skills for the effective use of AI is becoming increasingly evident, and the necessity of comprehensive teacher education programs that emphasize digital literacy and ethical considerations in technology use is emerging (Gomez-Trigueros, 2023; Meylani, 2024). At this stage, it is essential to discuss how to update teacher education programs on AI integration and how to enhance pre-service teachers' AI self-efficacy, awareness, and perceptions. This view is also supported by Tillman and friends (2024).

As a result, it is anticipated that AIEd studies will continue to grow, and the fields of study and application will diversify. Numerous variables, including teachers/academics and students' views, awareness, and readiness for AI, have been examined, and positive results have been obtained. Furthermore, some concerns about AIEd have been identified. In this context, based on the results of the current study, some recommendations for future research in the field of AIEd applications are as follows:

- While this study examines AIEd research in terms of teachers and students in Turkey, AIEd usage in developed countries and developing countries can be compared in order to reveal and improve the current situation.
- A detailed analysis of AI studies at different levels of education (higher education, high school, special education, etc.) and in different fields of study (social sciences, science, etc.) can help to reveal specific needs and trends in this field.
- Researching how to revise curricula for the use of AIEd for teachers, pre-service teachers, academics, and students can increase the effectiveness of the use of AIEd.

Abbreviations

The following abbreviations are used in this manuscript:

AI: Artificial intelligence

AIEd: Artificial intelligence in education
YÖK: Council of Higher Education

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Social Studies Teachers' Views on Coping Strategies for Historical Trauma

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Abstract
Historical trauma experienced during the teaching of social studies can create significant emotional and pedagogical challenges for both teachers and students. This study aims to investigate the strategies that social studies teachers use to cope with students' emotional reactions when teaching about historical traumatic events, as well as their preferred teaching methods and professional support needs. The research was conducted with 25 social studies teachers working at lower-secondary (middle) schools in the central district of Malatya, Türkiye, using a phenomenological qualitative approach. Data were collected through semi-structured interviews and analyzed via content analysis. The findings reveal that teachers employ strategies such as fostering open communication, building empathy, and creating a supportive classroom environment to help students cope with emotionally charged historical content. Storytelling, the use of real-life examples, visual materials, and drama activities are among the most prominent methods reported. Teachers also adapt their language to be age-appropriate and tend to avoid graphic or potentially traumatic details. The study further highlights teachers' expressed need for in-service training, psychological support, and access to expert guidance when teaching sensitive historical topics. These results underscore the importance of equipping social studies teachers with appropriate coping and teaching strategies to support students' historical awareness and emotional well-being.

Keywords: Historical Trauma, Social Studies Education, Teacher Views, Emotional Responses

1. Introduction

Historical trauma is a form of collective and intergenerational wounding, particularly shaped by the experiences of Indigenous peoples in North America through colonialism, forced assimilation policies, cultural prohibitions, and losses transmitted across generations (Gone, 2014; Maxwell, 2014; Prussing, 2014; Waldram, 2014). Brave Heart (1993) first defined the concept through the Lakota people, emphasizing that this community has endured grief, loss, and psychological distress not only at the individual level but also at family and community levels, persisting across generations. Thus, historical trauma is not merely an individual experience but a trauma with societal and historical roots that can be transmitted over generations (Duran & Duran, 1995).

The formulation of the concept of historical trauma is based on the integration of two fundamental structures: historical oppression and psychological trauma. According to Gone (2014), the rhetorical power of the concept also stems from this integration. Historical oppression encompasses the multidimensional negative experiences to which Indigenous peoples were systematically subjected by European colonizers, such as discrimination, cultural assimilation, forced displacement from their lands, and mandatory boarding schools; whereas psychological trauma refers to the emotional and mental consequences of these processes at both individual and community levels. Therefore, historical trauma points to the enduring wound of past collective catastrophes that continue to affect the present and even future generations of communities.

Gone (2013) has stated that one of the primary motivations behind the development of the concept of historical trauma was to relate the health problems observed among Indigenous peoples to the forms of postcolonial suffering, emphasizing that these issues stem from historical and social conditions rather than individual inadequacy. This approach also aimed to prevent Indigenous individuals from blaming or stigmatizing themselves for the problems they experience, thereby facilitating the healing process. Moreover, it paved the way for Indigenous cultural practices and traditions to be recognized as alternative or complementary therapeutic elements to modern psychological interventions. In this way, the aim was to legitimize and acknowledge Indigenous peoples' own cultural values and healing practices on a scientific and professional level (Gone, 2007).

However, despite these emancipatory aims, the widespread adoption of the concept of historical trauma has largely occurred through the discourses of mental health professionals and advocates operating within behavioral health systems and services. That is, while the concept has made visible the specific social and historical realities experienced by Indigenous peoples, it has also been adapted to existing medical and psychological frameworks. At this point, the resulting debate oscillates between two poles: on one side, there is the emancipatory idealism that situates the medical perspective within a social context, motivating and resocializing; on the other side, there is the pragmatic realism that medicalizes the social and aligns it with the dominant health system. Therefore, historical trauma is seen both as a tool that empowers the unique social demands and healing processes of Indigenous peoples and as a complex area of debate shaped by the boundaries and discourses of existing health systems (Gone, 2013; 2014).

In addition, historical or social traumas such as war, migration, natural disasters, and genocide leave deep and multilayered effects not only on individuals who have directly experienced these events but also on subsequent generations. Such traumatic events lead to profound consequences for survivors, including intense feelings of loss, fear, loss of trust, and identity crises. However, recent scientific research demonstrates that children who have not been directly exposed to trauma, as well as the children of parents or grandparents who have lived through such experiences, can "internalize" these effects in different ways, rendering them psychologically vulnerable. In the literature, this phenomenon is referred to as "intergenerational transmission of trauma" or "secondary traumatization." The concept of intergenerational transmission reveals that trauma is not merely a temporary situation experienced by a single generation, but rather can be kept alive for generations within social memory and family structures. Parents may transmit the conscious or unconscious effects of their own trauma to their children; this transmission can occur through verbal means (stories told, warnings), emotional means (anxiety, overprotectiveness, emotional distance), or behavioral means (strict discipline, high anxiety levels, mourning practices) (Karatay, 2020).

While most foundational literature focuses on Indigenous trauma in North America, the phenomenon of historical trauma is not unique to this context. Many societies, including Türkiye, have experienced profound collective traumas through wars, forced migrations, population exchanges, political violence, and natural disasters. Events such as the population exchange between Greece and Turkey, compulsory resettlements, conflicts, military coups, and large-scale natural disasters have left lasting psychological and societal impacts on multiple generations in Türkiye. Therefore, studying historical trauma and its transmission is particularly relevant to the Turkish educational context, as social studies teachers frequently address these sensitive themes within their curricula.

However, research and educational policies in Türkiye have only recently begun to address how collective trauma shapes both individual development and educational practice. Social studies teachers, often tasked with teaching

sensitive historical events, are uniquely positioned to encounter and manage students' emotional reactions to these issues in the classroom. Despite their critical role, comprehensive studies examining how teachers cope with these challenges, the strategies they employ, and their professional development needs are limited in the Turkish context. Consequently, this study aims to answer the following questions:

- What strategies do social studies teachers use to cope with students' emotional responses when teaching historical traumatic events?
- Which teaching methods and classroom practices do they prefer to ensure effective and sensitive teaching of historical traumas?
- How do teachers prepare themselves professionally and personally for addressing historical trauma in the classroom?
- What types of professional development, in-service training, and support do teachers need to improve their competencies in coping with historical trauma?

Given Türkiye's complex historical and social structure, understanding how teachers address historical trauma is crucial, as their approaches significantly influence students' comprehension of history, identity formation, and psychological resilience.

2. Method

2.1. Research Design

This study was conducted within the framework of a qualitative research approach. Qualitative research enabled the examination of phenomena in their natural context by using various data collection methods such as observation, interviews, and document analysis (Yıldırım & Şimşek, 2005). Within this approach, the focus was on the concepts constructed by individuals and the meanings attached to these concepts (Merriam, 2013). Qualitative research also included the analysis of research problems through interpretative techniques and exploration of meanings attributed to social issues. Thematic analysis was applied to the data obtained through both deductive and inductive reasoning, with sensitivity to the human and environmental context. This approach made it possible to examine and interpret data in depth (Creswell, 2013).

In this study, the phenomenological design one of the qualitative research designs was employed. Phenomenology aims to collect information about phenomena by examining individuals' experiences (Kocabıyık, 2016). Events, experiences, perceptions, concepts, and situations encountered in life may emerge as phenomena whose meanings are not fully understood. The phenomenological design was preferred to better understand such phenomena, as it draws on the diversity of individual experiences, analyzing, evaluating, and comparing these experiences. This design provided an opportunity to examine insufficiently understood phenomena in detail, thus allowing for a broader and deeper understanding (Creswell, 2013; Patton, 2014; Yıldırım & Şimşek, 2011).

In this study, data were collected from teachers who had direct experience with the phenomenon being investigated. The main data collection method was semi-structured interviews, which allowed participants to share their experiences and perspectives in detail. Additionally, non-participant observation was used as a supplementary data collection tool to gain further insight into classroom practices and teacher-student interactions during lessons on historical trauma. Since phenomenology is a part of qualitative research methodology, the aim was not to provide generalizable or definitive results; rather, the purpose was to obtain information that clarifies and deepens the understanding of the phenomenon in a detailed and explicit manner. Findings are supported by direct quotations from participant teachers and by descriptive accounts of classroom situations, enabling a better understanding of the subject matter (Yıldırım & Şimşek, 2011). The methodological choices in this research are theoretically justified by the need to capture the nuanced, context-dependent nature of teachers' lived experiences, which cannot be fully understood through quantitative or survey-based approaches alone. The phenomenological approach enables the research to engage deeply with subjective perspectives, which is especially important given the emotional and sensitive nature of historical trauma in education.

2.2. Participants

In this study, the convenient sampling technique, one of the purposive sampling methods, was employed. Convenient sampling enables the selection of participants who are readily accessible and available to the researcher, facilitating efficient data collection within the constraints of time and resources (Etikan, Musa, & Alkassim, 2016). Although it does not ensure the representativeness of the entire population, this approach is frequently used in qualitative research when the aim is to gain in-depth insight into a specific group or phenomenon rather than generalizability (Yıldırım & Şimşek, 2011). Using this method, the study was conducted with a total of 25 middle school teachers, comprising 13 female and 12 male teachers working in middle schools in the central district of Malatya. The principle of easy accessibility was observed in participant selection. The data collection process continued until sufficient and satisfactory information was obtained, and the study group was completed after interviewing the 25th participant.

In this study, data collection was continued until data saturation was reached, that is, until no new themes or codes were emerging from the interviews and the information obtained began to repeat (Guest, Bunce, & Johnson, 2006). At this point, it was determined that sufficient data had been collected to comprehensively address the research questions, and the data collection process was concluded. Participants were assigned codes such as P1, P2, P3, ..., P25 to maintain confidentiality. Additionally, the data obtained from the interviews were included in the findings section to support and provide evidence for the results.

It is important to note that convenience sampling, while practical for qualitative research, significantly limits the generalizability of findings. The sample of 25 teachers from a single district in Malatya may not represent the broader demographic and cultural diversity of Turkish teachers. Therefore, the results of this study should be interpreted as context-specific and not directly transferable to all educational settings in Türkiye. Future research with larger and more diverse samples is needed to strengthen the generalizability of findings.

Table 1: Sociodemographic Characteristics of the Teachers Forming the Working Group

Characteristic	**Description**
Gender	13 female, 12 male
Age Range	25-30 years
Professional Experience	5-10 years
Education Level	All teachers have at least a bachelor's degree, 7 teachers have a master's degree

2.3. Instrument and Procedures

In this study, a semi-structured interview protocol containing open-ended guiding questions developed by the researcher was used as the primary data collection tool. During the development of the interview protocol, the researcher first reviewed the relevant literature and created a framework covering the key thematic areas to be explored. Next, the validity and appropriateness of the protocol were established through expert review. Specifically, feedback was obtained from three faculty members from the Department of Turkish and Social Sciences Education at İnönü University. In addition, two social studies teachers and one Turkish teacher reviewed the interview guide and provided further suggestions, which were incorporated through subsequent revisions. After these processes, the final version of the interview protocol was established.

The semi-structured interview protocol included the following open-ended questions to guide the interviews:

1. What strategies do you use when you encounter students' emotional responses while addressing historical traumatic events in social studies classes?
2. Which teaching methods or approaches do you prefer to ensure that students can understand the topic in a healthy way while teaching about historical traumas (e.g., wars, migrations, natural disasters, genocides, etc.)?
3. What kind of personal or professional preparations do you make to be ready for students' questions or emotional reactions related to historical traumas?
4. What do you pay attention to in order to prevent your students from being negatively affected or

traumatized by historical traumatic events?

5. What positive or negative effects have you observed on students when historical traumas are discussed in the classroom environment?
6. What types of support or training do you think are needed to improve teachers' skills in coping with historical trauma?

2.4. Data Collection and Analysis

During the research process, pre-scheduled interviews were held with the participants. The locations and times of the interviews were determined according to the participants' availability. Audio recordings were taken during the interviews in order to allow for detailed analysis. The data were analyzed using the content analysis method. In the analysis process, thematic categories were first created based on the research questions and theoretical framework. Then, the collected data were organized according to these categories. Finally, the data were presented with frequency values.

To ensure the reliability of the research and to eliminate potential individual biases during the coding of the data, the interview data were evaluated and coded independently by both the expert and the researcher (coders) conducting the study. Afterwards, these codings were compared, and the numbers of agreements and disagreements were identified to determine the level of inter-coder consistency. The reliability of the research was calculated using Miles and Huberman's (1994/2016) reliability formula: "reliability = number of agreements / (total number of agreements + disagreements)." According to the formula, the reliability value calculated for the study was determined as 91%. Since the level of agreement between coders was 91% in this study, it was concluded that the desired level of reliability had been achieved. According to Saban (2009), in qualitative research, when the agreement between expert and researcher evaluations is 90% or above, the desired level of reliability is considered to be achieved.

3. Results

In this section, the findings obtained from the research are presented and interpreted through tables.

Table 2: Strategies for Coping with Students' Emotional Reactions

Theme	**Frequency (f)**
Emotional Sharing and an Open Communication Environment	12
Developing Empathy	9
Creating a Safe and Supportive Classroom Atmosphere	8
Using Realistic but Softened Language	7
Group Activities	6
Receiving Guidance and Psychological Support	4
Distraction or Positive Redirection Techniques	3

- *P3: "I make an effort to create a safe space where students can share their feelings about topics involving historical trauma. Most of the time, I give them the opportunity to express what they feel."*
- *P8: "When some students become anxious or upset, I first listen to them and explain that what they are experiencing is normal. Then, I ask questions that encourage them to develop empathy."*
- *P12: "While explaining the events, I avoid details and soften my language. I also try to emphasize the positive aspects to prevent unnecessary fear or anxiety in the classroom."*
- *P15: "By organizing small group discussions, I enable students to share their emotions. Through these exchanges, students understand that they are not alone."*
- *P20: "For students who have great difficulty coping emotionally, I cooperate with the school counseling service. If necessary, we seek support from the psychological counselor.*

The most commonly used method is creating an environment for emotional sharing and open communication (*f* = 12). Teachers strive to establish a safe classroom atmosphere where students can openly express emotions such as anxiety, sadness, and anger. This approach enables students to feel valued and understood. Developing empathy (*f* = 9) contributes to students evaluating historical events from the perspectives of different actors and better understanding the pain experienced by others. Especially through practices such as drama, enactment, and role-playing, efforts are made to strengthen students' sense of empathy. Within the theme of providing a safe and supportive classroom environment (*f* = 8), many teachers adopt a respectful approach to students' emotional responses, listen to them without judgment, and guide classroom discussions when necessary. In this way, they aim to reduce students' emotional burden. The use of realistic but softened language (*f* = 7) involves carefully selecting details when describing traumatic events and presenting emotionally disturbing content in a gentler and safer way. By doing so, teachers try to prevent students from developing excessive anxiety or fear. Group activities (*f* = 6) allow students to share their emotions in small groups and realize that others have similar feelings. This has both a calming effect and helps foster a sense of community. In some cases, teachers seek guidance and psychological support (*f* = 4) and cooperate with the school counselor for students who have difficulty coping emotionally. A less frequently mentioned theme is the use of distraction or positive redirection techniques (*f* = 3), where teachers try to maintain balance by directing students' attention to positive or everyday topics after addressing intense traumatic content.

Table 3: Preferred Teaching Methods and Approaches for Historical Traumas

Theme	**Frequency (f)**
Storytelling and Real-Life Examples	13
Use of Visual Materials and Documentaries	11
Discussion and Question-Answer Activities	10
Drama, Role-Playing, and Enactment	8
Group Work	7
Project and Presentation Assignments	5
Field Trips or Virtual Tour Activities	3

- *P2: "When teaching about historical traumas, I tell real-life stories. Students understand the events better and develop empathy."*
- *P5: "I use documentaries and visual materials in class. Especially short films on themes like war or migration make the subject more concrete for students."*
- *P9: "By creating a discussion environment, I allow students to ask questions and express different viewpoints."*
- *P12: "We do drama and enactment activities with students. This way, they feel as if they are part of the events."*
- *P18: "I have students do research and presentations in groups. This not only improves collaboration but also helps them learn the topic from different perspectives."*
- *P23: "If possible, I organize field trips and take students to battlefields or museums. This makes the learning process more permanent."*

The majority of participants indicated that storytelling and the use of real-life examples (*f* = 13) is the most effective strategy. Teachers emphasized that when historical traumas are conveyed not as abstract concepts but through real human stories, students' levels of empathy increase and their understanding of the subject deepens. The second most commonly preferred method is the use of visual materials and documentaries (*f* = 11). Teachers stated that materials such as photographs, videos, documentaries, and maps help convey the impact and reality of events to students more effectively. Visual content, especially in topics that are complex or emotionally intense, attracts students' attention and makes learning more permanent. Discussion and question-answer activities (*f* = 10) are frequently used as practices that promote active student participation, develop critical thinking skills, and reveal different perspectives. Allowing students to share their own views supports a deeper understanding of the subject. Drama, role-playing, and enactment (*f* = 8) emerged as important methods that enable students to experience

historical events, understand their emotional dimension, and develop empathy. Group work (*f* = 7) involves methods that allow students to conduct research together, share their thoughts, and create joint products. This method was found to be beneficial for fostering solidarity among students and for developing different perspectives. Project and presentation assignments (*f* = 5) provide opportunities for students to conduct research individually or in groups and present their findings to the class. In this way, both their sense of responsibility and their research skills are developed. A small number of teachers stated that they prefer field trips or virtual tour activities (*f* = 3), taking students to museums, monuments, or historical sites. These activities enable students to achieve more meaningful learning by seeing the events on site.

Table 4: Personal and Professional Preparation Methods for Addressing Student Questions and Emotional Responses

Theme	Frequency (f)
Following Current Scientific and Pedagogical Resources	9
Experience Sharing and Peer Support	7
Receiving Support from Experts or Guidance Counselors	6
In-Class Role-Play	5
Personal Awareness	4
Emotion Regulation through Art, Literature, or Hobbies	3

- *P3: "I keep up with new resources, articles, and especially current publications on adolescent psychology. This way, I feel more prepared for possible reactions."*
- *P5: "I exchange experiences with colleagues who deal with similar topics. Especially regarding answers to difficult questions, we learn from each other."*
- *P8: "Sometimes a student's reaction can be intense; in such cases, I consult with the school counseling service and develop a joint roadmap with the student."*
- *P12: "For my own preparation, I practice scenarios and role-play; planning in advance how to respond to possible difficult questions makes me feel more confident."*
- *P16: "To manage my own stress and emotions, I do meditation or take short walks. To manage a student's anxiety, I need to be in a good emotional state myself first."*
- *P19: "On emotionally tiring days, I try to relax with short stories or music. This way, I am calmer and more prepared in the classroom."*

According to the research findings, the most frequently used method by social studies teachers to prepare for possible student questions and emotional responses when addressing historical traumas is following current scientific and pedagogical resources (*f* = 9). Participants enhance their knowledge and skills by utilizing up-to-date articles, books, and seminars related to both history and child and adolescent psychology. Experience sharing and peer support (*f* = 7) involve teachers regularly exchanging real-life examples and effective coping strategies with their colleagues through meetings, conversations, or online sharing groups. Receiving support from experts or guidance counselors (*f* = 6) is considered important for developing a multidimensional approach to student well-being, especially in situations with a heavy emotional burden, by obtaining professional guidance. In-class role-play (*f* = 5) refers to teachers mentally rehearsing or taking notes on potential difficult questions and emotional responses before class, which helps them feel more prepared. Through personal awareness (*f* = 4), teachers practice breathing, meditation, or small rituals to control their own emotional responses and stress levels. Emotion regulation through art, literature, or hobbies (*f* = 3) stands out as a method used to relax personally and maintain balance, especially on challenging teaching days.

