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An Online Program for Teacher Learning to Enhance Students' Media Literacy Skills

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Abstract

“An Online Program for Teacher Learning to Enhance Students' Media Literacy Skills” was a product of employing Research and Development (R&D) methodology. It consisted of the teachers' learning development project and the utilized the teachers' learning outcomes for the student development project. The first project yielded six teachers' learning handbooks, whereas the second project was composed of one action handbook that utilized the teachers' learning outcomes to foster student development. The handbooks were evaluated in a school that represented the opportunity expansion schools under the Commission on Basic Education. In the experimental research model, which was designed with a one group pre-test/post-test, there was an experimental group of 12 teachers and 59 students. The results revealed that the invented online program had been effective and consistent with the study's assumptions. The findings illustrated the following: 1) the post-experimental test for teachers had met the standard of 90/90, 2) the teachers' post-test mean scores had been statistically significantly higher than before the experiment, and 3) after the experiment, the students' mean score on media literacy skills assessment had been statistically significantly higher than before the experiment. In addition, the results verified that the created online program would be appropriate for the dissemination in the target opportunity expansion schools under the Office of the Basic Education Commission throughout the country.

Keywords: Online Program, Teacher Learning, Students' Media Literacy Skills

1. Introduction

The advancement of technology and the invention of various innovations have brought disruptions into Thai society. Since the use of social network applications began, these disruptions have occurred even in communications, and the forms and methods have definitely been diverse. No matter where we are, people around world can interact and receive instant information in real time through video calls. The disruptions have caused Thai people to change their mindsets and attitudes towards themselves and the world. It is important to note that we need to enhance our skills for learning and to keep up the world's current situations and our daily life challenges (Sangsingkaew & Duangphummet, 2020).

Media and information literacy skills are crucial for digital era citizens. Children live their lives in two different worlds: the real world and the virtual world through social networks. As citizen creators, teachers must train children to become dependable people, who can take part in development and can move the society in better directions (Dulkanit, Asawasowan, Jetsan & Umpornpruti, 2020). Children need to learn new life skills that enable them to keep pace with change, including changes in the areas of technology, the environment, the economy, and society, as well as learning the skills of citizenship, which can help us to coexist with others. Therefore, learning media and information literacy skills should become a necessary subject in school in order to develop digital citizens, who can shape Thai society to become a knowledgeable society by using media creatively (Prachatai News, 2020).

The International Federation of Library Associations and Institutes (2012) defines *media and information literacy* as “a combination of knowledge, attitudes, skills, and practices required to access, analyze, evaluate, use, produce, and communicate information and knowledge in creative, legal and ethical ways that respect human rights.” Meanwhile, The United Nations Educational, Scientific, and Cultural Organization (UNESCO) defines it as the “set of competencies to search, critically evaluate, use and contribute information and media content wisely; knowledge of one’s rights online; understanding how to combat online hate speech and cyberbullying; understanding of the ethical issues surrounding the access and use of information; and engaging with the media and ICTs to promote equality, free expression, intercultural/interreligious dialogue, and peace, etc.” (UNESCO, n.d.).

Media literacy is important because it provides the right knowledge and understanding of the media access. It helps learners to analyze and distinguish the similarities and differences in various media contexts (Koltay, 2011). Fortun (2018) stated that media literacy enhances learners’ knowledge in the following areas: 1) sharing and exchanging online resources critically, 2) the media makers’ social responsibility, 3) awareness of cultural impact, 4) the ways of communication, 5) communication devices, 6) media target access, 7) protecting one’s self from the media, and 8) making creative media.

Thailand values media literacy and information literacy, as evidenced by the National Strategy (2018-2037) that requires learners to be able to think critically. It also highlights the need to have the ability to constantly learn, adopt, and adapt to modern technologies (Office of the Secretary of the National Strategy Board, 2018). Meanwhile, The Cabinet has also set a policy to establish a digital learning platform and to encourage the use of appropriate information technology and creativity in a wide range of open online teaching and learning. The policy aims at a self-study concept based on the learners’ interests and ages, as well as developing learning resources and learning parks for Thai youth that connect technology with their lifestyles (Secretariat of the Cabinet, Thailand, 2019).

In addition, the National Education Act of 1999, as amended (No. 2), B.E. 2545 assures that Thai students will have sufficient knowledge and skills to use the technology for education in order to pursue self-knowledge continuously throughout life (Office of the National Education Commission, 1999). Furthermore, the National Education Plan 2017-2036, identifies that all learners must adopt the characteristics, as well as 21st century learning skills. The learners must adopt the skills of the 3R’s: 1) Reading, 2) Writing, and 3) Arithmetic), and the other 8C’s: 1) critical thinking skills; 2) problem solving skills; 3) creativity & innovation skills; 4) intercultural understanding & paradigm skills; 5) cooperation teamwork & leadership skills; 6) communication skills, which include information & media literacy skills, computer skills, information & communication technology skills; 7) vocational skills; and 8) learning skills, or demonstrating compassion, kindness, discipline, morality, and ethics (Office of the Education Council, 2017).