Table 5: Precautionary Strategies to Prevent Negative Student Impact When Teaching Historical Traumatic Events

Theme	Frequency (f)
Age-Appropriate Language and Content Selection	13
Emphasizing Positive Aspects	10

Avoiding Traumatic Details	9
Observing Student Reactions	7
Creating a Safe Classroom Environment	6
Sensitivity to Differences	4

- *P1: "When explaining historical traumas, I choose words appropriate to the students' age level and avoid details that might cause fear or panic."*
- *P4: "After each difficult event, I highlight stories of hope and new beginnings that emerged at the end of that period. This way, students do not develop a sense of helplessness."*
- *P8: "Some students are highly affected by the events described; I observe them and, if necessary, have one-on-one conversations."*
- *P13: "I pay attention to cultural and familial sensitivities during lessons. Since each student's trauma threshold may differ, I avoid generalizations."*
- *P17: "I make an effort to create a safe classroom environment where students feel comfortable asking questions and expressing their emotions."*
- *P20: "I ensure that the visuals or videos used do not contain violence and are not emotionally triggering."*

The majority of participants emphasized the importance of age-appropriate language and content selection ($f = 13$). Teachers simplify topics according to students' age and developmental levels, avoiding complex or heavily traumatic details. In this way, they aim to prevent students from developing excessive anxiety or fear. Emphasizing positive aspects ($f = 10$) aims to boost students' morale and resilience by highlighting hopeful examples such as solidarity, recovery, and reconstruction that emerged during those difficult periods, alongside traumatic events. Avoiding traumatic details ($f = 9$) means steering clear of content involving violence, death, or pain, and using a gentle and protective tone when discussing sensitive topics. Participants particularly noted that they avoid triggering content, especially for sensitive students. Observing student reactions ($f = 7$) includes monitoring students' facial expressions and behaviors during and after class, and providing individual support or conversations when needed. This approach increases sensitivity to students' immediate emotional needs. Creating a safe classroom environment ($f = 6$) aims to establish an atmosphere where students can freely share their feelings and be listened to without judgment, thereby reducing the negative impact of traumatic content. Lastly, the theme of sensitivity to differences ($f = 4$) involves personalizing lessons and avoiding prejudice, recognizing that each student's experiences and family background may be different.

Table 6: Effects of Discussing Historical Traumas in the Classroom on Students

Theme	**Frequency (f)**
Development of Historical Awareness and Social Responsibility	10
Psychological Impact	9
Social Solidarity	7
Increase in Academic Curiosity and Inquiry	6
Negative Emotions Such as Anxiety, Sadness, or Fear	5
In-Class Discussion	3

- *P2: "When traumatic historical events are addressed, most students become more sensitive and empathetic toward what others have experienced."*
- *P6: "These topics help us recognize our responsibilities as a society and become more conscious individuals."*
- *P9: "Some students may feel sad or anxious at the end of the lesson; sometimes these feelings can last for several days."*
- *P13: "As sharing increases within the class, students support each other more and group cohesion is strengthened."*
- *P17: "Some students want to do further research on these events and turn to books and documentaries*

related to the topic."

- *P21: "Sometimes very sensitive students may experience anxiety, so I am careful when addressing these topics."*
- *P25: "Thanks to discussions, students learn to evaluate events from different perspectives."*

According to the research findings, the development of historical awareness and social responsibility ($f = 10$) enables students to learn lessons from the past of their own society and humanity, understand their social responsibilities, and become more conscious citizens. Psychological impact ($f = 9$) indicates that, due to the weight of the topics, some students may experience temporary sadness, anxiety, or discomfort. Such emotional responses may be more intense, especially among sensitive students. Social solidarity ($f = 7$) shows that through classroom sharing and common feelings, students support each other and develop group cohesion and a sense of social belonging. The theme of increased academic curiosity and inquiry ($f = 6$) reveals that some students are influenced by these topics and are motivated to conduct research, read books, and seek information from various sources. Nevertheless, negative emotions such as anxiety, sadness, or fear ($f = 5$) were observed in some students. Teachers stated that such emotional fluctuations may occur temporarily, especially in lessons where traumatic details are intensely addressed. In-class discussion ($f = 3$) demonstrates that students develop their ability to think from different perspectives and improve their communication skills when discussing these topics.

Table 7: Support and Training Needs for Developing Skills in Coping with Historical Trauma

Theme	**Frequency (f)**
In-Service Training and Workshops	13
Psychological Counseling and Expert Support	10
Provision of Resources	8
Professional Sharing Groups	7
Training in Drama, Art, and Creative Methods	5
Online Training	3

- *P2: "We need special in-service training for teaching emotionally sensitive topics. Drama or creative drama workshops could be very useful."*
- *P6: "Receiving regular guidance from psychological counselors would make it easier for us to understand students' emotional reactions."*
- *P11: "It is very important to be provided with reliable materials and visuals that we can use when explaining traumatic events."*
- *P15: "Sharing methods and feelings with teachers who have similar experiences during regular professional sharing meetings at school is very beneficial."*
- *P19: "Learning about new approaches through online seminars, podcasts, and short courses is very useful for my own development."*
- *P23: "Practical training on creative techniques such as art and storytelling makes it easier for me to empathize with students in the classroom."*

The type of support most frequently identified as needed by participants was in-service training ($f = 13$). Teachers particularly expressed the desire for up-to-date and practical training on how to address emotionally sensitive historical topics using pedagogical methods. Drama, creative drama, and empathy development workshops were highlighted as preferred practices. The need for psychological counseling and expert support ($f = 10$) was also notable. Participants emphasized that receiving regular guidance and supervision from school counselors or field experts would support the emotional well-being of both themselves and their students. Teachers also stressed the necessity of resource provision ($f = 8$). The development of reliable, pedagogically appropriate, and age-appropriate visual, video, story, and activity materials would facilitate the process. Professional sharing groups ($f = 7$) enable teachers with similar experiences to come together, share ideas and feelings, and establish solidarity when dealing with challenging topics. Training in drama, art, and creative methods ($f = 5$) draws attention to the importance of learning creative expression techniques and forms of emotional expression, which can be comforting

for both teachers and students when dealing with historical trauma. Finally, online training ($f = 3$) points to the need for flexible and up-to-date learning environments where teachers can access new knowledge and techniques regardless of time and place constraints.

4. Discussion

The findings of this study provide important insights into the strategies and challenges faced by social studies teachers in addressing historical trauma within Turkish middle schools. Consistent with international literature on trauma-informed pedagogy (Carello & Butler, 2015; Jennings & Greenberg, 2009), this study demonstrates that open communication, empathy-building, and the creation of safe classroom environments are perceived as essential by teachers when discussing traumatic historical events. The frequent use of storytelling and real-life examples mirrors the suggestions of Barton and Levstik (2004), who argue that personalizing history not only deepens student engagement but also fosters empathy and social responsibility.

One noteworthy result is the teachers' intentional use of age-appropriate language and their avoidance of graphic or overly distressing details. This approach aligns with trauma-informed teaching recommendations (REL Appalachia, 2021; Osher et al., 2021), which emphasize that sensitive content should be presented with care to avoid re-traumatization, particularly for vulnerable students. The finding that teachers emphasize positive aspects such as recovery, solidarity, and hope echoes previous studies (Brunzell, Stokes, & Waters, 2016) highlighting the need to balance the realities of traumatic history with messages that build psychological resilience and optimism in students.

Moreover, the study identifies professional development, in-service training, and access to expert psychological support as critical needs among teachers. This is consistent with the work of Berger and Samuel (2020) and Alisic (2012), who found that teachers often feel inadequately prepared to address students' emotional responses to trauma and therefore require institutional support, regular training, and access to mental health resources. However, unlike some Western contexts where more comprehensive support systems may exist (Berger & Samuel, 2020), Turkish teachers in this study reported limited availability of such resources, underscoring a significant gap in the current educational infrastructure.

Another significant contribution of this study is the documentation of multi-modal, student-centered approaches including group work, discussion, drama, and creative activities which have been found effective in previous research for supporting both cognitive and emotional learning outcomes (Harrison & Hurd, 2020). The reliance on peer support and professional sharing groups also reflects the findings of Jennings and Greenberg (2009), suggesting that collegial networks play a valuable role in teacher well-being and professional growth.

Importantly, while teachers recognized the potential positive effects of trauma-sensitive pedagogy on students' historical awareness, empathy, and social solidarity, they also reported short-term negative psychological effects such as anxiety, sadness, or fear in some students. This observation is in line with the literature (Carello & Butler, 2015; Osher et al., 2021), which acknowledges that even the most carefully crafted approaches can elicit strong emotional reactions, especially when dealing with sensitive or recent traumas.

This study expands the limited literature on historical trauma in Turkish education by providing context-specific findings and by demonstrating that, despite cultural and systemic differences, Turkish teachers share many concerns and strategies with their international peers. The results also suggest that further research is needed to explore the long-term effects of trauma-sensitive pedagogy, especially regarding students' psychological adjustment, academic performance, and civic engagement. Additionally, the study's use of convenient sampling and the focus on a single region (Malatya) limit the generalizability of the findings, pointing to the need for future studies with larger and more diverse samples across different Turkish regions.

5. Conclusion

This study reveals the transformative potential of trauma-informed and sensitive teaching strategies in social studies education. The findings demonstrate that teachers make conscious efforts to safeguard students' emotional

well-being through open communication, empathy, and age-appropriate instructional methods when addressing traumatic historical events. The use of storytelling, visual materials, and participatory activities not only increases student engagement but also enables a deeper and more meaningful understanding of complex historical topics.

Nevertheless, the results also indicate notable gaps in the professional support systems available to teachers. Many teachers highlight the need for continuous, practice-oriented in-service training, access to psychological counseling, and reliable teaching resources. Meeting these needs will strengthen the integration of trauma-sensitive pedagogy within the Turkish educational system and ensure sustainability in practice. In this regard, policymakers and school administrators should prioritize the provision of regular professional development programs, peer support groups, and expert guidance, thus supporting teachers to be equipped both emotionally and pedagogically. Furthermore, this study points to the necessity of fostering professional collaboration, peer support, and self-care practices among teachers confronting the challenges of teaching traumatic content. Schools should create an environment that facilitates networking among teachers, emotional support, and the sharing of professional experiences.

In conclusion, developing trauma-sensitive approaches in social studies education will not only enhance students' historical awareness and sense of social responsibility, but also contribute to their psychological resilience. For lasting and long-term impact, it is recommended that future research focus on longitudinal outcomes, the effectiveness of intervention programs, and the adaptation of trauma-sensitive strategies to the needs of diverse student populations across Türkiye.

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The Influence of Leadership Soft Skills on Perceived Trustworthiness in Higher Education: A Conceptual Framework

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Abstract
Leadership in higher education is increasingly defined not only by technical expertise but also by relational and behavioral soft skills that are essential for building trust. This article proposes a conceptual framework linking ten leadership soft skills, including collaboration, communication, initiative, leadership ability, personal development, personal effectiveness, planning and organization, presentation skills, critical thinking, and technological competence, to the multidimensional construct of trustworthiness, which is composed of ability, benevolence, and integrity. Drawing on transformational leadership, servant leadership, social exchange theory, leader–member exchange (LMX), and attribution theory of trust, the framework positions soft skills as antecedents that shape leaders' perceived trustworthiness. Unlike prevailing leadership models that regard trust as a byproduct of leadership style, this study highlights the microlevel behavioral processes through which soft skills generate credibility, ethical consistency, and benevolence in higher education leadership. The paper contributes theoretically by integrating two distinct strands of scholarship, soft skills and trust, into a unified model, and practically by offering guidance for leadership development initiatives in universities and colleges. Although conceptual, the proposed framework lays the foundation for future empirical studies, particularly those employing structural equation modeling (SEM), to validate the pathways connecting soft skills and trustworthiness across diverse higher education contexts.

Keywords: Leadership Soft Skills, Trustworthiness, Higher Education, Conceptual Framework, Organizational Leadership

1. Introduction

1.1. Background of the research and Rationale of the Study

Leadership for the present organizational and learning context has moved from heavily authority-centric to competence- and relationship-based. The globalization, digitalization, and complexity of new institutions demand technical proficiency and cognitive and relational ability for collaboration building, evocation of commitment, and retention of credibility. These behavioral and relational strengths are generally articulated as leadership soft skills and include communication, cooperation, initiative, emotional intelligence, critical thinking, and flexibility. Compared with hard skills, which are technical and task-bound, soft skills have immediate bearings on the manner in which leaders build and maintain relationships with followers (Robles, 2012; Ariratana et al., 2015). Similarly, trustworthiness has become the key construct of leadership effectiveness. Competence, benevolence, and integrity are three of the most significant aspects of trustworthiness (Mayer et al., 1995). Competence, caring, and ethics on the part of leaders give rise to confidence, improve employee motivation, and increase organizational performance (Caldwell & Hayes, 2007).

On the other hand, a lack of trust breeds disengagement, conflict, and organizational decay. As higher education places strong values on collegiate governance and academic freedom, trustworthiness has specific salience for retaining the cooperation of faculty and organizational legitimacy. Despite its long-acknowledged centrality, scholarship thus far has systematically failed to bridge leadership soft skills and trustworthy leadership. The transformational, servant, and moral leadership literature repeatedly includes trust as a necessary outcome (Yasir et al., 2016; Jaramillo et al., 2015), with very few studies detailing the exact microlevel soft skills that build integrity, benevolence, and capability beliefs. The soft-skill literature also concentrates on their application for employability and organizational performance (Abraham et al., 2021; Zainal & Yong, 2020) but nearly always omits their application for building trustworthy leadership. This omission leaves a principal research lacuna.

This study's rationale resides in closing this gap with a conceptual model of leadership soft skills as antecedents of perceived trustworthiness. Through the explicit connection of ten soft skills—collaboration, communication, initiative, leadership ability, personal development, personal effectiveness, planning and organizing, presentation skills, critical thinking, and technology—to trustworthiness, the model has two leadership scholarship contributions. Its first contribution resides in unifying two existing lines of scholarship—soft skills and trust—under one model. Its second contribution resides in delineating practical vehicles of leaders building trust and with promise for leadership education, specifically higher education, wherein governance rests on credibility and collegiate trust. As such, the current paper has merit, as it positions trustworthiness not as an intangible asset but as the end-point of discernible, behavioral leadership behavior. In doing so, not only can knowledge development at the theoretical level occur, but it also facilitates support for future empirical validation if and only if leadership development efforts prioritize those competencies best adapted for building higher interorganizational resilience and trustworthiness.

1.2 Research problems

Twenty-first-century leadership has also witnessed paradigm shifts. Classical views focused on technical proficiency, authority, and command of the decision environment. Globalization, digitalization, and the complex environment of organizations have, however, made "soft skills" of interpersonal, emotional, and cognitive skills dominant so that leaders can operate effectively with varied constituencies. In universities, organizations, NGOs and other organizations, leaders are graded not only on their ability to make decisions but also on their ability to communicate, cooperate, and win their followers' confidence (Abraham et al., 2021; Robles, 2012). Trustworthiness is also a powerful antecedent of leadership effectiveness. The belief that leaders possess integrity, benevolence, and competence has direct effects on their motivation, cooperation with organizational change, and commitment (Caldwell & Hayes, 2007; Mayer et al., 1995). A lack of resistance creates resistance, disengagement, and performance downturns. On the other hand, trustworthy leaders enjoy psychological safety, cooperation, and long-term organizational performance (Breevaart & Zacher, 2019; Siyal, 2023). Despite their central position, extremely few works directly connect leadership soft skills and perceived trustworthiness. Works on leadership styles such as servant, transformational, or ethical leadership—appeal for trust invariably as an end state. They often abstain from detailed processes of how soft skills engender perceived trustworthiness. This relinquishes the opportunity to ascertain the behavioral antecedents of trust as well as design leadership development interventions with an explicit focus on developing these capacities. Organizational complexity currently makes exploration of

this relationship indispensable and necessary. Leaders are constantly facing challenges for which technical knowledge will not suffice, e.g., digital transformation, leading to diverse teams across cultures, or managing institutional crises. In higher education, for example, college and dean leaders have to reconcile collegiate trust and administrative effectiveness, for which organizational capability and social talent are of equal necessity. Corporate managers are left with innovation on one side and transparency and employee loyalty on the other side. In either situation, trustworthiness, as the foundation of sustainable leadership, comes into focus.

Knowing how soft skills produce perceived trustworthiness has practical and theoretical significance. Theoretically, it closes the divide between two lines of literature—trust and soft skills—considered separately. Practically, it provides one blueprint for leadership education, charting professional development initiatives that stress communication, cooperation, and ethics as much as technical judgment does. While there are indeed results such as leadership behavior-end-result correlations of trust, no systematic conceptual model exists between perceived trustworthiness and certain soft skills. At present, the preference for research is as follows:

- Overall leadership styles should be compared without emphasizing specific competencies in particular (e.g., transformational vs. servant leadership).
- Instead of examining micro skills as sources for integrity, benevolence, or ability perceptions, trust is treated as a result of ethical or transformational leadership.
- Do not issue context-specific prescriptions, particularly for higher education, for leadership involves balancing academic values with managerially oriented tasks.
  This paper fills those gaps by developing and arguing for a conceptual framework in which leadership soft skills are the independent factors determining trustworthiness.

1.3 Research objectives

The main objective of this study is to develop and propose a conceptual framework that positions ten leadership soft skills as antecedents of perceived trustworthiness defined through ability, benevolence, and integrity by integrating leadership and trust theories and formulating hypotheses to explain the mechanisms linking these skills to trust in higher education leadership.

1.4 Research limitations

Despite this work having plausible results on leadership soft skills' perceived trustworthiness moderation, there are few shortcomings, which also need amendment. First, the study is still conceptual and entails no data collection at the empirical level. Even as much as the model and the hypothesis are guided by the literature and previous works, the absence of primary data limits the generalizability of the results or the measure of the actual robustness of the purported associations. Second, the scope of the study has been constrained precisely to organizational and higher education leadership settings. These findings are consistent with the emphasis on organizational administration and the higher education leadership role of trust, but the model might not fully reflect the dynamics of trustworthy leadership in other situations, such as political leadership, military command, or community leadership, where situation and culture influence effects might have differing impacts.

Third, the paper cites sources of secondary literature, and while systematic attempts have been made at utilizing peer review and credible sources, analysis will always rely on the availability and quality of the literature conducted. Publication bias and Western perspectives from leadership scholars, as likely limiting factors of the cross-cultural transferability of the model for application with non-Western groups, are areas of concern. Finally, the very construct of trust itself, as an abstraction of belief by adherents, itself can differ with culture, the organizational environment, and experience. The ability–benevolence–integrity model also assumes wide transferability of the model, but such factors might not enjoy equal salience in other societies/institutions. Such constraints imply that further empirical research that tests and fine-tunes the model with varying organizational and cultural contexts will allow for wider generalizability and practical use.

2 Literature Review

2.1 Theoretical Foundations of Trust in Leadership

Trust and leadership theory provide the foundation for understanding why model leaders create a favorable organizational climate to enable employee engagement and high performance. Underlying that question is the concept of trust, which has been widely studied in various styles of leadership, such as servant, transformational, and ethical forms of leadership. Trust is primarily faith in the dependability of leaders and in their integrity and has an overwhelming in-grained impact on the overall organizational climate. Research has revealed that building trust is connected to servant leadership. Jaramillo et al. stressed that trust building is central to effectively leading interdependence in a supervisory-to-follower context (Jaramillo et al., 2015). This is evidenced by Joseph and Winston, who discovered that an organization's belief in servant leadership is positively connected with high levels of trust in leaders over nonservant leaders (Joseph & Winston, 2005). Sendjaya and Pekerti's proposed mutual relationship underscores that servant leadership constructs but maintains and constructs trust with consistent leader practices that foster confidence (Sendjaya & Pekerti, 2010). More particularly, studies investigating the traits and impacts of various forms of leadership have shown that transformational leaders constructively build trust through employee involvement in change, as exemplified by Yasir et al. These studies have shown that transformational leaders build trust through the value of work effort and sources of inspiration amidst changes (Yasir et al., 2016).