The focus of the budget for fiscal year 2021 was placed on developing teachers at all levels to have the necessary skills and knowledge. Learners, teachers, and educational administrators should have a variety of learning options at all times. Meanwhile, the Office of the Basic Education Commission (2020) set a policy to develop a new era of teachers and educators, who would be trained to reach their potential in teaching and learning according to competency-based curriculum. Moreover, the policy states that they should be trained to perform their duties

skillfully and be knowledgeable in using digital technology in order to continuously develop professionally, while embracing the spirit of being a teacher (Rohitsathien, 2020).

Based on the reasons mentioned above, it can be seen that in the view of the national authorities, media and information literacy skills are important. Therefore, the research team further studied the additional literature related to media and information literacy skills in order that the knowledge could be used to benefit teacher development. Following this, the teachers would bring their learning outcomes to promote student development. The results of the study found that academics and educational organizations have widely expressed their views on media and information literacy skills development. Some sources have referred to the development of media and information literacy skills, while some have referred only to media literacy skills, and others have referred to information literacy skills. As a consequence, the study team carried out an evaluation and concluded that further explorations into certain aspects would be more valuable for continuous teachers' development since these explorations would provide a particular body of information. Therefore, the decision was made to study specific knowledge about media literacy skills in order to employ the knowledge gained to develop "An Online Program for Teacher Learning to Enhance Students' Media Literacy Skills," which would be disseminated to the opportunity expansion schools under the Commission on Basic Education. This study employed Research and Development (R&D) methodology. According to Sanrattana (2018), effective educational innovations, which are developed using R&D methodology, should be disseminated in similar target schools. This online program was trialed in a randomly assigned school, which was used as the experimental site, and which featured representatives of the target population to propagate the innovations. In addition, the results of the experiment illustrated that the innovation had been effective in accordance with the specified criteria. Therefore, the innovation could be distributed to the target population across the country so that they could receive the educational benefits.

2. Research Objectives

This research aimed at conducting research and development to create "An Online Program for Teacher Learning to Enhance Students' Media Literacy Skills" that would be effective according to the specified criteria. The created online program consisted of two projects: 1) the project for the teacher's learning development and 2) the project in which the teacher's learning outcomes were applied to student's development. Each project featured its own self-learning modules with its own online handbooks.

3. Research Assumption

The researcher carried out the creation of "An Online Program for Teacher Learning to Enhance Students' Media Literacy Skills" by examining the literature related to media literacy skills development on a variety of topics and perspectives to analyze the knowledge gained on the topic of teachers' self-learning handbooks. This was followed by conducting quality checks and revisions of the online handbook, creating experimental tools, and by examining the online handbook in the field. This is a procedure that is believed to deliver high-quality research outcomes. Therefore, the following study assumption was formed: "An Online Program for Teacher Learning to Enhance Students' Media Literacy Skills" would be beneficial. The field test experiments yielded the following: 1) the scores from the teachers' test after the experiment, which were in accordance with the standard 90/90; 2) the scores from the teachers' tests after the experiment, which was statistically significantly higher than before the experiment; and 3) the scores from the students' media literacy skills assessment after the experiment, which were statistically significantly higher than before the experiment.

4. Research Methodology

4.1 Concepts and procedures

In this research, as in the research of Promrub and Sanrattana (2022), is based on the Research and Development (R&D) methodology, according to Sanrattana (2018), who believes that the innovations created via the R&D process should be utilized in personal development so that the quality of work can be increased by using phenomena as the empirical evidence, which suggests that the need exists. Furthermore, there have been a lot of randomly new ideas and hypotheses on educational innovations recently. These ideas have centered on the

assumption that teachers will use their learning outcomes (Knowledge) to help learners grow (Action), which will result in more competent work performance (Power). Concisely, it is founded upon the principle that *"Knowledge plus Action equals Power."* or *"Make Them Know What to Do, Then Encourage Them Do What They Know,"* and *"Link to On-The-Job Application."* Another crucial stage was to analyze the literature on media literacy skills, which is seen as a necessary first step when gathering knowledge for the creation of online program for the projects. Each project had its specific manual for self-learning modules. Therefore, the procedure of the study began with a literature review in accordance with the R1&D1...R2&D2...R3&D3...Ri&Di patterns as described below:

R1&D1: Reviewing the Literature. The Literature Review Research team explored studies and articles related to media literacy skills on the following topics: definitions, important aspects, the characteristics, the developmental guidelines, the developmental steps, and assessments. The information obtained from this step was used to create a set of six online handbooks for the teacher's learning development project. The set was comprised of the following: (1) the definitions of media literacy skills, (2) the importance of media literacy skills, (3) the characteristics of media literacy skills, (4) the developmental guidelines for media literacy skills (5) the developmental steps in media literacy skills, and (6) the assessment of media literacy skills. The other project centered upon the outcomes of the teacher's learning and applying what the teachers had learned to student's development, which consisted of one online-handbook.