This is exemplified by Dirks and Ferrin's results of a meta-analysis showing that leader trust is a robust predictor of team performance and hence points to the practical relevance of trust in organizational and team performance (Dirks & Ferrin, 2002). Ethical leadership, along with transformational and servant leadership, is equally necessitated in trust building. In Lu's article, ethical leadership is positively anchored with organizational citizenship behaviors, moderated by cognitive and affective trust, and portrays the functioning of trust in the context of ethics (Lu, 2014). These papers demonstrate that trust serves as a variable to be granted to secure desired organizational performance. Additionally, the impact of both leader personality and organizational climate contributes equally to the trust equation. According to Sitompul and Munthe, leadership traits and organizations' trust depend on one another and result in an implication that only when there is a favorable organizational climate will the leader trust team members more (Sitompul & Munthe, 2021). Similarly, Hasel and Grover demonstrated a shortage of trust with extreme negative impacts to avert adequate communication and general leader influence (Hasel & Grover, 2017). Character theories of leadership discuss character integrity and consistency of action to result in trust building. This finding is similar to that of Budiargo and Setiawan's article, which suggests that trust is a robust indicator of effective servant leadership (Budiargo & Setiawan, 2023). Additionally, leaders' communication, which is watched by Kosonen and Ikonen, reflects that effective discursive practices play a humongous role in encouraging team members to trust each other in places such as in the context of a modern liberal arts institution (Kosonen & Ikonen, 2019).

2.2 Trustworthiness

Interpersonal trustworthiness is the core of interpersonal relationships and is composed of three basic dimensions: ability, benevolence, and integrity. The literature on this construct emphasizes that these dimensions contribute to trustworthiness judgments influenced by both cognitive and social factors (Mayer et al., 1995; Colquitt et al., 2007). Mayer and colleagues (1995) conceptualized trustworthiness as the perception that a trustee possesses the ability to perform tasks, the benevolence to act with goodwill, and the integrity to adhere to acceptable principles. Empirical research also shows that the benevolence and integrity dimensions may have affective components, whereas ability is more cognitively based, reflecting the complex nature of trust judgments in interpersonal contexts (Zhang, 2021).

2.2.1. Ability

Trustworthiness typically starts with an impression of a person's commitment to following through on promises or commitments. The social communication context and prior behavioral records construct this impression. As an example, Bellucci et al.'s research shows that in the longer term, people make trustworthiness judgments of other

people on the grounds of actual performance in repeated interactions and then adjust strategies for subsequent interactions on the basis of these judgments (Bellucci et al., 2019). Additionally, support is found to show that trustworthiness is connected to perceived competence in some instances. Generalized trust is typically reserved for relevant proficiency or skill and is elaborated in Glaeser et al.'s book, which shows that social acquaintance aids in trust and trustworthiness (Glaeser et al., 2000). Insight into these mechanisms aids an evaluation of the impact of perceived ability on general trust assessments. Interpersonal trustworthiness follows three interlinked dimensions—ability, benevolence, and integrity—and is an ingredient of working associations. Various factors influencing decisions and impressions of trustworthiness are detailed in the literature because of social influences and cognitive processes.

2.2.2. Benevolence

Benevolence is part of one's perceived goodwill, measuring one's readiness to do the other a favor. Emotionally grounded motives such as embarrassment and elation underlie cooperation in trust games and the desire to be trustworthy and to trust, wrote Espín et al. (Espín et al., 2016). This is consistent with the work of Thielmann and Hilbig, which highlights that altruistic motives such as unconditional benevolence and positive reciprocity are central to building trustworthiness (Thielmann & Hilbig, 2015). A better understanding of trust is one of not only observing acts but also inferring the motive for them, which enriches our view of the role played by benevolence in trust.

2.2.3. Integrity

Integrity is also consistent with honesty, a helpful predictor of constructing trustworthiness. As found from Bellucci and Park's findings, trust perceptions at first may rely significantly on an initial impression of honesty and later create subsequent social interactions (Bellucci & Park, 2023). Temporally, the trust dimension is a process of development when initial impressions are reassessed according to interactions of the current and dominating social norms led by Chang et al. (Chang et al., 2010). This means that constructing integrity is not only related to first impressions but also often involves showing honesty along the way to establish a solid foundation to construct trust relationships.

2.3 The Trust-Building Process in Leadership

Trust in leadership is a dynamic process at the center of a company's performance. Trust in humanity is the seed of a leader who is a success, and it still influences team performance and a company's results. Interpersonal trust shapes leader styles and, most importantly, agility. Excellent agile women's leadership is founded, Akkaya and Bagieńska state, on an interpersonal trust premise and not mere belief in practice failure in leadership. Schaubroeck et al. agree and, in publication, note that cognitive and affective trust moderate leader behaviors and team outcome connections. Citizen leaders generate more degrees of affective trust and subsequent performance, primarily in situations where accommodating is of most value (Akkaya & Bagieńska, 2022; Schaubroeck et al., 2011). However, transformational leadership is more likely to build trust. Breevaart and Zacher will likely agree that transformational leadership positively affects followers' trust in a certain sense compared with laissez-faire leadership, a trust violator, and therefore leader performance (Breevaart & Zacher, 2019). Yang noted that transformational leadership indirectly affects building trust in leadership in the sense of cooperation and conflict resolution, referring to intricate mechanisms of building trust in teams via transformational approaches (Yang, 2012). Additionally, trust is a key mediator of differing styles of leadership and differing organisational performance. Boakye et al. infer, for example, that organisational trust in leadership has significant impacts on resilience and organisational citizenship behavior (OCB) such that resilient members high in manager trust are found to be positively active in teams (Boakye et al., 2022). Siyal illustrates the mediating effect of inclusive leadership on work engagement and documents that trust has a psychological safety impact and promotes commitment and performance at the team level (Siyal, 2023). Additionally, trust is still most central to ethical leadership, and research has validated the impact of ethical leadership on creativity through trust and organisational climate. The creation of trust in the organization is suggested by Addai et al. (2023) to increase employees' abilities in terms of creativity and thereby organizational performance. The creation of trust then facilitates ethical

leadership to reach standards and creates an organisational climate where innovation is of greatest value. Additionally, Fulmer and Ostroff (2017) suggest a "trickle-up" process such that first-line manager trust has a positive "spillover" impact and flows into trust in senior-level managers such that trust-building trickles level by level of an organisational hierarchy. This again implies a requirement of having trust at more than one level of leadership to create a positive organisational climate to foster high performance.

2.4. Theoretical Implications

2.4.1 Transformational leadership theory

Transformational leadership theory considers a leader's ability to make and motivate followers for positive action and influence organizational change and performance. Transformational leadership theory refers to the manner in which a transformational leader reinforces followers' commitment and motivation to make them capable of participating in changes in a state of preparedness and resilience. Different studies document the primary characteristic of transformational leadership to induce a positive situation to change, in the majority of cases, due to increased commitment to an organization, positive organizational culture, and the empowerment of an individual. Research has shown that transformational leadership affects employees' readiness to change immensely. For example, Putra occupies a position in which transformational leaders affect an organization's activities and attitudes better and facilitate people's readiness to participate in change (Putra, 2019). In turn, Istiqomah and Burhanuddin agree with the implementation of effective organizational change to arise from transformational leadership and emphasize chiefs' ability to facilitate an environment of acceptance for transformation (Istiqomah & Burhanuddin, 2022). Wu et al. (2024) take the same stance, illustrate the evident correspondence of transformational leadership and readiness to change, and further affirm a dominant chief's role to render a workforce flexible and active (Nordin et al., 2023). In addition, there is strong evidence that transformational leadership increases an organization's commitment, which is a state of effective management of change.

Research by Iqbal et al. illustrates the creation of positive working relationships by transformational chiefs, revealing an evident level of staff organizational commitment, to a large degree, in difficult professions such as health (Iqbal et al., 2019). Runa takes the same viewpoint and believes that an optimal degree of transformational leadership is positively correlated with an employee's commitment to an organization (Runa, 2023). Moreover, Fantahun et al. recommend a transformational style of leading such that adopting a transformational way of operating will make a person more a part of an institution's goals and ensure commitment and not just a sense of compliance (Fantahun et al., 2023). The organizational culture and transformational styles of leaders are connected in relation to change management as well. Liu and Khong-Khai suggested that transformational leadership facilitates a positive organizational culture to achieve the least resistance to change and maximum agility (Liu & Khong-Khai, 2024). In addition, Harb and Sidani indicate the impact of transformational leadership in the public sector, where innovative and new answers to questions that are arising are necessary and performance must be enhanced (Harb & Sidani, 2019). In addition to transformational leadership and a positive organizational culture, leaders are able to establish a solid basis for successful and effective change. In addition to these direct influences on commitment and culture, transformational leadership energizes staff members, a key reason where change happens in an organization. Yang shows ways in which transformational leaders foster the psychological empowerment of people, so performance and agility are improved (Yang, 2023). This empowerment occurs because transformational leaders are able to inspire and energize followers, and the possession of and sense of responsibility toward an organization's goals is felt (Matejić et al., 2021).

2.4.2 Social exchange theory

Social exchange theory (SET) opines that social action is a result of an exchange process where individuals participate in interactions anticipatorily, anticipating a reciprocally balanced return of a benefit, be it economic or social. Blau's seminal 1964 book highlights the interdependencies of reciprocal exchanges of individuals upon which relational tie bases are established, producing varied outputs such as trust, commitment, and work satisfaction in organizational settings (Chiaburu et al., 2011). Effective leadership has been proven to be a driving

factor in building quality social exchanges in an organization. Chiaburu et al. noted that actual leadership forecasts social exchanges and job satisfaction, whereby job satisfaction mediates the relationship between leadership and social exchange processes (Chiaburu et al., 2011). Similarly, Chen and Sriphon discovered that positive dispositions of leadership in the midst of crisis circumstances such as the existing situation of COVID-19 significantly contributed to the interrelationships of staff members' social exchange quality, with the implication that managers play a critical role in evoking cooperation and faith within working groups (Chen & Sriphon, 2022). This effect is equally supported by a paper by Jochims, who pointed out imperatives of social reciprocity to form potent work associations, even more so in low-scale businesses whereby staff norms conduct social exchange procedures (Jochims, 2016). Additionally, the subtleties of social exchanges played out are at more than an organizational level. Audenaert et al. set out ways through which individual-level perceptions of social exchange interrelationships function to cushion pressures of employment interrelationships and lead to a superior affective commitment of staff members (Audenaert et al., 2017). This implies that the perception of social exchange dictates the emotional response and perception of the organization. Therefore, Küçük suggested that social and economic exchanges are precursors to organizational commitment and are a reference to the processes of relationships and employee involvement (Küçük, 2020). Furthermore, social exchange-related psychological processes are essential to employees' behavioral responses in organizations. Ghosh et al. articulated the reward gratitude mechanism that appeals to the reciprocity norm, wherein employees feel obligated to reciprocate positive treatment through increased performance and involvement (Ghosh et al., 2016). This reciprocity is similar to that of the larger context of SET, wherein the expectation of reciprocity of benefits is the force driving work tradition and organizational relationships.

2.4.3 Leader–Member Exchange (LMX) Theory

Leader–Member Exchange (LMX) theory has been a central model of organisational psychology and management studies for investigating the personalities of leader–follower relationships. Since its early codification in the 1970s, LMX theory has placed in the central position the importance of social exchange in the workplace area and has proposed that the quality of exchanges has much to do with forming a variety of organisational outputs, such as performance, satisfaction, and organisational turnover intent (Ribič & Marič, 2023, Abiola, 2021). LMX's initial assumption is that such associations are of unequal but varying quality and inclined to create heterogeneous exchanges, and these in turn act to impact team and general organisational functioning (Martin et al., 2015; Martin et al., 2017). High-quality LMX is defined by the interdependency of mutual trust, respect, and responsibility (Woolliams, 2022). High-quality LMX facilitates open communication and support and creates a cooperative and collaborative climate for team members (Lu et al., 2017). Low-quality LMX creates a distrust and disengagement atmosphere and has debilitating effects such as high organizational turnover intent and low job satisfaction among staff members (Kim & Yi, 2018; Harris et al., 2011). Individual leaders' ability to establish effective LMX is the key to individual employee performance and the general well-being of organizational culture (Byun et al., 2017; Sindhu et al., 2017). Empirical support is found to justify the fact that the quality of trust defining LMX associations has a critical effect on employees' perceptions and actions. Higher-quality LMXs are associated with greater organizational commitment and desire to do more than is required by definitions of their jobs and, through this, organizational citizenship behavior (Lu et al., 2017; Li, 2015).

In this context, leader behaviors constitute important determinants of members' outcomes; many studies have specified the nuances of feedback in LMX interactions and its influence on member impressions and, with this, performance (Audenaert et al., 2020). Similarly, while there is so much positive about LMX, when leaders are unable to create high-quality interactions with each member of a team to an equal extent, LMX differentiation follows. Differentiation, even though teams are occasionally prudent in the actual management of teams by leaders, leads to perceived nepotism and team conflict and negatively affects overall team cohesion and performance (Martin et al., 2015; Wang et al., 2024). Prevention and management of these negatives become necessary for leaders who desire to maximize performance and create a favorable working climate.
In short, LMX theory is a strong theory of leader–member relationships in the workplace. When qualitative elements of leader–member relationships are considered, high-quality, trusting relationships are clearly the core of organizational and individual performance. Successful leadership requires not only an understanding of the

significance of such relationships but also active involvement in practices that build them at different levels of interplay.

2.4.4 Servant leadership theory

Servant leadership theory has evolved into a robust paradigm of leader roles to create a culture of worker engagement, organizational performance, and overall workplace well-being. With the robust assertion that efficient leadership is a byproduct of placing emphasis on the needs of the worker and empowering them with power, the underlying paradigm of servant leadership theory is the assumption of prioritizing the well-being of followers of the leader. Walumbwa et al. presumed that the servant leader style was motivated by a sense of moral responsibility to probe and serve greater stakeholder and organisational needs and, in doing so, an instrumental justice climate to increase the organized citizenship behavior (OCB) of the worker (Walumbwa et al., 2010). This underlying assumption places servant leadership as a focal vehicle by which workplace behavior is positively connected with employees' attitudes by the leader. Underlying this is Clercq et al.'s investigation of the servant leadership and work engagement interface and the discovery that the social capital of followers and leaders plays an important role in neutralizing the negative impact of the working setting stresses on employee engagement (Clercq et al., 2014; Sam et al., 2025). Amin et al. further propagated the servant and innovative work behavior interface and discovered that the public service motivation dimension plays an important mediating role in the relationship (Amin et al., 2024).

This is a thin line at the edge of the border between employee innovation and performance motivating factors and leader style. Furthermore, servant leadership priorities are equally easy to convert into a maximization of performance of the organization in terms of high employee engagement. Various studies have shown that servant leadership is an indicator of high levels of employee engagement, which are precursors to attaining high levels of job satisfaction and commitment to goals (Chuah et al., 2023: Meas et al., 2024). For example, Bavık et al.'s findings established that employee orientation toward servant leadership is an indicator of motivation to commit to extrarole performance outside of formal remit (Bavık et al., 2017). This process is the focal point of tapping the potential of servant leadership to ensure the quality performance of the job and the overall performance of the organization. Specifically, the integration of servant leadership values into skill training programs has been posited by various scholars to nurture a workplace culture of optimism (Williams & Tucker, 2025). Such programs are focal points of aligning the organization's demands and the worker, resulting in a workplace culture of cooperation and trust. Additionally, a study by Paesen et al. further showed that servant leadership contributes to a decrease in employee deviance but an increase in ethical performance, an example of its wider potential beyond a narrow measure of performance (Paesen et al., 2019).

2.4.5 Theory of Trust Attribution

The attribution theory of trust is a useful framework with which to understand trust violation and repair processes in a wide range of situations. Most core to this theory is the hypothesis that other individuals' view of the motivation of a particular act determines trust beliefs to a large degree. In a trust violation, other individuals impose causes, which are assigned to transgressor internal dispositions (i.e., competence or integrity) or to environmental factors that control behavior. This distinction is then applicable to trust repair procedures such that denial or apology repair strategies are often moderated by such attribution. Ferrin et al.'s paper is a good example of such a paper and demonstrates the usefulness of a distinction between integrity and competence trust violations such that the same malfeasance act has varying cognitive and emotional effects on a victim and thus affects the trust repair strategy (Ferrin et al., 2007). Similarly, a more highly differentiated analysis of trust violations is hypothesized by Frawley and Harrison so that gender and agent roles can affect attribution and then subsequent trust repair (Frawley & Harrison, 2016). This hypothesis is seemingly informative because it tells us about the ways in which varying contexts may give way to varying trustworthiness beliefs such that violator and violated reparative efforts are moderated. Additionally, trust repair strategy research in an organisational setting, for example, research by Wang et al., aims to support the use of attribution theory and to propose that heterogeneous causal attribution may lead to highly varying trust recovery outcomes (Wang et al., 2021). These attribution levels are important when considering why trust repair efforts are increasingly effective and why trust repair efforts fail. The circumstances

under which a recipient imputes deceitful behavior to internal rather than external causes affect the will to forgive and to reconstitute trust, as reported by Wu et al. (2024) in the context of the COVID-19 epidemic.

This finding is consistent with findings that suggest that a trust repair act's perceived sincerity is critical in overcoming trust breaches—altruism and sincerity strongly weight clients' trust in service interactions (Hoogervorst et al., 2015). Notably, Tomlinson et al.'s work offers a cognitive model of a process to explain the way in which attributions surrounding trust violations manage people's responses and the complexity of repairing trust (Tomlinson et al., 2020). They extend the prior concept that the causal attribution dimension of stableness—perceived permanence or impermanence of individuals' reason for the trust violation—affects strategies for restoring trust. This finding is consistent with the findings of Chen et al., who pointed to a mediating effect of causal attribution in successful trust repair in e-commerce contexts and concluded that consumers' perspectives of a trust violation's motivations directly affect a recovery strategy (Chen et al., 2013). Toward further implications, Dirks' research linking the effectiveness of leadership to trust processes points out that trust in leaders may determine organizational performance, a measure indicative of returning to a prior impact of trustworthiness of leaders from an observer's team viewpoint, again pinpointing attribution dynamics in trust contexts (Dirks, 2000). This recursive process underscores a sense in which a perception of a leader's intent may play a critical role in building and eroding trust within teams and open the way to an expanded view of attribution theory directions and applicability to a deeper field of organizational behavior and team studies.

2.5 Leadership Soft Skills: Definitions and Importance

Thus, leadership qualities—cognitive, affective, and interpersonal talent—increase recognition as leadership competence. Compared with hard qualities and technical and task-directed qualities, softer qualities enable leaders to establish relational ties, secure cooperation, and function with intricate organizational dynamics. Ariratana et al. (2015) note that educational administration necessitates technical knowledge and softer qualities, and Robles (2012) indicates that they are as successful as hard qualities for job success. Below, each of the ten soft skills is examined as a potential antecedent of trustworthiness.

2.5.1 Collaboration/Teamwork

Teamwork and collaboration instill leadership trust. Effective teamwork fosters psychological safety climates, with members remaining trusting their leaders as credible and supportive. Kohanová et al. (2024) reported that collaboration decreases healthcare mistakes and infuses trust into teams. Similarly, Schaubroeck et al. (2011) observe that trust is reinforced as leaders establish affective and cognitive connections with their teams. In higher education, collaboration between deans increases higher education faculty involvement and perceptions of fairness (Cho & Poister, 2014). Principals considering their subordinates as part of consensus building and collective governance are viewed as trustworthy (Diggele et al., 2020). Ethical and collaborative models of governance also improve support for trust, as organizational and personal values become tied (Javed et al., 2018). In this sense, teamwork offers fertile ground for being trustworthy, especially for education and healthcare organizations.

2.5.2 Communication

Communication probably comes closest to an immediate path to trust. Owusu et al. (2021) demonstrated that deans' effective communication builds climates of trust and that poor communication violates credibility. Writing at the organizational level also verifies that clear and consistent communication remedies mistakes and failures on the part of managers. Successful communication reinforces leaders' leadership in articulating expectations, goal alignment, and conflict management (Rahman et al., 2025). In times of crisis, such as the COVID-19 outbreak, a communication strategy is especially needed for the preservation of trust (Kashive et al., 2022). Lui and Ruan (2023) reported that academic and administrative communication on the part of administrators for the preservation of trust has mixed constituents. In this way, communication is relational and not transactional—its removal destroys and its very presence builds it.

2.5.3 Initiative

Initiative strategies include leaders' participation in innovation and in solving problems. Ahmad and Ahmed (2022) suggested that the effectiveness of leadership is mediated by higher education and trustworthiness. There are staff members who are confident in initiatives if they feel that their leaders are trustworthy (Kearney, Loughlan, Ajjpur, Fawns, and Davys, 2013). Trust makes staff members part of new initiatives, creating an innovation and reinforcing the trust cycle (Carter and Mossholder, 2015). Lau, Au, and Siu (2013) reported that supporting institutional initiatives from faculty members increases with increasing trust. In general, leaders, as initiators with integrity, build trust as innovators and organizational value guardians.

2.5.4 Leadership ability

Leadership ability also comprises vision, decision-making, and influence. Transformational leadership has always gone hand-in-hand with greater trustworthiness (Waheeda et al., 2023; Jung, 2022). Authentic leadership, with its qualities of openness and consistency, also enhances trust (Caldwell & Hayes, 2007). The transformational leadership of nursing deans elevated faculty members' level of satisfaction and trust, as reported by Worthy et al. (2020). Similarly, Khan et al. (2019) reported that leadership abilities—ethically guided vision, involvement, and empowerment—shape trust perceptions among higher education institutions. Good leadership ability thus

2.5.5 Personal development/coaching

Personal development involves leaders' self-knowledge, emotional intelligence, and coaching capability. Self-investment, as exemplified by leaders in personal development, instills integrity and reinforces trust (Caldwell & Hayes, 2007). Emotional intelligence establishes trusting behavior, as leaders are empathetic and mentor their immediate subordinates (Kudesia & Reina, 2019). Lapka and Kung (2023) reported that self-control, which is learned as a result of personal development, has direct application for views of integrity. Academic leaders, as exemplars of self-development and mentorship, are viewed as trustworthy, as they reconcile others' development

2.5.6 Personal effectiveness/mastering

Personal effectiveness entails achieving maximum performance with integrity and transparency. Rahman et al. (2025) emphasize its central position for academic leadership, as trust sustains faculty morale. Transformational leaders with personal effectiveness in terms of performance and moral behavior intertwine to form trust (Shahid & Harun, 2024). Interactive discussion also forges trust with frank discussions (Kosonen & Ikonen, 2019). Wahlstrom and Louis (2008) also advocate the extension of trust with mutual professional identities to delineate the effectiveness–trust relationship.

2.5.7 Planning and Organizing

Planning ability and organizational ability are indicators of foresight and dependability, and they are trustworthy. Jiang and Luo (2018) theorize that employee trust is fostered with clear planning. Inclusively planning genuine leaders builds trust, as they model ethical commitment (Babaoğlan, 2016). On scholarship campuses, organizational and planning clarity from deans reassures faculty members as part of change agendas (Islam et al., 2020). The inclusiveness of planning practices is seen to foster employee trust, as their model structure and equity are inseparable (Okello and Gilson, 2015).

2.5.8 Presentation skills

Presentation skills help leaders express vision and build credibility. Hromas et al. (2018) reported that communicative clarity has direct impacts on perceived academic leadership trustworthiness. Experimental tests have shown that data presentation clarity elevates the level of faculty confidence and perceived integrity (Sharif et al., 2020). Proper presentation synchronizes leader speech with behavior and creates trustworthiness (Tamilina & Tamilina, 2018).

2.5.9 Critical Thinking

Critical thinking helps leaders review, reflect, and make informed choices. Afdareza et al. (2020) viewed student achievement as contingent on critical thinking; for leaders, it is credible as a problem solver. Greater fairness and vision for leadership, as cited by Kyamanywa and Redding (2021), are both essential for establishing trust. Clear thought processes also support constructs of honesty and competence (Wakefield & Whitten, 2006). In this process, critical thinking bridges the gap between rational choice and relational trust.

2.5.10 Technology

Technology competence now constitutes leader legitimacy for digital spaces. Schreibelmayr et al. (2023) also illustrate digital space competence as gaining legitimacy for automated spaces. Inextricably, McKnight et al. (2002) also believe that technical competence presages capability and foreseeability. Thus, digital transformation education leaders are tasked with becoming technologically skilled for additional legitimacy among learners and staff members (Wakefield & Whitten, 2006). Technological competence is thus anything but incidental and essential for the credibility of this era.

2.6. Conceptual Framework & Hypotheses

2.6.1 Conceptual Framework

Working with others/collaboration, communication, initiative, leadership potential, personal development/coaching, personal effectiveness, planning and organization, presentation style, critical thinking, and technology are the independent variables (IVs) that affect the dependent variable (DV): perceived trustworthiness. Trustworthiness is conceptualized as a multidimensional construct comprising ability, benevolence, and integrity (Mayer et al., 1995). Leaders who are perceived as competent (ability), ethical (integrity), or caring (benevolence) are more likely to gain followers' trust. The framework builds on prior leadership theories—transformational leadership, social exchange theory, servant leadership, and leader–member exchange (LMX)—which emphasize the relational basis of trust. Unlike earlier studies that treat trust as an outcome of leadership style, this framework identifies specific soft skills as antecedents that cultivate trustworthiness.

2.6.2 Conceptual Model Description

Researchers propose two variables, including independent variables (Soft Skills): Collaboration, communication, initiative, leadership ability, personal development, personal effectiveness, planning and organizing, presentation skills, critical thinking, and technology, and dependent variables (trustworthiness), such as ability, benevolence, and integrity. This model elucidates the direct and measurable impact of soft skills on perceived trustworthiness and provides an outline of leadership development as well as organizational development.

2.7 Hypothesis development

2.7.1 The relationship between collaboration/teamwork and trustworthiness

Teamwork and collaboration are decisive factors in establishing the building trustworthiness of deans and, subsequently, schools. Leadership effectiveness, with its very basis as trust, depends so much on the collective endeavor of the team. For example, the communicative effectiveness of teamwork and participation can have direct credit for perceived higher leadership trustworthiness. As the literature suggests, collaboration effectiveness has the propensity of side-stepping healthcare omissions and leaving space for each team participant, leader, and dean to establish mutual trust (Kohanová et al., 2024). Trust in leadership is built on affective and cognitive processes and emotional relationships between the leader and the team at the center stage (Schaubroeck et al., 2011). The establishment of a climate of trust is necessary, as effective teamwork in schools commutes to increased performance and trust in leadership (Cho & Poister, 2014). In addition, the practice of building individual competencies such as open-mindedness, respect, and effective communication also resonates well with the

development of a trustworthy culture in schools of learning (Merritt & Kelley, 2018). Leadership with ethicality and collaborative governance as an area of focus highlights building mutual trust as a defining characteristic. Ethical leaders stand a greater chance of inspiring confidence in the team through a vision that resonates with personal and organizational values (Javed et al., 2018; Lieff & Yammarino, 2017). According to these studies, leaders who are actively engaged in building trust through open communication and consensus development are perceived as trustworthy by peers and subordinates. This connection between active involvement in teamwork and trustworthiness formation is at the center of deans being rendered more effective (Diggele et al., 2020). There should be joint training and development activities for leaders and their teams. These efforts focus on the imperatives of trust-building activities that have the potential to prevent negativity and promote a climate that encourages teamwork (Lee et al., 2010; Chuang et al., 2021). An understanding of leader–member exchange processes can also provide meaningful guidance on how trust is perceived and formed within educational settings and further highlight the collaborative spirit that is needed in these relationships (Chuang et al., 2021).

Proposition: Hypothesis (H1): *Collaboration/teamwork skills positively influence trustworthiness.*

2.7.2 The relationship between communication and trustworthiness

The impact of communication skills on the trustworthiness of academic deans is a complex topic drawing evidence from various studies indicating the nexus between effective communication, leadership efficacy, and trust relationships in academic institutions. Effective communication is always cited as a fundamental competency for deans, by which they are able to build trusting relationships with faculty members, students, and other stakeholders in the academic community. The literature shows that deans who possess good communication skills easily create a climate of trust needed for effective leadership. For example, communication competence enables deans to clarify expectations, communicate information effectively, and have meaningful conversations that are crucial for building trust in their units (Owusu et al., 2021). Research evidence affirms that poor communication most of the time results in misunderstandings and managerial failure, and by extension, deans lacking this competency would not be able to be seen as trustworthy leaders. Owusu et al. identified poor communication practices as a key cause of managerial failure in Ghana's public universities (Owusu et al., 2021). In addition, interpersonal relations fostered through effective communication result in greater perceptions of trustworthiness among academic leaders. Although Khairuddin and Mohamed's systematic review of appreciation of communication skills in several countries is enlightening, to a large extent, it explores graduates' social intelligence and does not directly address trust in academic leadership (Khairuddin & Mohamed, 2023). The relevance of this source to the statement is thus less clear. Finally, studies have shown that academic dean effectiveness in leading units is strongly dependent on communication skills. For example, Rahman et al. found vision and goal setting, unit managing, and communication skills to be the main determiners of dean effectiveness in unit leading (Rahman et al., 2025). The above is meant to indicate that the degree to which a dean is able to provide open and transparent lines of communication is a direct indicator of the performance of such a dean in leadership and, proportionally, how trustworthy he or she is. Kashive et al. provided a certain specificity to ongoing communication in collaboration, a recurrence of such communication forming the basis of the level of trust, even more so within the virtual setting characterized by the facts of the COVID-19 pandemic (Kashive et al., 2022). This observation aligns with that of Hasnidar et al., whose research focused on the effectiveness of communication and trust in determining employees' performance in organizations only (Hasnidar et al., 2023). In addition, deans are compelled to utilize adequate communication strategies to manage their operations appropriately. Academic deans, for example, have been shown to necessitate the balancing of academic and administrative roles, and communication competence is intrinsic in facilitating the effective engagement of faculty and leadership stakeholders (Lui & Ruan, 2023). Such dynamics are needed not only in the context of establishing trust but also in the context of enhancing organizational performance.

Proposition: Hypothesis 2 (H2): *Communication skills positively influence trustworthiness.*

2.7.3. The relationship between Initiative and Trustworthiness

The positive correspondence of a dean's perceived trustworthiness and leadership initiatives receives considerable scholarship support. One of the simplest explanations of said correspondence is borrowed from the quality of the involved characteristics of a great leader, where communication and support are antecedents to trust building in an academicized context. Ahmad and Ahmed reported that traits such as trustworthiness become great determiners of academic institutions' leadership effectiveness, with reference to a situation where aspects of leadership can make a considerable difference in the possibilities of quality assurance initiatives in a discipline of higher education (Ahmad & Ahmed, 2022). Research reveals that when administrators, such as deans, display trust-construction tendencies, faculty respond with better reactions to leadership initiatives. For example, proposals presented by Kearney et al. indicate that trust in administration enhances engagement and substantial discussion among faculty members, a precursor to an instance of effective implementation of new policies (Kearney et al., 2013). Because faculty members trust their administrators, they are more likely and therefore more active in responding to initiatives and thus better deliverables and perceptions of leadership effectiveness (Carter & Mossholder, 2015). The conceptualization of active trust by Lau et al. reflects the situation in which an individual's trustworthiness supports people's participation in initiating and securing their commitment to an organization (Lau et al., 2013). Such bidirectional trust can create a more secure academic institution where a dean's initiatives receive cooperation from the faculty, a situation suggesting that trust contributes to innovation and a progress climate. Finally, Bstieler's documentation demonstrates trust in a collaborative climate environment and hypothesizes that high-trust climates result in better performance and output (Bstieler, 2005). For academic leaders, a dean of outstanding trustworthiness in their behavior—i.e., honest, ethical, and compassionate—will be able to provide an environment under which innovations are welcomed and not discouraged. This finding sustains the argument that perceptions of operating leadership and institutional performance by faculty members are favorably affected by leaders of outstanding integrity and thus are perceived.

Proposition: Hypothesis (H3): *The initiative positively influences trustworthiness.*

2.7.4 Relationship between leadership ability and trustworthiness

The relationship between trustworthiness and leadership ability, especially among academic deans, is supported by many studies. Successful leadership positively impacts faculty and staff and, even more so, institutional trust perceptions of education institutions. Transformational leadership behaviors somehow improve trustworthiness because they initiate factors such as engagement, vision, and integrity, which are crucial in developing a trustful culture. For example, Waheeda et al. presented the effect of transformational leadership strategies in developing leadership ability in academic contexts. They noted that deans applying such strategies are in a position to increase faculty trust via motivational strategies, although the research maintains that there is personal choice among other leadership strategies, for example, transactional leadership approaches to map existing procedures (Waheeda et al., 2023). Jung's study revealed that authentic leadership by academic deans has a direct relationship with increased organizational trust and that when leaders are authenticist, trust can be improved in academic institutions (Jung, 2022). Caldwell and Hayes also maintain that some behavior of a style of leadership has a significant effect on perceptions of trustworthiness and that a leader's engagement style can build trust and develop trustworthiness but also destroy trust (Caldwell & Hayes, 2007; Sam et al., 2025). Worthy et al. presented nursing dean contexts and maintained that transformational leadership can create an academic motivational culture. This not only influences faculty behavioral styles but also determines overall faculty satisfaction and trust in society (Worthy et al., 2020). Sharma et al. presented the need to require academic deans to sustain high faculty morale through the demonstration of the right type of leadership behavior, a move that ensures trust and allegiance to a common purpose (Sharma et al., 2016; Chiv et al., 2025). These findings are complemented by those of Khan et al., who contend that faculties' trust building relies heavily on leadership competencies of an ethical and visionary nature (Khan et al., 2019). Ferguson et al. elaborate further on such a discussion by considering the impacts of perceptions of leadership competencies on trustworthiness judgments and promoting the respective roles of such processes in effective decision-making in universities (Ferguson et al., 2019).

Proposition: Hypothesis (H4): *Leadership ability positively influences trustworthiness.*

2.7.5. Relationship between Personal Development/Coaching and Trustworthiness

The effect of personal development on the trustworthiness of leaders, that is, of deans, is a research record of a multifaceted interrelationship including leadership character, social behaviors, and work cultures. Personal development is the self-development of aspects of a person's life, such as emotional intelligence, social competence, and self-control, and such aspects are determinants of trustworthiness observed in the context of a leader. First, trustworthiness is largely determined by social perceptions and behaviors. Leaders who practice introspection and continuous personal development are observed to foster such a leader's behaviors to broaden credibility and trustworthiness. Caldwell & Hayes (2007) noted that efficient practices of leadership, such as relationship building and instrumentality, are important determining factors in the construction of trustworthiness perceptions. Considering the context of a certain dean, an example of a university leader, acquiring a reputation of trustworthiness is a master key to cultivating the cooperation and academic honesty of faculty and students. In addition, mindfulness and emotional intelligence effects, typically developed through personal development, may support trustworthiness in a leader. Kudesia & Reina (2019) noted that interactions with trustworthy persons trigger mindfulness and that a leader's personal development is an exercise in cultivating a culture of trustworthiness. This consciousness of mindfulness pressures a dean to better manage any type of multifaceted interrelationship scheme and add value to the organization's work culture in a positive manner. Once again highlighting that relationship dimension, research has focused on personal values such as self-control as a primary trait of broadcasting trustworthiness. Lapka el al. (2023) contend that an emotional sense of self-control is a determining factor of a sense of trustworthiness broadcasting and attainment in the interactions of people. Deans who rate personal development highly are most likely to exhibit strong levels of self-control and hence increase the degree to which the members of the academic community perceive them to be trustworthy. Additionally, psychological definitions of trustworthiness are that multiple displays of integrity and benevolence, usually developed through personal development, are the foundation of followers' trust in leaders. According to Rule et al. (2013), trust decisions are variable through personal experiences and the social context in which the decisions are to be made. This means that people who recognize the need for personal development can generate a climate for developing trust, which has a concrete impact on perceptions of competence in leadership.

Proposition: Hypothesis (H5): *Personal development/coaching positively influences trustworthiness.*

2.7.6. Relationship between Personal Effectiveness and Trustworthiness

The relationship between the personal effectiveness and trustworthiness of deans in academic settings continues to remain a prominent research area, especially with respect to the leadership dynamics of the practice of higher education. Personal effectiveness, the competency of an individual for maximum output with skills of emotional intelligence, communication, and decisiveness, relates to trustworthiness—a central attribute of leadership positions. Trustworthiness generally arises from the perception of a leader's ability, openness, and honesty and is significant for his/her organizational contribution and performance. Empirical studies show that personal effectiveness is positively associated with greater perceptions of the trustworthiness of academic leadership. For example, Rahman et al. discuss the effectiveness of academic leadership and the need for integrity and trust and propose that these are the essence of a desirable climate for staff in academic settings (Rahman et al., 2025). Effective leadership, in which there is a high portfolio of personal effectiveness—i.e., soft skills such as emotional intelligence and moral behavior—promotes more trust and commitment among team members, an area discussed in the research of Shahid and Harun, who studied the interaction between leadership competencies, empowerment, and trustworthiness (Shahid & Harun, 2024). Furthermore, Boies and Fiset demonstrated that leaders conveying coherent support and development to employees are rated as trustworthy. This interaction of effective leadership practices and trust requires personal effectiveness in establishing a credible higher education leadership culture (Boies & Fiset, 2018; Sam et al., 2025). Furthermore, Kosonen and Ikonen explain that discursive leadership forms based on communicative engagement can establish trust in academic settings and translate the effectiveness of leaders to their perceived trustworthiness by staff and faculty (Kosonen & Ikonen, 2019; Chiv et al., 2025). In the case of transformational leadership, Brazill & Ruff noted that these types of styles not only enhance the perceptions of students that teachers work effectively but also increase their trust in academic managers. University staff who implement transformational leadership are more trusting of managers and more dedicated to learning goals (Brazill

& Ruff, 2022). This is supported by research carried out by Wahlstrom and Louis, who affirmed that trust problems in learning may decline when an open management culture and shared professional identity prevail, again showing the personal effectiveness and trustworthiness relationship (Wahlstrom & Louis, 2008). Models of leadership to assist in developing ethical and transformational personalities will always nurture more trust invested in deans and other leaders. These findings indicate a cycle pattern; the more leaders develop personal competence in ethics and emotional intelligence, the more a solid base of trust within academics will emerge, creating a more effective learning environment.

Proposition: Hypothesis (H6): *Personal effectiveness positively influences trustworthiness.*

2.7.7. The relationship between planning and organizing trustworthiness

Organizing and planning skills are central competences defining a dean's trustworthiness in colleges and universities. Effective administrators, particularly deans of colleges and universities, must pursue efficient planning and communication procedures to earn the trust of staff members and faculty members. Research on trust has pinpointed that numerous dimensions of trust building are closely associated with effective practices of leadership. First, clear communication centrality to trust building is a primary characteristic. Jiang and Luo noted that the clear communication of organizations, a feature of efficient planning, is an accelerative engine of the trust of staff members (Jiang & Luo, 2018; Sam et al., 2025). Wang and Hsieh corroborate these findings by showing that administrators' effective communication skills lead to trust and high staff member engagement (Wang & Hsieh, 2013). Actions in effect of a dean adopting clear and efficient communication methods are thus an explanation of expectations of transparency and enhance his/her trustworthiness. Second, the theme of authentic leadership is a primary characteristic of these dimensions. Studies have proposed that authentic administrators who show ethical manifestations of administrative practices create an atmosphere rich in trust (Babaoğlan, 2016). In schools, the sense of morality and ethical commitment of a dean are valuable not only for building personal credibility but also for reinforcing institutional ethics and building a trustworthy culture (Tabak et al., 2013). Ethical manifestations of administration, such as integrity and honesty, are connected to the levels of trust of educators and staff members. Given that the dean is responsible for institutional governance roles of various natures, planning and organizing resources ethically can define trust levels to a tremendous degree in each of the departments for which he/she is responsible. Furthermore, planning effects are materialized in the sense of trust when deans attempt to reform and remove institutional obstacles. A lack of planning or ambiguity can erode trust, but proper management, which skillfully steers people to try and deal with ambiguities, helps build resilience and trust (Islam et al., 2020). These include, for example, an institution where it is undergoing transformative change or a crisis, the deans who show organizational planning and provide transparency and communicate appropriately, thereby restoring trust in their leadership skills. Second, the need to develop a friendly and inclusive climate cannot be downplayed. According to the research of Okello and Gilson, friendly supervisory behaviors such as recognition and appreciation are sources of employee trust-building (Okello & Gilson, 2015). This implies that such planning and organizing skillfully for inclusive practices make deans trusted leaders.