R2&D2: Detecting the Flaws in the Handbooks. The handbooks were thoroughly examined for flaws or errors, including conciseness, utility, suitable language, and the presentation of appealing information. Focus group discussion was held with 12 teachers at Dindumwangchaiwittaya School, a non-experimental school.

R3 &D3 : Detecting Further Flaws in the Handbooks. The handbooks were further examined for any flaws, including conciseness, utility, suitable language, and the presentation of appealing information. The focus groups consisted of 15 teachers and were held at two non-experimental site schools: Bannongkungtanasan Sophon School (7 teachers) and Nongkralaengkraoawitthaya School (8 teachers).

R4&D4: Searching for Additional Literature. Investigations to find additional relevant literature were undertaken in order to develop two research tools: 1) the teacher's learning outcome exam and 2) the student's media literacy skills assessment questionnaire.

R5&D5: Examining the Handbooks. In the pre-experimental research step, the handbooks were examined with a one group pre-test/post-test design. The experimental area was Dindumwangchaiwittaya School, an opportunity expansion school for primary and lower secondary education under the Commission on Basic Education. This study adopted purposive sampling to select the experimental group. The target consisted of 6 primary education teachers, 6 lower secondary education teachers, 29 primary education students, and 30 upper secondary school students, making a total of 59 students. The field experiment took place during the Second Semester of the Academic Year of 2021. The experimental course was divided into the following two phases:

Phase 1: Conducting of the development of the teachers' learning using an online self-learning module (Project 1). The activities and schedule used in this phase were as follows: Firstly, the researchers met with the target group of teachers to give the research information and to conduct the teacher's pre-test. This step took two days. Secondly, in order to further develop the teachers' skills, online handbooks and self-learning modules were uploaded. After that, the teachers were able to download them from the website that the research team had created. The learning had to be completed without intervention from the research team or from anyone else. This step took one month. Thirdly, to improve the online handbooks, the target teacher group worked to inspect for flaws, and then they took a post-test. This step took two days. Finally, the researchers analyzed the post-test results and compared them by using the standard criteria of 90/90. Next, the researchers made a comparative analysis of the average scores from the pre-test and the post-test using the t-test dependent. This step took two days.

Phase 2: Applying the teachers' learning outcomes to enhance student development (Project 2). For this phase, the activities and durations of the activities were as follows: 1) the researchers met with the target teacher group to explain the research details and to evaluate the media literacy skills of the students in the target group by using

the pre-test (This step took one day.); 2) the target teacher group implemented the learning outcomes to develop the students' media literacy skills without receiving any intervention from the research team or from anyone else (This step took two months.); 3) in order to improve the online-handbooks, the target group of teachers worked to inspect for any errors and to evaluate the students' media literacy skills using a post-test (This step took two days.); and 4) the research team conducted a comparative analysis of the average scores from the pre-test and the post-test using a t-test dependent (This step took two days.).

4.2 Research Tools

1. The Teacher's Learning Outcomes Test. This test consisted of multiple-choice questions with four answers. It was used to measure the teachers' knowledge and was used as both as a pre-test and a post-test. The test was an online Google Form. The test was created by the researchers using the knowledge from the teacher's learning handbook, which consisted of definitions, important aspects, characteristics, developmental guidelines, developmental steps, and assessments. The test theory was drawn from cognitive domain by Benjamin S. Bloom, who classified thinking skills from low to high as follows: remembering, understanding, applying, analyzing, evaluating, and creating (Sanrattana, 2018). Lastly, the validity of the test was verified by completing the following steps:

1.1 The test validity was inspected by five experts in the fields of curriculum, teaching, and measurement by using Rovinelli and Hambleton's (1977) Indices of Item-Objective Congruence (IOC). The results indicated that every question had shown an IOC value that was higher than 0.50 (Chaichanawirote & Vantum, 2017).

1.2 The test was tried out with 30 teachers in four non-experimental schools: Sokhangsuksa School, Non-udomsa-adwittaya School, Nongnungsern-Nongnowittaya School, and Nonsa-adpittaya School. The results of the test showed the following: 1) the index of difficulty of the questions had been between 0.20 - 0.80, and the power of discrimination had been between 0.20- 1.00, which conformed to the specified criterion; 2) the reliability of the test, which was examined using the Kuder-Richardson method, had shown a KR - 20 coefficient of 0.94, which was greater than the specified criterion (equal to or greater than 0.70); and 3) regarding the difficulty of the test, the mean scores of all samples were employed as a criterion. A test is considered fairly difficulty if the average score is between 30 and 50 per cent of the total score. If the lower average score is 30, the test is consequently considered to be more complex. If the higher average score is 50, then the test is considered to be easier. Data analysis revealed that the average score for all samples had been 16.10, which was equal to 44.72 percent of the total score. Therefore, the level of difficulty of the test had been appropriate.