Proposition: Hypothesis (H7): *Planning and organizing skills positively influence trustworthiness.*

2.7.8. The relationship between presentational skills and trustworthiness

Presentational skills are a significant factor in trust-building among stakeholders/faculty and deans. Presenting a clearly enunciated vision, decision-making, and creating an open dialog climate by a dean has an immediate connection to a sense of trustworthiness. Scholarly sources examining academic dean competences to lead effectively conclude in an examination of academic dean competences to lead effectively that effective communication, of which a dean's presenting skill is a constituent, is key to a dean leading effectively (Hromas et al., 2018, Owusu et al., 2021). Both of these studies demonstrate that clear communication sets out transparency and opens the door to relationship building, which is central to academic life. Additionally, building trust is powerfully motivated by interpersonal competences, such as empathic communication capability. The habitual repeated practice of effective communication practices not only plants trust but also correlates long-term relational practices with other people (Hromas et al., 2018). Clear-communicating active-minded deans can clarify

expectations and create confidence building. This dynamic is well illustrated, demonstrating that a relationship built on effective communication of an interpersonal kind has a resultant feature of trust and cooperation building in academic contexts (Jin et al., 2022). Additionally, building a sense of integrity is a significant determiner of a sense of trustworthiness perceived by a leader, including an academic dean. The consistency of a dean's speech and action is found in studies to be a powerful source of a reputation of integrity (Hromas et al., 2018). Commenting clearly, taking fault, and explaining decisions are practices that build a trust climate (Tamilina & Tamilina, 2018). When they are presented effectively to communicate these values, they powerfully increase their credibility and the trust that faculty members place in them. In addition, the information provided effectively addresses challenging or problematic aspects and has the potential to influence instructors of higher education and other stakeholders. Empirical studies have shown that open communication is positively correlated with trust building (Sharif et al., 2020). As the dean is observed and experienced in demonstrating astute and candid communication by the instructors, the dean is able to project competence but, most importantly, relational trustworthiness. This is particularly important in an education context where a defined purpose and shared goals through cooperation are central to group performance.

Hypothesis (H8): *Presentation skills positively influence trustworthiness.*

2.7.9. Relationship between Critical Thinking and Trustworthiness

Critical thinking skills are a determining factor in defining the extent to which a dean is trustworthy. Evaluating, synthesizing, and analyzing critical thinking skills lead to judicious problem solving and the optimization of one's trustworthiness. The critical thinking skills of students are positively related to learning outcomes and decision-making competence, and critical thinking skills are the hallmark of leaders, such as deans, in the learning process (Afdareza et al., 2020). Critical thinking leads deans to resolve academic issues through an academic leadership situation, providing an open forum of equity to facilitate decisions to emerge in a transparent and equitable way, an essential trait of trustworthiness (Kyamanywa & Redding, 2021; Miranda et al., 2023). Moreover, personal features such as honesty, integrity, and dependability play important roles in building trust in an individual who is in a leadership position (Kyamanywa & Redding, 2021). Effective deanship is a condition of having a vision of leadership and fairness and is strengthened with critical thinking (Kyamanywa & Redding, 2021; Bassaw, 2010). The critical thinking employed by deans leads them to assess a situation more responsibly and make prudent decisions to gain the confidence of students and faculty members equally. This is further inferred from studies that critical thinking leads to the determination of assumptions and nuances in the construction of an academic relationship of interpersonal kind (Hidayah et al., 2017). Both these areas of critical thinking skills and trustworthiness could also be explained from a communication point of view; effective deans explain the reason for the decision taken and grounds upon which such decisions are taken, which maintains their authority along with their trustworthiness (Wakefield & Whitten, 2006). Trustworthiness is, nonetheless, one of the essential components of effective academic leadership, whose dean must regularly navigate intricate stakeholder interests (Bassaw, 2010). Thus, adding critical thinking skills to deanship not only complements the leadership potential of the dean but also reinforces the dean's standing as a credible academic leader.

Proposition: Hypothesis (H9): *Critical thinking skills positively influence trustworthiness.*

2.7.10. Relationship between Technology and Trustworthiness

The hypothesis that technological competence is a positive contributing factor to the trustworthiness of deans is proposed by several studies in the discussion of the overarching need for competence and credibility when trusting in leadership situations. Perceived competence to steer technological innovations and to speak skillfully to digital interfaces is a central driver of trustworthiness in leadership in a dean’s situation. The study of Kyamanywa and Redding may particularly illustrate the specific competences needed to lead skillfully for medical school deans, such as trustworthiness, integrity, and the management of complexity. Each of these characteristics not only enhances the performance of the leader but also facilitates followership trust; thus, the hypothesis that technology information could facilitate such competences may be proposed (Kyamanywa & Redding, 2021). Schreibelmayr et al. also demonstrated that competence was a determiner driver in inducing trust in automatized workplaces.

Their empirical findings were consistent with the Technology Acceptance Model (TAM), which proposes the hypothesis that perceived usefulness from a technological competence perspective is an overarching determinant in developing trust in technology (Schreibelmayr et al., 2023; Sam et al., 2025). The hypothesis is that the more competence the deans are well impacted when handling technology, the more capable, in the faculty, students', and stakeholders' perceptions, they would seem to be, and thus, more trustworthy. McKnight et al. also investigated indicators of trust in e-commerce and demonstrated that the perception of the competence of an individual was a determining driver in enabling trust relationships. According to them, organizations, such as universities, can become trustworthy by advancing into promotion to informational expert and technological competence marketing through recommendation and quality indicators (McKnight et al., 2002). The findings of this study advance the discussion surrounding the timeliness of technology awareness among prospective deans to create an aura of credibility within the changing school environment. Similarly, Wakefield and Whitten also place equal emphasis on creating credibility in terms of acquired skills and styles of working communications. The active participation of ICTs has the potential to ensure good communication practices so critical that technology is the order of the day, such as universities embracing new learning facilities (Wakefield & Whitten, 2006). Skills to use such installations continue to remain at the forefront of the credibility and trustworthiness of a dean as such

Proposition: Hypothesis (H10): *Technology skills positively influence trustworthiness***.**

2.8. Summary of hypotheses

The ten hypotheses collectively argue that leadership soft skills function as critical antecedents of perceived trustworthiness. By signaling **ability** (competence in decision-making and technical tasks), **benevolence** (goodwill and care for followers), and **integrity** (ethical consistency and honesty), soft skills provide concrete behavioral pathways to trust. This conceptualization extends the existing leadership literature and establishes a foundation for empirical testing in organizational and higher education contexts.

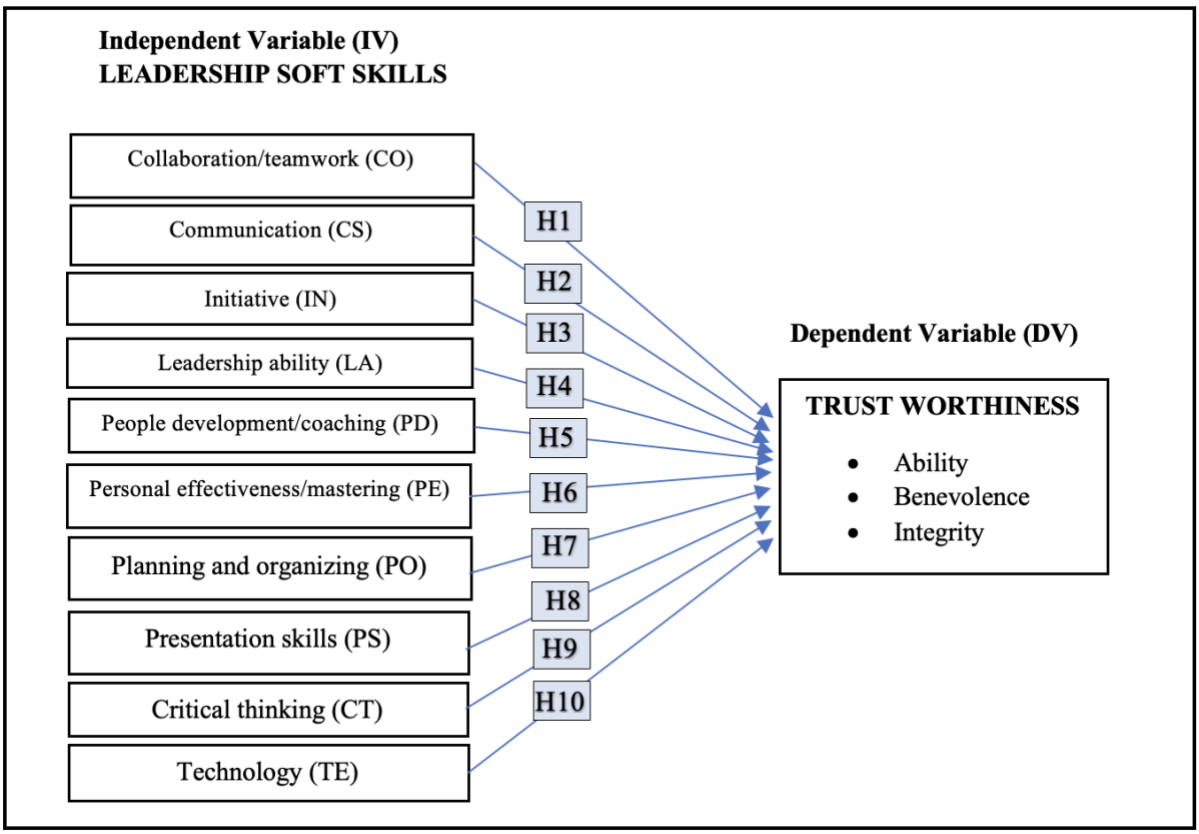

Figure 1: The Conceptualized Framework Model

3. Research Methodology

This paper constructed a conceptual and explanatory research design, specifically for developing and examining an integrated linkage between leadership soft skills and perceived trustworthiness in organizational and higher education contexts. Instead of primary data collection, the paper integrates the dominant literature on leadership and trust, such as transformational leadership theory, social exchange theory, leader–member exchange (LMX), servant leadership theory, and attribution theory of Trust, along with findings of previous empirical studies and shows them at the level of constructing specific hypotheses that have the possibility of being tested with empirical data on an unspecified future date. The data for this paper were collected entirely from secondary sources, i.e., peer-reviewed journal article sources, books, and conference proceedings collected from sources such as Scopus, Web of Science, JSTOR, and Google Scholar. The search terms for the literature were "leadership soft skills," "trustworthiness in leadership," "ability, benevolence, integrity," and "transformational or servant leadership and trust." Inclusion criteria emphasized recent literature published during the last decade of the last decade, i.e., last 10–15 years, whereas seminal works such as Mayer et al. (1995) and Blau (1964) have not been eliminated owing to their theoretical works. The methodology process involves four key phases: charting the dominant literature; listing leadership soft skills under ten facets (collaboration, communication, initiative, leadership ability, personal development, personal effectiveness, planning and organizing, presentation, critical thinking, and technology); merging with three facets of trustworthiness (ability, benevolence, and integrity); and smashing them together in the form of a conceptual model with ten propositions (H1–H10), which combine each of the skills with trustworthiness. Although this is a conceptual paper, it swears validation at the empirical level. For such works, the quantitative survey method is a good recommendation and focuses on academic leaders, faculty members, and organizational managers. Stratified random sampling from institutions would provide representation, with at least 300–500 respondents for adequate power for structural equation modeling (SEM) or partial least squares SEM (PLS-SEM). A structured question set would borrow Likert-scale items from existing instruments on leadership soft skills (Robles, 2012; Ariratana et al., 2015) and trustworthiness (Mayer et al., 1995; Bellucci & Park, 2023). Data analysis comprises descriptive statistics, tests of validity and reliability, confirmatory factor analysis (CFA), and SEM for tests of hypotheses and assessments of model fitness. Mediation or moderation analysis would also be assumed for organizational culture, gender, or the digital leadership context's role impacts on associations. Even without any primary data analyzed here, ethical principles are central for future empirical validation. Researchers need to obtain institutional ethical clearance, informed consent, and participants' confidentiality and anonymity as needed for the Declaration of Helsinki. In conclusion, this methodology places the study as an exercise for creating new theories, synthesizing current knowledge for proposing a conceptual model and simultaneously delineating the path for future empirical validation. Synthesizing the literature on soft skills and on trust theory ensures that the model has theoretical depth, practical propensity, and testability with diverse organizational and higher education settings.

4. Findings and Discussions

4.1 Findings

The aim was to articulate and frame ten leadership soft skills as antecedents of trustworthy leadership. The literature provides an indication that collaboration, communication, initiative, leadership capability, personal development, personal effectiveness, planning and organization, presentation capability, critical thinking, and technology use are again and again portrayed as key strengths of successful leadership. Compared with technical hard skills, those soft skills detail how leaders are connected and related to each other and how motivated and maintain affiliations they are. As antecedents of trustworthy leaders, those qualities as a group help constitute the basis of credibility and belief for leaders. Explanations also confirm that those soft skills are behavioral and trainable entities that are witnessed and observed and that leaders are able to conscientiously learn, defining trustworthiness as not an innate inclination but rather an assumed acquisition.

Table 4.1: Features of leadership soft skills as antecedents of trust

Analytical Dimension	**Identify leadership soft skills as antecedents of trust**
Key Concepts	Ten of the soft skills (initiative, teamwork, communication, leadership ability, personal development, personal effectiveness, planning and organization, presentation, critical thinking, technology) are at the core of establishing trust.
Case Examples	Academic-level collaboration establishes trust accumulation (Schaubroeck et al., 2011); successful crisis communication establishes credibility (Kashive et al., 2022)
Theoretical Basis	Transformational Leadership Theory (communication and vision); Servant Leadership Theory (cooperation and empathy).
Implications for Reform	Include soft skills as part of leadership development courses; evaluate leadership on relational capability, not technical proficiency.

The literature confirms that perceptions of competence (ability), goodwill (benevolence), and ethical consistency (integrity) are the pillars upon which trust in leadership is built. Findings from Mayer et al. (1995) and subsequent studies reaffirm that when leaders demonstrate capability, fairness, and genuine care, followers are more inclined to trust. The discussion reveals that each dimension aligns with specific soft skills—for example, communication and presentation skills with integrity; collaboration and initiative with benevolence; and planning, organizing, and technology with ability. This mapping enriches the conceptual framework by showing that trustworthiness is multidimensional and context dependent, varying according to which soft skills are most salient in a given situation.

Table 4.2: Features of trustworthiness analysis through its three dimensions

Analytical Dimension	**Analyze trustworthiness through its three dimensions**
Key Concepts	Trustworthiness = ability (competence), benevolence (goodwill), integrity (ethical consistency).
Case Examples	Academic deans trusted when showing competence in planning and benevolence in mentoring; loss of integrity erodes trust (Bellucci & Park, 2023).
Theoretical Foundations	Mayer et al.'s Model of Trust; Ethical Leadership Theory.
Implications for Reform	Leadership evaluation frameworks must assess all three trust dimensions; training should target skills that show competence, care, and integrity.

There are indications that there are strong theoretical correspondences: transformational and servant leadership with integrity and benevolence; LMX and social exchange with reciprocity and interaction quality; and attribution theory with leader intention and behavior inferred from followers when their measure of trust is derived. There are also indications from the analysis that adding these theories provides more accurate details of the means and reasons why and how and when and under which conditions soft skills establish trustworthiness. For example, effective communication suppresses negative motive attribution, servant leadership behaviors are benevolent, and transformational leadership demonstrates ability and vision. Adding strengthens the conceptual model on many fronts, complementing theoretical accounts.

Table 4.3: Features of integrated leadership and trust theories

Analytical Dimension	**Integrate leadership and trust theories**
Key Concepts	Different theories of the ground of trust are: transformational (inspiration), servant (service), LMX (quality of relationship), social exchange (reciprocation), attribution (perception as LMX quality:

Case Examples	Faculty–dean trust (Byun et al., 2017); defining clear crisis communication creates trust (Wu et al., 2024).
Theoretical Foundations	Social Exchange Theory (Blau, 1964); LMX Theory (Graen & Uhl-Bien, 1995); Attribution Theory (Ferrin et al., 2007).
Implications for Reform	Developmental leadership programs must incorporate theory-informed methods, mingling performance and relational building of trust.

The results are given as ten hypotheses (H1–H10), each of which has literature for only one of the specific soft skills and trusting views with a positive correlation. For example, collaboration and teamwork are associated with psychological safety and trusting learning environments; clear communication destroys ambiguity; personal growth and emotional intelligence permit integrity; and computer proficiency offers credibility for digital-age organizations. The rationale focusing on the fact that these hypotheses convert the model into testable propositions leaves doors for empirical tests. Furthermore, they flag practical effects: leadership development interventions can incorporate these very detailed skills, thus directly adding organizational views of trustworthiness.

Table 4.4: Hypotheses that Postulate the Relationships between Soft Skills and Trustworthiness

Analytical Dimension	Recommendation Hypotheses between Soft Skills and Trustworthiness
Key Concepts	Ten hypotheses (H1–H10) outline measurable associations between each of the soft skills and trustworthiness (ability, benevolence, integrity)
Case Examples	Communication regarding correlation of trust up to higher education (Owusu et al., 2021); initiative builds innovation on the basis of trust (Ahmad & Ahmed, 2022).
Theoretical Foundations	SEMs; Theory of Transformational and Servant Leadership.
Implications for Reform	Test the hypotheses empirically; utilize the model as part of a diagnostic system for building leader credibility and trust.

4.2 Discussions

The results confirm that ten soft skills—collaboration, communication, initiative, leadership capability, personal development, personal effectiveness, planning and organization, presentation skills, critical thinking, and use of technology without exception—are mentioned in the literature as without which leadership effectiveness is not attainable. In contrast with technical competence-related hard skills, relational and behavioral qualities govern how followers view their leaders as soft skills. Case studies have shown that collaboration creates psychological safety for group members (Schaubroeck et al., 2011) and that good communication reinforces credibility during times of crisis (Kashive et al., 2022; Sam et al., 2025). Theoretically, this corresponds with transformational leadership theory, which encompasses vision and inspirational communication, and with servant leadership theory, which encompasses empathy and collaboration. The conclusion drawn is that being trusted is hardwired as opposed to being learned and derived from behavioral intentionality. Therefore, reforming leadership entails infusing courses of training and performance appraisals with soft skills so that relational competence has equal esteem with technical competence.

Second, the assignment involved examining trustworthiness on its three central facets: ability, benevolence, and integrity. The findings confirm that leaders are scored on these three facets, as theorized by Mayer et al. (1995). Ability concerns technical knowledge and administrative skills, benevolence concerns goodwill and concern for followers, and integrity concerns moral consistency. Examples of such cases include deans who are able and benevolent with mentorship, who build strong trust, and leaders who breach integrity quickly lose credibility (Bellucci & Park, 2023). All three facets map onto particular soft skills, planning and use of technology for ability, collaboration and personal growth for benevolence, and communication and presentation for integrity. This three-dimensional personality has reform implications for assessment processes that generally require the consideration of competence, care, and ethics rather than task performance. The results validate that none of them, but all of them as a whole picture of the development of trust, as there was not any single theory interpreting the whole development of trust. Transformational leadership theory stands on vision, inspiration, and intellectual stimulation

and directly corresponds with the soft skills of communication, presentation, initiative, and critical thinking. Servant leadership theory focuses on the humility and well-being of followers and considers collaboration and personal character development. Leader–Member Exchange (LMX) theory focuses on leader–member relationship quality and strongly relies on communication and fairness. Social exchange theory (SET) considers trust to be mutual and corresponds with collaborative and benevolent behaviors. Attribution theory describes members' intention estimates of leaders and how communicativeness and integrity are strengths of these estimates. Case studies support these findings: facultyperson–dean trust rests on first-class LMX relationships for members (Byun et al., 2017), and communicative clarity bridges and builds confidence beyond crisis moments (Wu et al., 2024). Uniting these theories indicates that soft skills are behavioral channels and translate theoretical entities into behavioral leadership forms. Reform implications are for leadership development education by adding united, theory-compatible methods with a relational and performance emphasis on developing trust.

Ten hypotheses (H1–H10) thus followed, with each connecting one of the soft skills with perceived trustworthiness. These findings are from the literature: communication increases tertiary education trust (Owusu et al., 2021), initiative enhances innovation with a given level of trust (Ahmad & Ahmed, 2022), and digital competence captures dependability for this organizational era of organizations (Schreibelmayr et al., 2023). These hypotheses build on transformational and servant leadership theories and are further substantiated with empirical instruments such as structural equation modeling (SEM), which allows for empirical tests of intricate interconnections. The bone of contention is that these hypotheses are not abstract constructs since they are transferable for practical use. Organizations can utilize them as assessment instruments for determining leader readiness and credibility, whereas researchers are able to utilize them as instruments for building empirical studies to verify and refine the conceptual model. There is a reform implication that leadership development must become evidence-informed and intentionally enhance every one of the soft skills so that leaders emanate ability, benevolence, and integrity as practiced. Moreover, these results for each of the four goals confirm the thesis that leadership soft skills are key antecedents of trustworthiness. Trust stems not from ideal traits but from direct, specific behaviors that are perceived by subordinates as messages of competence, benevolence, and integrity. Through unifying numerous leadership theories and basing them on the application of soft skills, this model reinforces both scholarly knowledge and leadership practices. For organizations and higher education institutions, the reform message is plain: reform must attend equally to building relational competence, ethical consistency, and technological flexibility as technical proficiency does, so leaders are simultaneously effective and trusted.

5. Conclusions and recommendations

5.1. Conclusions

This paper aimed to craft a conceptual model for examining leadership soft skills and the perceived credibility of higher education and organizational leaders. Conclusions: Leadership performance for the coming century rests not only on technical knowledge but also on behavioral, cognitive, and interpersonal skills for perceived credibility. Ten leadership soft skills—initiative, communication, collaboration, leadership capability, personal effectiveness, personal growth, planning and organization, presentation flair, critical thinking, and technology—interpretable as antecedents of trust are trainable, observable, and measurable and are required for forging perceived credibility. Moreover, the analysis confirmed that there are numerous aspects of trustworthiness, including ability/competence, benevolence/care and goodwill, and integrity/ethical consistency. Those leaders who are able to project all three visages are likely to capture their adherents' confidence and loyalty. Through a synthesis of transformational, servant, LMX, social exchange, and attribution theories, the paper illustrates that soft skills are behavioral channels through which leaders build trust. A total of 10 hypotheses (H1–H10) are advanced for operationalizing these connections and allow for future empirical work with a testable model.

In total, the work contributes conceptually by bridging the gap between the body of literature on soft skills and trust, practically by adding leadership training and assessment roadmaps, and methodologically by supplying testable constructs for validation with future quantitative investigations. The work also offers empirical support for the conclusion that being trustworthy is not inborn but acquired as an outcome of intentionality-directed behaviors consistent with ability, benevolence, and integrity dimensions.

5.2. Recommendations for Further Research

While this work developed an integrated conceptual model bridging leadership soft skills and perceived trustworthiness, there is also a need for other studies to expand, validate, and further fine-tune the model. First, there must be empirical tests of the ten constructed propositions (H1–H10) through quantitative procedures such as structural equation modeling (SEM) or partial least squares SEM (PLS-SEM). These would allow for the estimation of the size of associations between specific soft skills and the three aspects of trustworthiness—ability, benevolence, and integrity. Second, longitudinal investigations of the development of leaders' soft skills and perceived trustworthiness, particularly times of organizational change or organizational crisis, must be conducted over time. These findings illuminate the dynamic nature of the development of trust. Third, comparative cross-cultural analyses are needed to study how values and accepted social conventions determine leadership soft skills and perceptions of being trustworthy. A manifestation of integrity or benevolence for one culture might not have the same impact on another. Fourth, there are future scholars with the promise of studying mediator and moderator variables such as organizational culture, gender, digital leadership, or emotional intelligence with the promise of expanding or reducing the correlation of soft skills and trust. Finally, mixed-method study designs comprising questionnaires with qualitative processes, e.g., interviews or case studies, would provide more knowledge of practicing leaders with realistic organizational settings.

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Challenges in Foreign Language Teaching: Insights from German Teachers in Greek Secondary Education

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Abstract
This article presents the findings of a qualitative case study exploring the views of eleven German language teachers in secondary education in Greece regarding the challenges they face in their teaching practice. The data reveal that educators confront multiple difficulties, including classroom management issues, low student motivation, heterogeneity in student abilities, lack of infrastructure and professional development opportunities, as well as interpersonal tensions with students, parents, and colleagues. Institutional and organizational challenges are also highlighted, such as fragmented teaching assignments across multiple schools and discrepancies between curriculum content and available instructional time. Despite these obstacles, teachers employ coping strategies such as collaboration with colleagues, differentiated instruction, participation in training programs, and efforts to strengthen relationships with students and parents. The study underscores the need for systemic interventions aimed at improving working conditions, enhancing teachers' professional growth, and upgrading the quality of foreign language education in the public school system.

Keywords: Teaching German as a Foreign Language, Training needs, Educational policy

1. Introduction

The teaching of foreign languages in secondary education constitutes one of the key pillars of modern educational policy, as it significantly contributes to the development of language skills, the cultivation of intercultural understanding, and the enhancement of students' professional and personal prospects (Council of Europe, 2018; García & Wei, 2014).

Language education today is based on contemporary language teaching theories, with the communicative approach being the most prominent. This approach emphasizes the use of language in authentic communicative contexts. Learning is no longer seen as the mechanical memorization of vocabulary and grammar rules, but

rather as a dynamic process of acquiring functional skills that enable students to communicate effectively and confidently (Dörnyei & Ryan, 2021). At the same time, intercultural education is emerging as an integral part of foreign language teaching, enhancing understanding and respect for cultural diversity (Byram, 1997).

However, despite the theoretical foundation, the practical application of these language teaching principles in the classroom is not always seamless. In the Greek educational reality, German is often taught as a second or even third foreign language, which creates additional challenges in stimulating students' interest and motivation, as they rarely have the opportunity to use the language outside the school context (Dörnyei & Ryan, 2021). This underscores the need for innovative, multimodal, and communicative approaches that make teaching more engaging and relevant to students' actual needs.

The research literature highlights a range of challenges faced by foreign language teachers in secondary education. The most common include classroom management, student population heterogeneity, lack of sufficient technological infrastructure, and limited instructional time. Furthermore, the absence of targeted professional development that addresses the evolving demands of language teaching—combined with organizational and institutional constraints such as fragmented schedules or lack of pedagogical support—negatively affects teachers' work, increasing professional stress and limiting opportunities for instructional innovation (Skaalvik & Skaalvik, 2017).

A significant barrier to improving teaching quality is also the insufficient integration of digital technologies in foreign language education. The lack of technological equipment and appropriate teacher training leads to outdated practices that do not meet modern pedagogical needs and deprive students of valuable resources (Vandergriff, 2016). The development of skills in using digital media, differentiated instruction, and effective classroom management is imperative for adapting teaching methods to today’s learning environment.

In this context, exploring the challenges that German language teachers face in secondary education is essential to understanding the factors that influence the quality of foreign language instruction. The reported problems and difficulties translate into professional development needs—explicit and conscious, but more often implicit or latent—the identification of which could lead to more effective and meaningful design of training programs. Understanding the everyday challenges of teachers can contribute to the development of more targeted support policies, the enhancement of teaching practices, and the creation of an educational environment that promotes effective learning and professional satisfaction for educators (Vangrieken et al., 2017; Darling-Hammond et al., 2019).

2. The Concept of Training Needs

In order to identify the training needs of a given target population, it is essential first to clarify what is meant by the term "need" and its semantic content (Vergidis, 1999, pp. 22–37). The term is often confused with other similar concepts, such as:

- Necessity, which may lead either to the uncritical acceptance of certain "needs" as indisputable, or to the mistaken expectation that policies can be implemented without adequate and systematic preparation, as if these developments were naturally inevitable.
- Desire, which involves a strong personal element, relying on subjective projections.
- Demand, a concept from economic theory, which relates to the balance of supply and demand.

Thus, the concept of need is always defined within a theoretical framework and may therefore have different interpretations (Vergidis, 2003).

The investigation of needs mainly involves identifying goals and determining the gap between the current and the desired situation. This refers to the process of identifying the gap between "what is" and "what should be." A further distinction is made between gaps in terms of outcomes (such as skills or competences) and those

concerning resources or structures (Hunt, 1986). The “what should be” reflects the goals set and depends on the depth at which the needs analysis is approached (Vergidis, Katsigianni & Brinia, 2010).

According to Scriven and Roth (1978), a need is the difference between the actual state and a satisfactory one. It is also noted that "need" ends where "want" begins—that is, when sufficiency is reached.

Needs may be conflicting or contradictory, as they are shaped at multiple levels (Vergidis, 1999, p. 36). Training needs include both objective dimensions (e.g., curriculum changes, technological developments) and subjective dimensions (e.g., personal awareness of lacking knowledge or skills) (Vergidis, 2007).

It is widely accepted that the effectiveness of adult education depends largely on how well the content is connected to the real needs and experiences of the participants (Vergidis, 1998; Kokkos, 2005, p. 94). Nevertheless, even when learners are fully aware of their needs, they often do not express them clearly, or do so only indirectly.

Needs assessment is a continuous process, influenced by broader economic, social, and political factors. It requires an understanding of the institutional environment and its impact on the target group (Scriven & Roth, 1978).
As previously mentioned, training needs may have:

- Subjective dimensions: e.g., personal awareness of deficiencies or the educator’s role in a specific context,
- Objective/systemic dimensions: e.g., institutional or technological changes.

Generally, the former relate to individual perception and interpretation, while the latter concern the demands of the educational system.

Since these needs are tied to how consciously they are recognized by the educators themselves and are influenced by changes in their work or institutional context, we can categorize them as follows:

1. Conscious and explicitly stated needs
2. Conscious but not explicitly expressed needs
3. Latent (unconscious and implicit) needs (Vergidis, 2003; 2007)

Mezirow (2007, p. 57) offers an important insight on opinions, stating that they are expressions of habits of mind, that is, the deeper assumptions guiding learning choices. Therefore, teachers’ opinions about their own needs reflect their general and orienting tendencies in how they carry out their work.

3. Training Needs of German-Language Teachers: Research in Greece

Over the past decade, the training needs of German language teachers in Greece have become a focus of growing scholarly interest, as their ongoing training is directly linked to improving the quality of foreign language education. The continual renewal of pedagogical and didactic approaches—together with the evolving sociocultural and technological demands of today’s schools—makes targeted professional development imperative, tailored to the realities of a modern, multicultural, and digital learning environment.

One of the most recent and significant contributions to the field is the study by Gerovasileiou (2022) which focused on primary school teachers in Thessaloniki. Using a questionnaire administered to a sample of 150 teachers, the study recorded a strong need for training in innovative teaching practices, with particular emphasis on individualized instruction, method differentiation, and the use of Information and Communication Technologies (ICT). At the same time, participants reported obstacles to engaging in professional development programs—chiefly a lack of time, financial resources, and flexible training formats. These findings underscore the need to design programs that match the actual conditions of school life and teachers’ professional realities.

Equally noteworthy is the doctoral dissertation of Tsakalidou (2020), which offers a specialized perspective on professional development related to teaching spelling to students with dyslexia. Employing a mixed methods design, the study highlights the absence of specialized knowledge and skills among teachers for supporting learners with learning difficulties—a gap that leads to unequal educational experiences and challenges in integrating these students into the language classroom. The development of targeted, specialized training interventions to bolster inclusion and differentiated instruction is therefore imperative.

A valuable complementary perspective comes from the empirical study by Sakkolulis and Vergidis (2017), which analyzed the professional development needs of specialist teachers—including foreign language teachers—in primary schools in Achaia. The research revealed the need to strengthen teachers' knowledge both in their subject area and in broader pedagogical and psychological dimensions of teaching, such as student motivation, differentiated instruction, and psychopedagogical classroom management. At the same time, the study pointed to a lack of institutional and administrative support that hampers teachers' efforts to engage in further training.

Taken together, these studies converge on the recognition of the multidimensional nature of German language teachers' professional development needs in Greece. It is clear that training cannot be fragmented; rather, it must form part of a coherent, continuous, and dynamically evolving framework that takes account of working conditions, student demographics, technological advances, and the need for pedagogical renewal. Specifically, there is a need for flexible, experiential programs that allow for personalization, employ contemporary methodologies, integrate ICT, and emphasize the empowerment of teachers both as professionals and as educators.

4. Challenges in Foreign Language Teaching in Secondary Education

Foreign language teaching in secondary education is a particularly demanding field, where pedagogical, technological, and institutional challenges converge—affecting both teaching effectiveness and teachers' professional satisfaction. Problems often begin at the micro-level of the classroom, where issues of student discipline and behavior management constitute a major source of stress, especially when student populations are heterogeneous and characterized by low motivation (Skaalvik & Skaalvik, 2017). The perception of foreign languages—especially German—as "secondary" subjects impacts student engagement and, consequently, the overall dynamic of instruction (Dörnyei & Ryan, 2021). In this context, fostering positive teacher-student relationships can help create a safe and supportive learning environment (Sharples et al., 2010).

At the same time, integrating technology into language teaching is recognized as a critical factor for enriching the learning experience, as it enables the use of interactive tools and exposure to authentic language material (Bahari, Han & Strzelecki, 2025). However, the lack of modern technological infrastructure—such as interactive whiteboards, digital platforms, and appropriate software—limits the implementation of these possibilities in many schools (Redecker, 2017). Even where technological tools are available, the absence of adequate pedagogical training often prevents teachers from meaningfully incorporating them into their teaching practices (Ertmer & Ottenbreit-Leftwich, 2010). Technical skills alone are not enough; educators must also be able to combine content knowledge with appropriate pedagogical methods and technological capabilities in a way that is functional and effective for learning.

The need for continuous professional development is pressing, as teachers must respond to ever-evolving pedagogical and societal demands. Targeted, experiential training programs have been shown to boost teachers' confidence and improve the quality of instructional interaction (Guskey, 2002). Nevertheless, available professional-development opportunities are often fragmented, overly theoretical, and disconnected from the real needs of the classroom, leading to professional isolation and low engagement (Opfer & Pedder, 2011).

In addition, institutional and organizational issues in the Greek public education system exacerbate the challenges faced by foreign language teachers. Frequent school changes (so-called "school hopping"), assignment of non-teaching duties, and excessive bureaucracy disrupt the continuity of pedagogical work and

heighten professional stress (Zee & Koomen, 2016). The instability of the working environment, combined with limited collaboration among colleagues, undermines the sharing of experience and best practices and restricts the development of professional learning communities (Hargreaves & Fullan, 2012; Vangrieken et al., 2017).

Teaching German, in particular, presents additional challenges. Students often face a high level of linguistic difficulty and have few opportunities to use the language outside the school setting—factors that widen the learning gap and contribute to detachment from the subject (Dörnyei & Ryan, 2021; Pavlenko, 2014). Teachers are called upon to employ methods such as the communicative approach and multimodality (García & Wei, 2014) in order to make instruction more engaging and connected to students' lived experiences. Moreover, the intercultural dimension of language education is crucial for cultivating empathy and deconstructing cultural stereotypes—especially in the case of languages with limited presence in students' everyday lives. Developing intercultural competencies through the teaching of German contributes not only to a deeper understanding of the language, but also to the formation of culturally aware and active citizens (Byram, 1997; Cummins, 2000).

5. Method

This section presents the research methodology.

5.1 Research question

Our research question was: "What problems do the German language teachers in the sample face in carrying out their educational work?"

5.2 Research Method -Research Tool

The data collection method was qualitative, because the purpose of the research is to investigate and understand a central theme (Creswell, 2011). The research strategy followed is a case study (Robson, 2010), since it concerns 11 German language teachers during the school year 2024-2025. According to Mason (2003), the data collection technique or better the data production technique was the semi-structured interview, a tool that enables the sequence of questions to be modified (Cohen & Manion, 1994), the choice of emphasis in the most essential aspects of each respondent (Fylan, 2005; Robson, 2010), but requires critical communication skills from the interviewer (Galletta, 2013). Therefore, this tool has been chosen as the most appropriate to highlight the views of the participants.

5.3 Sample

The sample (convenience sampling) consists of 11 German language teachers. Among them, 9 are women and 2 are men. In terms of age group, 4 are between 51 and 60 years old, 4 are between 41 and 50 years old, and 2 are over 60 years old. Regarding teaching experience, it ranges from 10 to 36 years, with most teachers having over 20 years of experience in the field of education. As for their educational background, 6 teachers hold a university degree (Bachelor's), while 5 also possess a Master's degree. Undoubtedly, the participants in this survey do not represent the entire population of German language teachers in Greece, and consequently, the research results are not generalizable.

5.4 Data analysis method

For the analysis of the collected data, content analysis was used. This is a research method that employs a set of procedures, methods, and techniques to draw valid conclusions (Weber, 1990, p. 9). It is a research technique that systematically and objectively leads the researcher to verifiable and valid conclusions derived from written texts and the decoding of interviews (Krippendorf, 1989, p. 7-9). Furthermore, the thematic content analysis allows quantification of the results (Trowler, 1996; Vamvoukas, 2002), which was attempted in this research.

6. Results and Discussion

This section presents the results of the research.

6.1. Difficulties in the Teaching Practice of the German Language Course: Analysis of Teacher Interviews

The practice of teaching within Secondary Education, and specifically in the German language as a foreign language course, appears to be burdened by a set of factors ranging from the daily reality of the classroom to the structural pathologies of the education system. The responses of the eleven teachers who participated in the research highlight five main thematic categories: (a) classroom management and low student motivation, (b) heterogeneity of the student population and learning difficulties, (c) fragmentation of teaching work due to multiple schools, (d) mismatch between curriculum content and available time, and (e) lack of training and technical infrastructure.

(a) Classroom Management and Low Learning Motivation
Problematic discipline and lack of student engagement emerged as one of the most frequent obstacles. Teachers mention "classroom management, lack of concentration, use of mobile phones, poor performance" (T1), "disobedience, lack of interest" (T3), and also "lack of respect" (T11). These phenomena reflect an educational reality where the pedagogical climate is weakened and teachers struggle to maintain a learning pace that includes all students. Low learning interest — especially for the second foreign language — seems to have deeper causes. Students face German with reduced motivation, as indicated by the phrase "lack of participation in the educational process" (T3), while other references point to "lack of basic knowledge" (T11). Dörnyei's psycholinguistic approach (2020) highlights that perceived usefulness, self-efficacy, and authentic communication situations critically affect language motivation. When these factors are absent, participation in teaching dramatically decreases.

(b) Heterogeneity and Learning Difficulties
A recurring pattern in the responses concerns the heterogeneity of students. Teachers note "different cognitive levels of students" (T6), "level heterogeneity" (T8), as well as "children with learning or other difficulties" (T5). Special emphasis is given to the "ever-increasing number of students with learning difficulties" (T4). This heterogeneity makes it difficult to maintain a unified learning pace and requires differentiated instruction—a process demanding time, training, and technical support (Tomlinson, 2014). The inability to provide individualized support intensifies the phenomenon of learning disengagement, especially among students with low language backgrounds.

(c) Administrative and Organizational Barriers: Multiple Employment
The need for German teachers to work in many schools was repeatedly mentioned: "teaching in multiple schools to cover hours does not allow the teacher to get to know the school unit better" (T7), while another respondent notes working "in 5 different primary and special schools, some of which have no technological infrastructure" (T10). Constant movement and lack of a stable work environment hinder building trust relationships with students and colleagues. Additionally, alternating educational settings burden teachers' professional identity and contribute to professional burnout phenomena (Kalamara & Richardson, 2022).

(d) Mismatch between Curriculum Content and Available Time
Several teachers report that the volume of the teaching material is incompatible with the available teaching time: "the curriculum is larger than the lesson hours" (T5). This problem affects both teaching quality and students' psychology, as the pressure to cover material may lead to rapid pace and insufficient consolidation. This phenomenon is especially intense in foreign languages, where communicative competence requires systematic repetition and practice.

(e) Shortcomings in Training and Infrastructure
Finally, the lack of systematic training is emphasized: "lack of training" (T2), as well as limited technological support: "no technological infrastructure at all" (T10). This situation creates a gap between modern pedagogical demands and the actual possibilities for implementing innovative practices. It is worth noting that, according to

studies, many foreign language teachers in Greece express a positive attitude towards the use of ICT, but its application remains limited due to insufficient technical and institutional support (Varsamidou, 2024). Even when teachers possess pedagogical knowledge of technology (TPACK), lack of resources makes its implementation difficult (Koehler & Mishra, 2009).

As shown by the preceding analysis, the challenges faced by German language teachers are not simple technical difficulties but manifestations of deeper institutional, pedagogical, and social variables. Addressing them requires a coherent and multi-level framework of interventions including:

- systematic and targeted training,
- reduction of fragmentation through stable placement in school units,
- enhancement of technical infrastructure,
- revision of the curriculum based on realism and the needs of mixed-ability classrooms.

Only through such a multifactorial approach can the teaching of German be strengthened and the quality of foreign language education in Greek public education be substantially supported.

6.2. Problems in Interpersonal Relationships in the School Environment

The formation of a positive pedagogical climate is an integral part of effective teaching. The responses of the teachers participating in this research indicate that beyond purely instructional challenges, particularly significant obstacles arise at the level of interpersonal relationships within the school community. These problems mainly concern: (a) peer relationships, (b) student–teacher relationships, and (c) teacher–parent/guardian relationships.

(a) Peer Relationships and Aggressiveness

One of the most frequently mentioned problems concerns relationships among students. Teachers describe phenomena of aggressive behavior, lack of cooperation, and insulting comments: “the relationships between students are sometimes offensive” (T11), “often the relationships between students are particularly aggressive, negatively affecting the smooth functioning of the school” (T7), while others simply note “student relationships” (T2), implying tensions or conflicts. The existence of “tensions among students” (T1) supports this finding. These tensions are often linked to a lack of social skills and worsen when there are no structured conflict management strategies in the school (Jones & Bouffard, 2012). Research shows that verbal and physical violence incidents in schools have increased, affecting the psychological safety and academic performance of all involved (Espelage & Swearer, 2010).