2. The student's media literacy skills assessment form was an online form, Google form, with 5-level rating scale: the most, very, medium, less, and the least. The researcher created the form in accordance with findings from studies that were related to the characteristics of media literacy skills based on the perspectives of Bauer (2015), Castellanos (2007), Ding (2011), Hobbs (2008), Johnson (2015), Lee (2015), the National Association for Media Literacy Education (2015), Reineck and Lublinski (2015), and Vu (n.d.), and media literacy skills assessment from the perspectives of Chouit (2013), Cooper (nd), Hallaq (2016), Simons, Meeus, & T'Sas, (2017), and Salamat, Ahmad, Bakht, and Saifi (2018). It was examined for validity as described below:

2.1 The assessment form validity was inspected by five experts in the fields of curriculum, teaching, and measurement using Rovinelli and Hambleton's (1977) Indices of Item-Objective Congruence (IOC). The results indicated that every question had shown an IOC value higher than 0.50 (Chaichanawirote & Vantum, 2017). Therefore, it was able to measure the target group.

2.2 The Assessment Trial was conducted in a non-experimental school, Nongkralaengkrodaowithaya School, at which 30 students participated in the assessment. In order to analyze the alpha coefficient of reliability, Cronbach's method was used. The results of the data analysis revealed that the alpha coefficient of confidence for the entire questionnaire had been 0.96. The examination of each feature illustrated the following results: 1) 'Media Accessing' had been 0.90, 2) 'Media Analysis' had been 0.91, 3) 'Media Evaluation' had been 0.83, 4) 'Media Utilizing' had been 0.87, 5) 'Self-reflection' had been 0.75, and 6) 'Media Creation' had been 0.90. The alpha coefficient of confidence had been higher than the specified criterion, which was equal to or greater than 0.70

(UCLA: Statistical Consulting Group, 2016). Therefore, it was assured that the media literacy skills assessment form could be used with confidence.

4.3 Data Analysis

1. The 90/90 Standard was employed to analyze the data and to compare the post-experiment of the teachers' learning outcomes. The first 90 represented the percentage of the mean scores, which had been obtained from the teachers' knowledge test. The second 90 represented the percentage of those teachers, who had passed the test in accordance with all the objective criteria. (Yamkasikorn, 2008)

2. The t-test dependent statistic was employed to analyze the data and to compare the results from the teacher's learning outcomes and the student's collaborative skills assessment based on the pre-experimental test and the post-experimental test.

5. Research Results

The results from the R1&D1 step produced "An Online Program for Teacher Learning to Enhance the Students' Media Literacy Skills," which consisted of two projects. Each project had its own particular handbooks as described below:

1. The teacher's learning development project had a set of six online handbooks created from the perspectives of academics and agencies, which had been obtained from the literature review process. The following are the details from the six manuals:

1.1 The online handbook for the definition of media literacy skills was based on the perspectives of Briggs (n.d.), Commonsense Media (n.d.), Lipkin (n.d.), Marie (2021), National Association for Media Literacy Education (2015), Nazarbayev University Library (n.d.), and Thoman (1993).

1.2 The online handbook for the importance of the definition of media literacy skills was based on the perspectives of Koltay (2011), Pressbook (n.d.), Fortun (2018), Fortuna (n.d.), Sha (2017), Media-Coach (n.d.), Marie (2016), Center for Media Literacy (n.d.), The Success Manual (n.d.), and Williams (2018).

1.3 The online handbook for the characteristics of media literacy skills was based on perspectives from Bauer (2015), Castellanos (2007), Ding (2011), Hobbs (2008), Johnson (2015), Lee (2015), National Association for Media Literacy Education (2015), Reineck and Lublinski (2015), and Vu (n.d.).

1.4 The online handbook focusing on the guidelines for developing media literacy skills was based on the perspectives of Briggs (n.d.), Spicer (2021), Pitts (2017), The Success Manual (n.d.), Thoughtful Learning (n.d.), Weiß and Bader (2010), Young African Leaders Initiative (2015), and Lynch (2018).

1.5 The online handbook for the steps in the development of media literacy skills was based on perspectives from Buckingham, Grahame, Powell, Burn, and Ellis. (2014), Center for Media Literacy (n.d.), Media Smarts (n.d.), Roscorla (2010), Stansbury (2010), Thoman (1991), and Thoman and Jolls (n.d.).

1.6 The online handbook for the assessment of media literacy skills was based on the perspectives of Chouit (2013), Cooper (nd), Hallaq (2016), Simons, Meeus, & T'Sas, (2017), and Salamat, Ahmad, Bakht, and Saifi (2018).

The research team focused on the topic of "developmental guidelines" because the guidelines provided suggestions for principles, ideas, methods, strategies, techniques, and activities, which could be implemented, and offered a variety of options for teachers to learn and properly apply within the context of their teaching. From this research, 75 suggestions were obtained as follows:

1) Map existing community resources and offer small grants

- 2) Support a national network of summer learning programs
- 3) Create a digital and media literacy youth corps
- 4) Build interdisciplinary bridges in higher education
- 5) Create district level initiatives
- 6) Partner with media and technology companies
- 7) Develop online measures of media and digital literacy
- 8) Start an entertainment education initiative
- 9) Host a statewide, youth-produced public service announcement competition
- 10) Support an annual conference and educator showcase competition
- 11) Becoming aware of the importance of balancing or managing
- 12) Teaching specific skills of critical viewing
- 13) Social, political and economic analysis - goes behind the frame
- 14) Establishment of curriculum guidelines or "frameworks"
- 15) Teacher training programs at the university level
- 16) Teacher support
- 17) Educational resources for teaching
- 18) Exploit "teachable moments"
- 19) Give students a chance to create media, not just analyze it
- 20) Start and end with the key concepts
- 21) Recognize that kids – and adults – enjoy media
- 22) Teach about media, not just with media
- 23) Make media education about asking questions, not learning answers
- 24) Fight the perception that "it doesn't matter"
- 25) Assess and evaluate media literacy work
- 26) Let students bring their own media to the table
- 27) Keep up-to-date with media trends and developments
- 28) Create interesting content
- 29) Raise communication strategy, assess relevant information
- 30) Plan media appearances
- 31) Tracking and convincing
- 32) Providing knowledge and media development
- 33) Development and blended learning
- 34) Self-assessment report
- 35) Create an attitude
- 36) Deconstructing messages
- 37) Analyzing perspectives
- 38) Detecting bias
- 39) Conceptual education and questioning
- 40) Media sample study
- 41) Watching educator videos
- 42) Learning about media
- 43) Study of working methods
- 44) Recognizing fake news
- 45) Using multiple sources
- 46) Gauging tone and language
- 47) Questioning numbers and figures
- 48) Understanding images and the brain
- 49) Developing multimedia skills
- 50) Recognizing bias
- 51) Shaping the media ourselves
- 52) Curating information
- 53) Understanding images and the brain
- 54) Break down television

- 55) Anytime, someone does a press conference or a tweet
- 56) Use more than news source
- 57) When it is a source you don't know, look into them
- 58) Get the truth about hoaxes
- 59) To judge the news, if no one else is covering the important news in your locality, do it yourself
- 60) Sometimes, take a break from media
- 61) Process of accessing media literacy
- 62) How to access media literacy
- 63) Encourage students to develop basic skills for media literacy
- 64) Promoting and supporting problem analysis
- 65) All media messages are constructed
- 66) Media messages are constructed using a creative language with its own rules
- 67) Different people experience the same media message differently
- 68) Media have embedded values and points of view
- 69) Most media messages are organized to gain profit and/or power
- 70) Teach students to evaluate media
- 71) Digital data sources and databases
- 72) Compare/contrast various media sources
- 73) Discuss how the media edits and alters
- 74) Examine the "truth" in advertisements
- 75) Have students create media

2. The application of the outcomes of the Teachers' media literacy skills learning for the students' development project. An instructional handbook was created, which focused on the following: 1) The Desirable Media Literacy Skills Qualifications, 2) The Developmental Guidelines for Media Literacy Skills, and 3) The Developmental Steps of Media Literacy Skills. The online handbooks also included a teacher assessment form to determine the quality of the implementation of the developmental guidelines & the developmental steps, to give feedback on the handbook's strengths & weaknesses, and to reflect upon the work.

Remarks:

1. Please refer to every manual written in Thai at: <https://bit.ly/3xyAysn>
2. Please refer to the teacher practice level assessment form written in Thai at: <https://bit.ly/3ymzcxX>
3. Please refer to the teacher's learning outcome test written in Thai at: <https://bit.ly/3N8Agxz>
4. Please refer to the development assessment form on information literacy skills of students written in Thai at: <https://bit.ly/3N3YyZn>

The results of R2 & D2, R3 & D3, R4 & D4 and R5 & D5 produced the following: 1) six online handbooks for developing the teachers' learning outcomes, 2) one online handbook to be used for applying the teacher's learning outcomes for student development, 3) the teacher's learning test, and 4) the student assessment form. After that, the experimental field research, which was based on the pre-experimental research with one group pre-test/post-test design, was conducted. The handbooks were tested at Dindumwangchaiwitthaya a school, which represents the opportunity expansion schools under the Commission on Basic Education. An experimental research model was designed with a one group pre-test/post-test. The experimental group consisted of 6 primary education teachers, 6 lower secondary education teachers, 29 primary education students, and 30 upper secondary school students, with a total of 59 students. The research findings assumed that "An Online Program for Teacher Learning to Enhance Students' Media Literacy Skills," which was comprised of two projects (each with handbooks), would prove to be beneficial according to the specific criteria. The details of the findings are shown below:

1) The post-experimental test results from the teacher's learning outcomes with the 12 teachers were in line with the standard of 90/90. The first 90 represented the percentage of the mean post-test scores, which had been 33.58 points out of 36 (or 93.29 percent), and which had been higher than the specified criterion (90). The latter 90 represented the percentage of the teachers, who had been able to complete all of the objectives. The results indicated that 93.06 % of 12 teachers had been able to pass all objectives on the exam given that the number was higher than the specified criterion (90).

2) The results of the mean score from the pre-experimental test from the 12 teachers had been 25.92, and the standard deviation had been 7.07. In addition, the post-experimental test mean score had been 33.58 and the standard deviation had been 1.44. Therefore, after the data had been analyzed using the t-test dependent, the mean score of the post-experimental test was found to be statistically significantly higher than the mean score of the pre-experimental test at 0.05, which can be seen in Table 1.

Table 1: The t-test dependent results when the teachers' learning outcomes before and after the experiment were compared

Tests	Sample sizes	Means	Standard Deviations	t
Before	12	25.92	1.88	12.375*
After	12	33.58	1.44	

*p < 0.05

3) The results from the media literacy skills assessment conducted with the 59 students before the experiment indicated that the mean had been 3.24 with a standard deviation of 0.30. Meanwhile, the results from the assessment after the experiment had shown a mean of 4.23 with a standard deviation of 0.16. Therefore, after the data was analyzed by using a t-test dependent, the mean score from the post-experimental assessment had been statistically significantly higher than the mean score from the pre-experimental assessment at 0.05, which is shown in Table 2.

Table 2: The results of the t-test dependent when the students' information literacy skills were compared before and after the experiment assessments

Assessments	Sample sizes	Means	Standard Deviations	t
Before	59	3.24	0.30	20.332*
After	59	4.23	0.16	

* p < 0.05

6. Discussion

“An Online Program for Teacher Learning to Enhance Students' Media Literacy Skills,” which was a research and development study, focused on the concepts of “Student’s 21st Century Skills Development,” “Developing for teachers' learning, then teachers bring learning outcomes to student development,” “Knowledge and Action are Power,” and “Distribution of research innovations to the target population for widespread use.” Furthermore, with respect to the literature review, the research team placed emphasis on following five areas: definitions, important characteristics, developmental guidelines, developmental steps, and assessments. The essential knowledge was collected from a variety of perspectives and then the information was summarized and was used in the handbooks, which were made for the teachers. Teachers could synthetically draw conclusions from their own views and could bring the results from their learning to continually development their students. The research team valued the aspect of “developmental guidelines,” which yielded 75 alternative recommendations for implementation as outlined in the research findings. After the field trials, the researchers asked the experimental group of teachers to carry out a self-assessment on the implementation of those recommendations, and it was found that there were some recommendations that teachers had not chosen at all. However, the teachers had more or less applied the alternative recommendations with their students, according to their interests and aptitude. The top ten alternatives, which had been used by instructors in this experimental study, were as follows: 1) Create media, 2) Evaluate media, 3) Create media messages, 4) Create media by yourself, 5) Build positive attitudes about media, 6) Provide media literacy knowledge, 7) Provide opportunities for media creation, 8) Search for Information sources, 9) Use media wisely, and 10) Present your own media. From using the suggestions about the “developmental steps,” 7 models were presented that were in accordance with perspectives from Buckingham, Grahame, Powell, Burn, and Ellis. (2014), Center for Media Literacy (n.d.), Media Smarts (n.d.), Roscorla (2010), Stansbury (2010), Thoman (1991), and Thoman and Jolls (n.d.). The results revealed that the selection had been distributed in accordance with the interests and aptitude of each teacher. None of the teachers had used the integrated approach to create their own model.

The reason for examining the relevant literature from multiple perspectives was that the research team realized the necessity of having diverse perspectives to assist in the following: 1) developing a better understanding of things; 2) seeing a problem or challenge from different angles to develop a better knowledge; 3) evaluating the importance of something; 4) keeping worries or thoughts in perspective; 5) letting go of judgement and focusing on facts; 6) keeping things in a more balanced viewpoint; 7) seeing the strengths & weaknesses, the good & bad, and the positive & negative; 8) allowing us to react rationally and considerately rather than impulsively; 9) supporting us to develop a more accurate idea of where things sit; and 10) being objective and unbiased. There was also some information, which indicated the following useful perspectives: 1) avoiding judgement, 2) reducing stress, 3) responding constructively, not impulsively, 4) developing deeper empathy, 5) gaining greater clarity, 6) experiencing personal growth, and 7) having learning opportunities. (Dandelion Training and Development, 2021).