(b) Aggressiveness and Rudeness Towards Teachers

The findings concerning student behavior toward teachers are alarming. As one teacher states: “verbal and physical violence (aggressiveness) by students, disobedience, stubbornness, rudeness, lack of respect” (T6). Similarly, “frequent episodes of rude student behavior toward teachers” are recorded (T4). Such relationships reveal not only a disturbed pedagogical climate but also a lack of institutional support for teachers, especially foreign language teachers, whose subjects do not have the institutional weight of other disciplines. Teacher professional burnout is directly linked to such situations. Teachers experiencing aggressive behavior from students report increased stress levels, feelings of frustration, and reduced commitment to teaching duties (Aloe et al., 2014; Skaalvik & Skaalvik, 2010).

(c) Interference and Difficulties in Relationships with Parents

The problem of intrusive or even hostile attitudes from parents is particularly evident. Teachers report: “interference in teaching work” (T1), “intervention by some parents in the educational work” (T3), “excessive parental interference in the educational work” (T4), “interference from parents” (T9), while one very pertinent observation notes that “parents sometimes express excessive demands and show arrogant behavior towards teachers” (T10). These relationships are often characterized by lack of trust and questioning of the teacher’s pedagogical role.

Parental interference is often associated with overprotective or competitive attitudes stemming from broader social pressures or fear for the child's academic progress (Hornby & Lafaele, 2011). However, school-family collaboration is considered a key factor for successful educational intervention and social integration of the child — something that requires conscious cultivation of trust and role boundaries.

(d) Effects of Family Dysfunctions on Daily School Life

Some teachers refer to out-of-school factors influencing student behavior: "many family problems of students affect their behavior in school" (T3). Family environments characterized by domestic violence, neglect, or dysfunction significantly impact the emotional state and behavior of children at school (Kitzmann et al., 2003). These phenomena often manifest as aggression, withdrawal, or provocative attitudes toward adults.

(e) Absence of Problems: Differing Perceptions

Interestingly, two of the eleven teachers stated "I have no observations" (T5, T8). This indicates either a genuine absence of significant problems or different interpretations of school reality. This confirms that perceptions of interpersonal relationships at school are not homogeneous and may be influenced by the school unit, social context, and the professional experience of each teacher.

It appears, therefore, that problems in interpersonal relationships within the school are not isolated incidents but indicators of a complex network of social and institutional tensions. The presence of aggression among students, rude behavior toward teachers, and intrusive parental attitudes creates an environment that significantly burdens daily school life and obstructs the smooth conduct of pedagogical work.

Addressing these phenomena requires:

- implementation of programs to enhance students' social skills,
- establishment of rules for dialogue between school and parents,
- systematic teacher training on crisis management and communication,
- strengthening school psychological support through hiring social workers and psychologists.

6.3. Additional Difficulties in the Educational Work

In the third interview question, teachers were asked to mention any additional difficulties they face in carrying out their teaching duties that had not been previously addressed. The answers fall into two main categories: (a) those teachers who do not indicate further problems, and (b) those who identify new dimensions of difficulties related to institutional and logistical shortcomings, pedagogical issues, and extracurricular obligations.

(a) Lack of Additional Comments – Possible Differentiation of Perceptions

Six out of eleven teachers explicitly stated that they "have nothing further to observe" (T1, T2, T5, T6, T8, T11). The absence of additional comments could be interpreted in two ways: either as an indication that the main problems have already been adequately recorded in the previous questions, or as a sign of a differentiated attitude toward the evaluation of daily life, possibly due to habituation or acceptance of difficulties as a "natural" part of the profession (Hargreaves, 2000). However, this phenomenon may also conceal a mechanism of adaptive silence, stemming from emotional fatigue or low expectations for systemic change (Day & Gu, 2009).

(b) Insufficient Parental Cooperation and Extracurricular Workload

One significant difficulty identified by a teacher is the "lack of cooperation from some guardians with the school to improve their children's behavior" (T3), an issue also highlighted in the previous question. This problem relates to the difficulty of creating a united front between family and school to manage student behavior, reinforcing the teacher's sense of isolation. At the same time, the "workload due to extracurricular tasks" (T3) is emphasized, a problem noted in international literature as it affects preparation time, teachers' mental resilience, and the quality of teaching (Ballet, Kelchtermans, & Loughran, 2006). Administrative duties and multiple extracurricular responsibilities intensify professional burnout.

(c) Problems Related to Teaching Material and Curriculum

The quality and timeliness of teaching materials are clearly criticized by one participant: "the renewal of teaching materials is necessary to meet the contemporary needs of students" (T7). This observation reflects the need for differentiated, modern, and digitally enriched materials that respond to the interests and learning needs of adolescents (Tomlinson, 2014). At the same time, it is noted that "the texts are poorly structured" (T4), implying deficiencies in the pedagogical and linguistic design of the educational content. Such problems suggest that the material used may not be sufficiently attractive or suitably structured for secondary education students, resulting in less effective language teaching.

(d) Issues of Timetable and Course Assignment

One teacher points out that "the teaching hours for the second foreign language are insufficient" (T9), raising issues of both quantity and quality of language instruction. The limited exposure of students to the foreign language makes achieving teaching goals more difficult, as language proficiency requires systematic and repeated engagement (Lightbown & Spada, 2013). Simultaneously, another teacher mentions that "to cover the timetable, I am also forced to teach the Skills Workshops course" (T10). The assignment of unrelated courses burdens the teacher, especially when there is no appropriate training or support. This not only alters the teacher's professional identity but also reduces teaching effectiveness (Sachs, 2001).

The teachers' answers to the third question confirm that, despite the reporting of significant problems in previous sections, other often overlooked aspects of teaching difficulties continue to emerge. The main thematic areas that arise concern:

- the overload of extracurricular obligations,
- the lack of updated teaching material,
- the inadequate duration of the second foreign language course,
- and the heterogeneous assignment of duties.

It is worth noting that these difficulties are not exclusively related to the school unit but constitute systemic issues requiring institutional interventions and restructuring of policies at the level of planning, training, and support of the educational work.

6.4. Coping with Professional Difficulties: Strategies and Supportive Factors

The fourth question focuses on how teachers attempt to manage the difficulties they face in their educational practice, as well as the factors that support overcoming these obstacles. Five main coping strategies emerge from the responses: (a) professional collaboration, (b) training and personal development, (c) pedagogical differentiation practices, (d) leveraging experience and support from school administration, and (e) strengthening relationships with students and parents.

(a) Collaboration among Teachers and School Staff

The most frequently mentioned strategy is collaboration with colleagues, which constitutes a central axis of support and empowerment. As one participant states, "discussion with colleagues" is an essential means of managing difficulties (T1), while another emphasizes "exchange of opinions and good practices with other subject teachers" (T5). Similarly, "exchange of views with colleagues, seeking information online" (T6) shows that the professional community functions as a support network and a space for co-constructing practices. Collaboration with other professional groups within the school is also positively mentioned, as in the case of T3: "collaboration with colleagues and the administration, cooperation with school psychologists," reinforcing the idea of a holistic and interdisciplinary approach in everyday educational life. The effectiveness of professional collaboration is supported by recent studies indicating that collective work, when institutionally reinforced, improves teaching and teachers' psychological resilience (Vangrieken et al., 2017).

(*b) Continuous Training and Professional Development*

Several participants recognize the need for lifelong learning as a mechanism for empowerment and renewal of teaching identity. As T2 notes, "I participate in and attend training courses," while T5 adds: "attending seminars, personal effort, and reading."

T8's mention of "desired characteristics of a training program" indicates an interest in professional development activities that respond to the real needs of the classroom, a priority also confirmed by the literature. According to Sims & Fletcher-Wood (2022), targeted professional development based on teachers' empirical needs leads to meaningful changes in teaching practice.

(c) Teaching Differentiation and Pedagogical Innovations

Many teachers mention adapting and differentiating the lesson as a coping strategy. T1 describes: "persistence and patience in lesson preparation, enriched with digital material to spark interest," highlighting the connection between motivation and the integration of innovative tools.

More specifically, T10 says: "I try to use differentiated teaching approaches (songs, interactive and group games, projects, etc.)," which aligns with modern theories of student-centered and multimodal language teaching (Reinders & Chong, 2024). These practices enhance student engagement, support diverse learning profiles, and promote collaborative learning.

(d) Supportive Role of Experience and School Administration

One participant notes the value of professional experience: "long-standing experience is a means of managing and coping with difficulties" (T4). Experience here is recognized not merely as technical competence but as embodied pedagogical knowledge capable of interpreting and adapting teaching practice (Beauchamp & Thomas, 2011).

Additionally, "school administration" (T4, T11) emerges as a factor of stability and support, confirming the critical importance of school leadership in developing professional ethos and positive school climate (Leithwood et al., 2020).

(e) Trusting Relationships with Students and Parents

Focusing on relationships with students and parents appears as a crucial support strategy. T1 refers to "interaction with students through programs and strengthening close bonds," while T10 emphasizes the importance of "maintaining good relationships with parents to find mutually acceptable solutions." Similarly, T7 acknowledges that "teacher–parent collaboration is necessary to overcome difficult situations."

These approaches reflect a school based on trust and mutual understanding. Literature supports that parental involvement and quality student-teacher relationships are linked to higher student engagement and success (Jeynes, 2022; Pianta et al., 2012).

The analysis of responses shows that teachers, even when faced with numerous systemic and practical difficulties, develop active and multidimensional coping strategies. Managing these challenges is based on:

- mutual support within the school community,
- continuous professional development,
- adapting teaching methodology,
- leveraging experience, and
- maintaining functional interpersonal relationships.

Highlighting these practices confirms the need to strengthen institutional policies that support professional autonomy, training, and supportive cultures within schools.

7. Conclusions and Recommendations

This study highlighted that German language teachers in secondary education work within an environment where pedagogical, technological, and institutional demands accumulate and interact. The qualitative data

revealed a strong need for comprehensive training, a stable work framework, adequate infrastructure, collaborative cultures, and support for the socio-emotional skills of both students and teachers.

Comparing our findings with recent literature, several key conclusions emerge. First, professional well-being and resilience play a critical role, as fatigue related to high workload and low social status is a major factor in potential teacher attrition. A meta-analysis showed that high demands without corresponding support are linked to increased burnout (McCallum, Price & Shaping, 2024).

Second, collaborative professional capital enhances self-efficacy and facilitates the transfer of innovations into the classroom through learning communities and structured mentoring systems (Vangrieken et al., 2017).

Third, the focus on the student-teacher relationship has proven especially important, as international studies document a strong correlation between positive interactions, increased school engagement, and reduced misconduct (Pianta, Hamre & Allen, 2012).

Fourth, the integration of digital innovation in language learning must be accompanied by targeted training in the "digital pedagogical capital" (Reinders & Chong, 2024).

Finally, leveraging parental capital through building positive school-family relationships directly affects students' learning expectations and behavior (Jeynes, 2022).

Regarding policy and practice recommendations, interventions are proposed at various levels. At the system and state level, it is advised to reduce "school-hopping" through more stable placements, fund local digital equipment centers and technical support, and institutionalize an annual right/obligation for medium-term training (e.g., 30 hours) with qualification recognition (Leithwood et al., 2020).

At the educational leadership level, creating “collaboration hubs” per Directorate for peer observation and microteaching is recommended, strengthening the role of education advisors as coaches, and implementing psychosocial support programs for teachers (Flores et al., 2025).

In training programs, the adoption of a blended model with 70% experiential classroom learning and coaching feedback is proposed, along with the use of micro-learning platforms and open digital resources (DigCompEdu), focusing on differentiation, interculturality, and classroom management with mobile-first strategies (Redecker, 2017).

Finally, in classroom practice, it is suggested to introduce projects based on authentic language tasks and open digital resources, systematic practice of self-regulation and metacognition strategies for students, and the establishment of social-emotional dialogue routines such as daily check-ins (García & Wei, 2014).

Strengthening German teaching—and second foreign language education more broadly—cannot be achieved through fragmented measures. It requires an ecosystem of interventions that connect training with daily practice, harness digital technology’s potential, and foster collaborative relationships among teachers, students, parents, and administration. Only then can sustainable improvement in foreign language education quality be ensured, professional satisfaction among teachers be enhanced, and social inequalities within the school community be reduced.

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From Civics to College: An Equity-Focused Policy Analysis of Minority Access

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Abstract
A growing number of states are passing laws that require high school students to learn about their rights and obligations as citizens, which shows a fresh commitment to bolstering democracy in America. This civics mandate requires students to sit for an exam similar to the United States Citizenship Test administered by the US Customs and Immigration Service (USCIS) as a requirement for graduation from high school. However, little is known about how these policies affect the college access of students from racial and ethnic minorities. To investigate the relationship between civic education policies and educational opportunity, this research uses a systematic and equity-focused policy analysis based on Systematic Reviews and Meta-Analyses (PRISMA) methodology. The study finds that college enrollment and ambitions among Black, Hispanic, and Indigenous students have been demonstrated to rise in states that incorporate accountability mechanisms, culturally sensitive pedagogy, dedicated professional development funds, and specific equality measures. In contrast, disadvantaged populations are frequently left behind or even worse off by unfunded or undefined equity-neutral rules. I provide a sophisticated paradigm for equity-centered design in civic education by analyzing policy characteristics and outcomes using empirical data collected between 2010 and 2023. The study comes to the conclusion that civic requirements, depending on their intention and execution, can either be tools for educational justice or roadblocks.

Keywords: Minority Students, College Access, Civic Education, Policy Analysis, Equitable Education

1. Introduction

The importance of preparing students for life as democratic citizens has brought civic education back into the spotlight, making it a legislative priority in numerous states. A school ethos that encourages student voice, hands-on activities, service learning, and classroom education on public problems is all components of a well-designed civic learning opportunity. According to extensive studies, it may mold students' long-term civic understanding and participation. These impacts are significant and continue even after you reach maturity (Campbell, 2019).

However, established laws and state policies with significant consequences do not function independently. Imposing civics tests or making civics classes a graduation requirement in some states has been associated with

an increase in civics knowledge, especially when the regulation makes it obvious that schools and students are expected to take civics seriously. Students from low-political-socialization homes and recent immigrants, among others, may be more susceptible to these effects since they are less likely to hear about politics at home. This is the trend that has been found in studies that have connected teenage political awareness with performance on state-level civics examinations (Campbell and Niemi, 2016).

There is a connection between these educational trends and continued gaps in college enrollment for minority groups. Access to resources, guidance, and funding for higher education continues to be stratified along racial and ethnic lines. College admissions and choice remain racially and socioeconomically stratified despite large federal and state funding, according to conceptual synthesis and empirical research in higher education (Perna, 2006). Sorting by institution makes these obstacles even more severe. There has been a generational shift in higher education, with fewer Black and Hispanic students attending open-access schools that have lower completion rates and fewer resources, and more white students attending highly selective and well-funded universities.

Carnevale and Strohl (2013) identify the cumulative effects of these inequalities in enrollment and completion on attainment and map them. These trends show how a civics requirement that does not make equity and fairness its priority can hurt the chances of minority students getting into college. According to further studies, there is a "civic opportunity gap" in which children from more privileged backgrounds, who attend schools with more resources and less segregation, and are part of more advanced academic programs tend to have more opportunities to learn about civic engagement (Kahne and Middaugh, 2008). According to Jackson et al. (2016), these impacts are more common among students from low-income households. In reality, schools that lack sufficient funding for civics education are more likely to implement weak, test-driven curricula, even when these schools are located in areas where kids would gain the most from more comprehensive civics education that is linked to college preparation. Paris (2012) argues that schools can help students develop college-going identities and civic efficacy by combining equity-centered instruction with meaningful civic practice.

To expand upon these results, I ask a straightforward question with far-reaching consequences by combining empirical research published between 2010 and 2023. Under what circumstances do state programs promoting civic education mandate increase the number of Black, Hispanic, and Indigenous students' ability to attend college? I pay close attention to equity in the formulation and execution of policies in 17 states that have adopted the mandatory civics exams as a high school graduation requirement.

This study is based on two important theoretical frameworks, namely the Deweyan theory of democratic education and Critical Race Theory (CRT). To encourage participatory democracy and educational advancement, Dewey argues that civic learning should be interactive, engaged, and linked to students' life experiences (Dewey, 1916/2008). Critical race theory also offers a perspective through which to view this phenomenon. Ladson-Billings (1998) argues that race-neutral policies perpetuate systemic inequality because they fail to address the fundamental obstacles that minority groups have to face. By bringing attention to the fact that civic requirements are tools that can either worsen or mitigate educational inequalities, these frameworks help steer the research. This study presents civic education mandates as both opportunities and hazards for minority college paths, depending on their design and implementation. It combines Deweyan principles of experiential learning with CRT's critique of structural inequality.

This study is important because it shows how programs that require students to take civics tests, which are sometimes hailed as strategies to become more involved in democracy can actually make it harder for underprivileged kids to get into good universities. This goes beyond just learning about the government. Both civic involvement and postsecondary opportunity expansion are enhanced when policies are crafted with culturally relevant pedagogy, adequate funding, and accountability mechanisms. When designed with an understanding of how students' life chances are structured by resources, pedagogy, and institutional sorting, civic mandates can promote democratic involvement and educational opportunity simultaneously.

2. Method

Based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology, this study utilized a policy analysis and systematic literature review approach. To find and combine studies that link civic education mandates to minority college access results in a way that is transparent, replicable, and rigorous, the PRISMA method was used. Education researchers are beginning to see PRISMA as a useful tool for eliminating bias in synthesis and making inclusion criteria more clear (Moher et al., 2009; Page et al., 2021).

2.1 Identification of Studies

I performed systematic searches in four academic databases (ERIC, JSTOR, PsycINFO, and Google Scholar) from January to July 2025. To organize the search terms, Boolean operators were used. My main search term was "policy analysis." The secondary search terms were "minority students" OR "educational equity" AND "college access" OR "postsecondary enrollment." The search only returned papers published in scholarly journals, theses for doctoral programs, and studies on public policy. For the sake of capturing the most recent scholarly work and minimizing duplication with older canonical works that have already been synthesized elsewhere, the timeline was purposefully limited to 2010–2023.

2.2 Eligibility Criteria

In order to be considered for inclusion, studies needed to fulfill four requirements: (a) they had to be about education in the US; (b) they had to be based on actual data rather than just theory or normative discourse; (c) they had to be about civic education and specifically look at a policy or mandate; and (d) they had to be about outcomes like college enrollment, application behaviors, Free Application for Federal Student Aids (FAFSA) completion, or college aspirations. Importantly, for studies to be considered for the synthesis, they needed to present findings that were separated by race and ethnicity. These requirements made sure that the study could prove that civic mandates had an impact on children of color, Indigenous peoples, and Black students in particular.

2.3 Screening and Exclusion

There were 1,250 results returned by the first database search. The number of unique studies decreased to 980 after eliminating duplicates. I narrowed the pool down to 185 items that could be eligible after reviewing the titles and abstracts. There were a lot of studies that did not make the cut because they looked at civic education in general without connecting the dots to what happens beyond high school. Further, 137 papers were not considered for full-text evaluation because they did not provide enough empirical data. They solely addressed civic knowledge or did not separate their results by racial and ethnic groupings. The synthesis included 48 studies in total, all of which fulfilled the inclusion criteria.

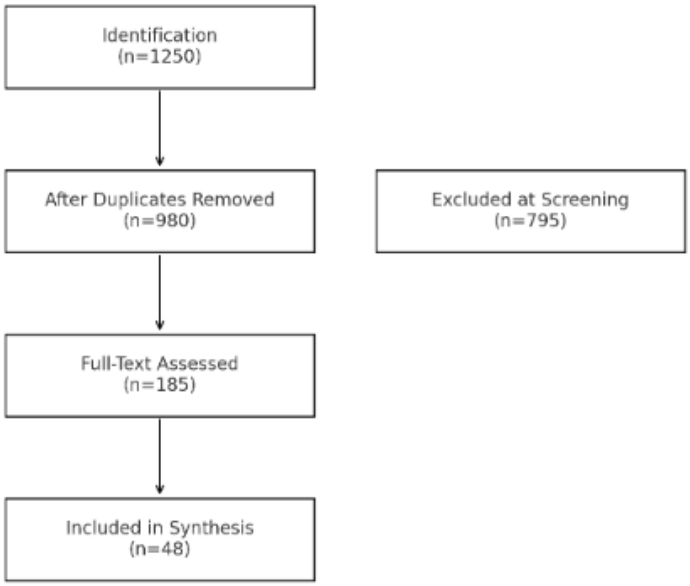

Figure 1: PRISM Flow Diagram

Source/Notes: Author's PRISMA-informed process.