During the study and investigation, it was especially interesting to note the differing perspectives found across the Internet, given that the body of information originates from a wide variety of countries and that the Internet's body of knowledge is dynamic and is always being actively updated. A large number of online websites and data archives are able to receive real-time updates. This allows users to download up-to-date information, which can be verified and is ready for distribution. (ACT Bengaluru, 2021). Access to the Internet is fundamental to achieving this vision for the future. It can improve the quality of education in many ways by opening doorways to a wealth of information, knowledge, and educational resources, and thereby, increasing opportunities for learning in and beyond the classroom. By using online materials to prepare lessons, teachers can empower students to extend their range of learning. Interactive teaching methods, which are supported by the Internet, enable teachers to give more attention to the needs of individual students and to support shared learning. This can help to rectify the inequalities in education that are experienced by girls and women. Access to the Internet helps educational administrators to reduce costs and to improve the quality of schools and colleges. (Internet Society, 2017)

7. Recommendations

There are several reasons why developing 21st century skills are critical for students. Segar (2021) cited the following seven reasons: 1) preparing students for change, 2) preparing students for navigating information, 3) helping students to build character, 4) being tools for Problem-Solving in the Real World, 5) helping students stay competitive in the workplace, 6) doing it Because Everyone Else is Doing It, and 7) Promoting & Fostering Innovations. The research team expects that this research and development study, "An Online Program for Teacher Learning to Enhance Students' Media Literacy Skills," will be part of an innovation that encourages teachers in schools to recognize the value of learning and with regard to their students' development, take academic results seriously. Although it may not be perfect, at least, the initial stage of this research has been implemented by using knowledge that is widely available on the Internet, which has been transformed into a systematic and research-based online program. It can advance teachers' learning, which will allow teachers to deliver learning outcomes to the students and to enhance their students' development.

Given that media innovations can quickly change, this online program's information might not be current. To stay caught up with the ever-expanding growth, a further study should be conducted to gain a deeper understanding of recommendations for media literacy skills development. However, due to the rapid evolution of media innovations, the knowledge being presented in this online program may be outdated. Therefore, to keep up with the dramatic developments, a study that focuses upon media literacy skills development guidelines should be conducted.

References

- ACT Bengaluru. (2021, September 30). *How the internet is revolutionizing education?* <https://www.actcorp.in/blog/how-the-internet-is-revolutionizing-education>
- Bauer, T. (2015, November 27). *Digital and information technology (MIL) literacy.* http://bcp.nbtc.go.th/uploads/items/attachments/45645a27c4f1adc8a7a835976064a86d/_a4ca3ce89880d7e3d6b06912d23f2f68.pdf
- Briggs, S. (n.d.). *Ten creative ways to teach media literacy.* <https://www.canva.com/learn/10-creative-methods-to-teach-media-literacy/>