Figure 1 depicts the PRISMA diagram showing the flow from 1,250 records to 48 included studies. For a table version of the PRISMA flow process, refer to Table A1 in the Appendix.

2.4 Data Extraction and Synthesis

Policies were categorized according to their design (equity-explicit vs. equity-implicit), the amount of support for implementation, the demographic emphasis of the studies, and the outcomes that were measured. Data was retrieved quantitatively whenever feasible. For instance, reported effect sizes, odds ratios, and correlation coefficients were given priority. Furthermore, I examined the instructional climate, resource context, and student identity creation as the main themes of the qualitative studies. A multi-dimensional map of the relationship between civics mandates and minority college access was created through the combination of quantitative and qualitative research to visually enhance the communication of the outcomes of the study.

3. Results

3.1 Geospatial Disparities in Policy Impact

The results show that the impact of civic mandates on college access varies significantly among states. Depending on whether or not their policies included equitable provisions and resources explicitly, states were ranked in three tiers. Table 2 provides a summary of these levels.

Table 1. State Policy Tiering and Correlation with Minority College Access Indicators

Policy Tier	**Characteristics**	**Example States**	**Observed Impact**
Tier 1: Equity-Explicit	CR-S standards, Professional Development funding, accountability	MA, IL, CA	Strong positive correlation with FAFSA completion, applications, and enrollment
Tier 2: Mixed	Partial equity language/resources	NY, NC, CO	Modest or inconsistent results; localized gains
Tier 3: Equity-Implicit	Race-neutral, unfunded, high local discretion	TX, FL, AZ	Null to negative outcomes; persistent access gaps

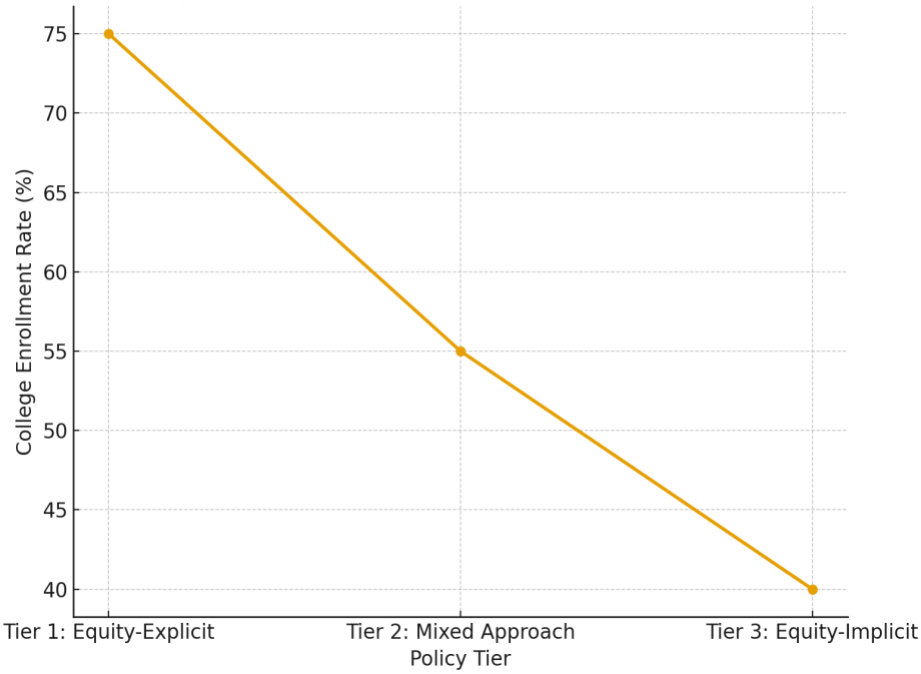

Figure 2: Policy Tier vs. Minority College Access

Source/Notes: Author's analysis of included studies (2010–2023) synthesizing state policy features and reported outcomes.

Minority college access outcomes are projected to be associated with state policy tiers, as shown in Figure 2. Predicted enrollment for Black, Hispanic, and Indigenous students is significantly greater in states that incorporate equity-explicit design, which includes culturally responsive standards, dedicated professional development financing, and accountability for disaggregated outcomes, compared to states with equity-implicit ("race-neutral"), unfunded mandates. Urban and rural areas with the greatest needs get the most gains.

Recent policy changes in Tier 1 states like Illinois and Massachusetts have expanded civics course requirements to encompass culturally responsive pedagogy, explicit equity standards, and devoted professional development for teachers (Levine and Kawashima-Ginsberg, 2017). When compared to Tier 3 states like Florida and Texas, which imposed civics requirements without reworking their curricula or providing financial aid, these states demonstrate higher minority FAFSA completion rates and college enrollment (Kawashima-Ginsberg and Sullivan, 2017). This pattern is consistent with previous studies showing that opportunity inequalities are lessened when policies are well-designed and well-funded (Ferguson, 2019).

3.2 Demographic Variation in Outcomes

Furthermore, the research showed that not all groups are similarly impacted by mandates. Hope and Jagers (2014) and Dee and Jacob (2011) found that Black and Hispanic students benefited the most from civic education that was infused with culturally relevant and participative models that linked civic identity to college goals. Because of limited resources for implementation, Indigenous students attending schools on reservations or in rural areas experience extra difficulties and see less uniform improvement (Lomawaima and McCarty, 2006).

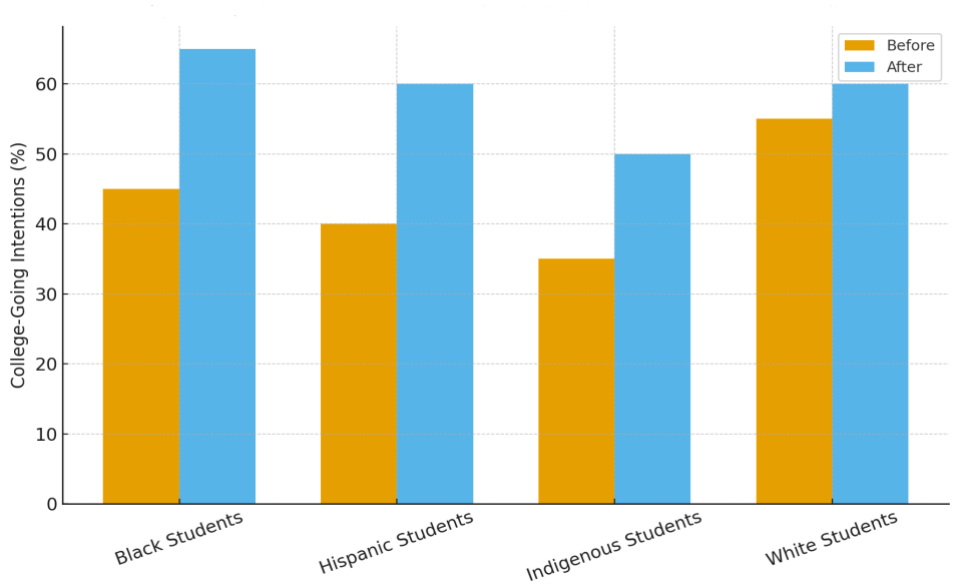

Figure 3: Change in College-Going Intentions by Demographic Group

Source/Notes. Author's synthesis of studies reporting disaggregated pre/post measures under equity-focused civics.

Figure 3 shows that under adequate funding, equity-oriented civics, the intentions of Black and Hispanic students to go to college rise significantly (with larger marginal increases than white students). Indigenous students benefit greatly but unevenly. This is a reflection of continuous resource constraints in rural and reservation contexts.

For instance, research by Kahne and Sporte (2008) found that the postsecondary goals of minority students were most strongly correlated with the amount of time they spent participating in school-sponsored civic activities. There was minimal change in outcomes when civics converted into a test-oriented and memorization-heavy exercise (Hess and McAvoy, 2015). By reducing racial disparities in enrollment and aspiration, these results provide credence to the idea that equity-oriented implementation benefits historically disadvantaged groups more than other groups.

3.3 Pedagogy and Resources as Mediators

In the context of the emerging mandates, the educational and resource environment was the most constant mediator of outcomes. Underfunded schools often taught "thick civics," which is project-based, interactive, and community-engaged, rather than "thin civics," which is characterized by memorization, textbook-driven, and unrelated to real-world issues (Levinson, 2012).

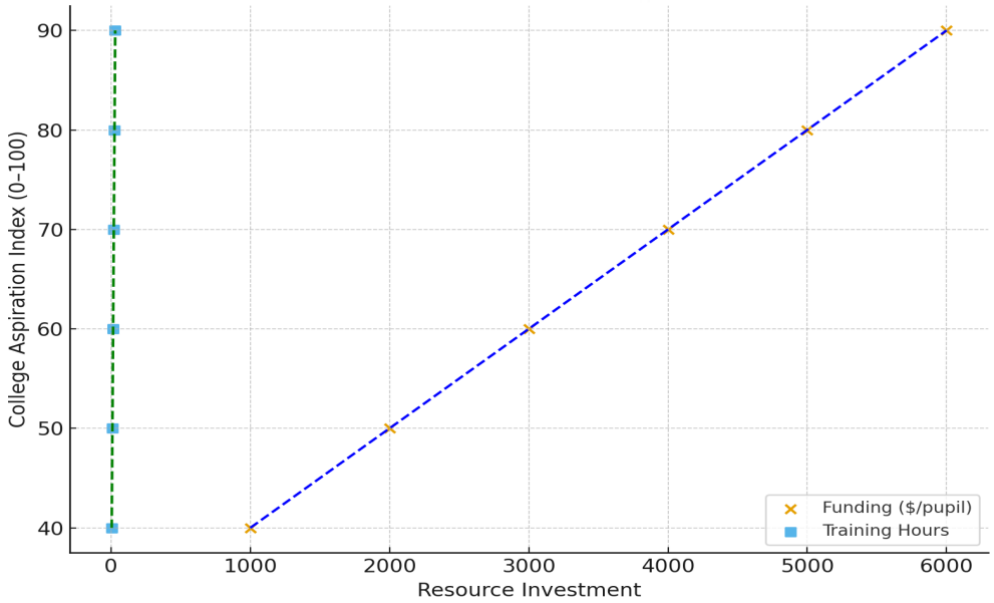

Figure 4: Resources and College Aspirations

Source/Notes. Constructed an index from studies reporting associations between resourcing, pedagogy, and aspirations.

The correlation between college aspiration indexes and resource investment (per-pupil money, teacher training hours) is shown in Figure 4. In cases where professional development time and resources are maintained, a "thick/action civics" approach develops, whereas a "thin/test-prep civics" approach yields no results.

A review of the research found that funding for professional development has a direct impact on student achievement. According to Jackson et al. (2016), Substantial increases in per-pupil spending enhance incomes and years of completed schooling and lower poverty rates, particularly for low-income pupils. The same is true when applying the findings to civics education. Minority students were more likely to view college as feasible and reported better levels of civic efficacy in schools that provided funding for inquiry projects and professional development for teachers (Campbell, 2019). In the absence of these safeguards, regulations deteriorated into compliance exercises, which served only to worsen existing inequalities.

4. Discussion

Civic education mandates are not neutral policy tools, according to the results of this comprehensive review. Fair distribution of resources, equity-conscious design, and the educational environments in which they are implemented greatly influence their impact. These results are consistent with other research in education policy that has shown how measures taken in isolation from systemic inequality might have the opposite effect of what was intended (Berliner, 2006). However, mandates have the potential to be game-changers for educational access and democratic involvement when they are equity-explicit.

The findings lend theoretical support to two supplementary frameworks, namely, Deweyan democratic education and Critical Race Theory (CRT). Critical Race Theory (CRT) proponents contend that white-student-privileged institutional structures remain uninterrupted when racial-neutral regulations are in place (Ladson-Billings, 1998). This assertion is substantially supported by the observed trend, which indicates that minority college entry is either not affected or negatively affected by civics mandates without equity protections. When equity safeguards are not incorporated into civic education programs, they perpetuate disparity in opportunity.

Education for democracy, according to Dewey (Dewey, 1916/2008), must be experiential, interactive, and linked to lived reality. The results also support this view. Consistent with Deweyan theory, dense, action-oriented civics has been shown to successfully nurture college aspirations and civic efficacy. Students realize the importance of

higher education and their political agency when they have chances to discuss public issues with their classmates, build bridges between civic identity and social mobility, and ask probing questions about the world around them.

These findings provide policymakers with a practical roadmap. First, as a formal barrier, mandates should not include civics classes. Culturally sustaining pedagogy should be ingrained in the classroom so that students' language and cultural strengths are built upon and not undermined (Paris and Alim, 2017). Generation Citizen and similar programs show how these models might increase civic involvement and aspirations for higher education among high school students (Melley, 2019).

Secondly, resources are necessary for equity. Additional funding can directly lead to improved educational attainment, particularly for pupils from low-income families, according to research on school finance reform (Jackson et al., 2016). When it comes to civics, this means that mandates without funding will lead to shallow, compliance-oriented lessons, but those with funding will pave the way for more active learning. Consequently, equity cannot be treated as an ideal but rather as an expense that must be included in policymaking.

Third, disaggregated measures of college access should be part of the accountability systems, not only standardized civics tests. By breaking down enrollment, FAFSA completion rates, and application rates by race and ethnicity, we may see more clearly if mandates are helping to close or increase opportunity disparities. States that have combined civics requirements with clear monitoring of minority student results, such as Illinois, offer encouraging examples (Levine and Kawashima-Ginsberg, 2017).

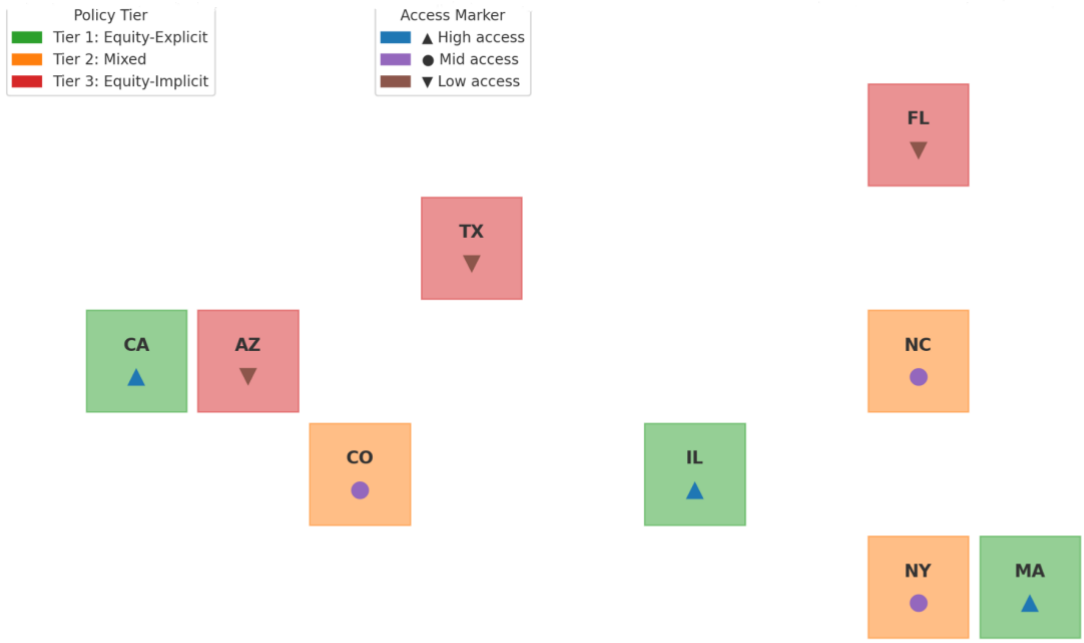

Figure 5: U.S. Choropleth Map of Policy Tiers and Minority College Access

Source: Author

For a more concrete understanding of equity implications, consider Figure 5. This figure shows a geographical pattern. States that prioritize equality have increased minority access markers, while those that do not prioritize equity have flat or negative markers. When paired with Figure 3, this indicates that when civics is integrated into culturally sustaining pedagogy with supported professional development and materials, Black and Hispanic students see the biggest marginal benefits. Schools in rural and tribal areas sometimes lack the basic resources that urban schools have, which limits the opportunities for indigenous kids. The main idea is focused universalism, which aims to teach civics to all students regardless of their background or ability level in a given school.

Finally, these results highlight how important it is for civic policy to employ targeted universalism. Targeted solutions that respond to the particular histories and needs of marginalized populations are more effective than generic, one-size-fits-all mandates in achieving the universal aim of educating pupils for citizenship and college (Powell, 2009). Students of color in urban schools with little resources, Indigenous students in rural areas, and students of all languages and backgrounds would all benefit from civics classes designed to help them become engaged citizens and succeed academically under this model.

4.1 Limitations and Prospects for Future Studies

Several limitations should be noted, despite the fact that this work compiles a large amount of empirical material. To begin, the results are conditional on the original scope of the study, methodology, and quality since the study is based on secondary data extracted from studies done between 2010 and 2023. The generalizability of results is limited since certain sectors, such rural or immigrant-serving schools' adoption of civics or Indigenous education, are underrepresented in the literature. Second, it is challenging to draw firm conclusions regarding the long-term causal effects of civic education with an equity focus on college pathways since many research employ cross-sectional data. Longitudinal designs that track pupils through their postsecondary paths and early jobs after high school could help researchers better understand the long-term effects of their interventions. Furthermore, mixed-methods approaches, which combine extensive qualitative case studies with large-scale quantitative analyses, would provide light on the practical experiences of various student groups when it comes to civic mandates. Future research can fill in these blanks and help shape civic education strategies that increase participation in democracy and access to quality education by filling in the gaps in the current evidence base.

5. Conclusion

While democratic life has long been believed to rest on civic education, the reality is that its efficacy is highly conditional on its design and implementation. This review summarizes the research showing that civic mandates, even when designed to be equity-neutral, might end up making college access even more unequal. Results were stagnant and minority pupils had further challenges in states where underfunded schools were responsible for implementation. On the flip side, Black, Hispanic, and Indigenous students' expectations and enrollment rates were boosted when mandates incorporated culturally sustaining pedagogy, explicit equality clauses, and targeted resource allocations. This was especially true when it came to civic efficacy.

The larger point is that educational equity and civic education are inseparable. Equal access to postsecondary education should be a goal of policies that aim to increase citizens' engagement in democracy. Civic mandates run the danger of reinforcing the very structural injustices they aim to challenge if this is not addressed. The criticisms put forth by Critical Race Theory experts are echoed in this lesson. According to Ladson-Billings (1998), solutions that appear neutral fail unless they tackle the root causes of exclusion. It is also in line with the traditions of Dewey, who argued that democratic education should be inclusive, based on experience, and linked to genuine chances for development (Dewey, 1916/2008).

Two areas of future study are critical. To start, we need additional long-term studies to see how equity-centered civics influences students' paths after high school. There is a lack of evidence that tracks students as they progress through higher education, despite the fact that previous cross-sectional research has connected participatory civics to ambitions. Furthermore, mixed-methods studies can reveal the subtle ways in which racial, socioeconomic, and geographical factors influence students' perceptions of civic education programs. In schools that serve Indigenous and immigrant students, qualitative research can shed light on implementation gaps that aren't apparent in quantitative data (Kahne and Middaugh, 2008; Lomawaima and McCarty, 2006).

This proves beyond a reasonable doubt that lawmakers cannot afford to impose civics. While a cursory, test-driven civics course may fulfill graduation requirements, it will do little to foster college equity or educate students to become active, engaged citizens. If states want to accomplish these goals, they need to allocate funds toward professional development for educators, create tools that are sensitive to different cultures, and establish accountability measures that go beyond measuring students' civic awareness to encompass their performance in

college and beyond. These are not extras. They are prerequisites for civic education to deliver on its democratic promise.

We can enhance American democracy and increase access to opportunity engines through equity-focused civic education if we do it with intention. At a time when divisions are wide and inequality is entrenched, the decision is clear. Either politicians will continue to use civics as an excuse to perpetuate inequalities or they will rethink civics as a force for positive change in pursuit of justice. According to the data given, only the second option is compatible with democratic and educational principles.

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Declaration of Generative AI and AI-assisted Technologies: This study has not used any generative AI tools or technologies in the preparation of this manuscript.

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Appendix

Table A1. PRISMA-Informed Literature Selection Process

Stage	**Process**	**Records**
Identification	Records identified through database searches	1,250
Screening	Records after duplicates removed	980
Eligibility	Full-text articles assessed for eligibility	185
Exclusion	Studies excluded (no empirical data or no disaggregated findings)	137
Inclusion	Studies included in qualitative synthesis	48