- Buckingham, D., Grahame, J., Powell, M., Burn, A., and Ellis, S. (2014). *Developing media literacy: Concepts, processes and practices*. <https://ddbuckingham.files.wordpress.com/2015/04/media-literacy-concepts-processes-practices.pdf>
- Castellanos, L.M. (2007, June 5-8). *What are the characteristics of a media literate person?* <http://www.jcshcces.ca/upload/Dr.%20Mantilla%20-%20Abstract%20Dr.%20Mantilla.pdf>
- Center for Media Literacy. (n.d.). *Ten benefits of media literacy education*. <https://www.medialit.org/reading-room/10-benefits-media-literacy->
- Chaichanawirote U. & Vantum, C. (2017). Evaluation of content validity for research instrument. *Journal of Nursing and Health Sciences*, 11(2), 105-111.
- Chouit, D. (2013, November 11). *Media and information literacy knowledge, skills, and attitudes*. <http://chouitnffissi.simplesite.com/284158204>
- Commonsense Media. (n.d.). *Media literacy*. <https://www.common sense media.org/news-and-media-literacy/what-is-media-literacy-and-why-is-it-important>
- Cooper, A. (n.d.). *Media literacy questionnaire for English language learners*. <https://www.medialit.org/reading-room/media-literacy-questionnaire-english-language-learners>
- Dandelion Training and Development. (2021, December 13). *The importance of gaining different perspectives*. <https://dandeliontraininganddevelopment.com/2021/12/the-importance-of-perspective/#:~:text=Perspective%20helps%20us%20to%20understand,bias%2C%20judgement%20and%20reduces%20conflict.>
- Ding, S. (2011). *The European commission's approach to media literacy*. https://www.researchgate.net/publication/271765062_Media_literacy_Ambitions_policies_and_measures_Editor_Sonia_Livingstone
- Dulkanit, N., Asawasowan, A. Jetsan, P. & Umpornpruti, P. (2020). *Handbook of learning management to create media literate citizens: For the upper secondary level*. Walk on Cloud Company Limited.
- Fortun, L. (2018, September 21). *Eight reasons why media literacy is important*. <https://www.edukasyon.ph/blog/8-reasons-why-media-literacy-is-important>
- Fortuna, C. (n.d.). *The importance of digital media literacy*. <https://idigitmedia.com/what-is-digital-and-media-literacy/>
- Hallaq, T. (2016). Evaluating online media literacy in higher education: Validity and reliability of the Digital Online Media Literacy Assessment (DOMLA). *Journal of Media Literacy Education*, 8(1), 62-84. <https://doi.org/10.23860/jmle-8-1-5>
- Hobbs, R. (2008, May 27). *Characteristics of media literacy: Focus on key concepts*. https://www.slideshare.net/reneehobbs/final-sisters-cousins?fbclid=IwAR0GaYNZuqS68b_h6CSBMO65T9OF0Nf6agXd1Oheb6ojULc6i2sDecLI6qk
- International Federation of Library Associations and Institutes. (2012, June 28). *Moscow declaration on media and information literacy*. <https://www.ifla.org/publications/moscow-declaration-on-media-and-information-literacy/>
- Internet Society. (2017, November 20). *Internet access and education: Key considerations for policy makers*. <https://www.internetsociety.org/resources/doc/2017/internet-access-and-education/#:~:text=It%20opens%20doorways%20to%20a,extend%20their%20range%20of%20learning.>
- Johnson, M. (2015, November 27). *Digital and information technology (MIL) literacy*. http://bcp.nbtc.go.th/uploads/items/attachments/45645a27c4f1adc8a7a835976064a86d/_a4ca3ce89880d7e3d6b06912d23f2f68.pdf
- Koltay, T. (2011) The media and the literacies: media literacy, information literacy, digital literacy. *Media, Culture & Society*, 33(2), 211-221. <https://doi.org/10.1177/0163443710393382>
- Lee, A.Y.L. (2015, September 27). *Digital and information technology (MIL) literacy*. http://bcp.nbtc.go.th/uploads/items/attachments/45645a27c4f1adc8a7a835976064a86d/_a4ca3ce89880d7e3d6b06912d23f2f68.pdf
- Lipkin, M. C. (n.d.). *Four essential skills for media literacy*. <https://www.renaissance.com/2018/07/26/blog-4-essential-skills-media-literacy/>
- Lynch, M. (2018, September 5). *Six ways to integrate media literacy in the classroom*. <https://www.thetechedvocate.org/6-ways-to-integrate-media-literacy-in-the-classroom/>
- Marie, A. (2016, February 21). *What is media literacy? - Definition, importance & examples*. <https://study.com/academy/lesson/what-is-media-literacy-definition-importance-examples.html>
- Marie, A. (2021, December 23). *Media literacy in our lives*. <https://study.com/academy/lesson/what-is-media-literacy-definition-importance-examples.html>
- Media Smarts. (n.d.). *Media literacy fundamentals*. <https://mediasmarts.ca/digital-media-literacy/general-information/digital-media-literacy-fundamentals/media-literacy-fundamentals>
- Media-coach. (n.d.). *Benefits of media literacy*. <https://media-coach.eu/-Benefits-of-Media-Literacy->
- National Association for media Literacy Education (NAMLE). (n.d.). *Media literacy defined*. <https://namle.net/resources/media-literacy-defined/>

- Nazarbayev University Library. (n.d.) . *Media and information literacy: Introduction*. <https://nu.kz.libguides.com/MIL>
- Office of the Basic Education Commission. (2020). *Policy of the Office of the Basic Education Commission, fiscal year 2021-2022*. Office of Basic Education Policy and Planning.
- Office of the Education Council. (2017). *National Education Plan 2017 – 2036*. Ministry of Education.
- Office of the National Education Commission. (1999). *National Education Act, B.E. 2542 and amendments (No. 2), 2002*. Siam Sport Syndicate Company Limited.
- Office of the Secretary of the National Strategy Board. (2018). *The National Strategy of 2018-2037 (Release of the Government Gazette)*. Office of the National Economic and Social Development Board.
- Pitts, R. (2017, February 1). *Five steps to help you avoid fake news*. <https://www.teenvogue.com/story/5-steps-to-improve-your-media-literacy>
- Prachatai News. (2020, July 30). *Contained as an educational course to increase citizen skills in the digital age*. <https://prachatai.com/journal/2020/08/89297>
- Pressbook. (n.d.). *The importance of media literacy*. <https://mediastudies.pressbooks.com/chapter/the-importance-of-media-literacy/>
- Promrub, S., & Sanrattana, W. (2022). Online program to empower teacher learning to develop students' digital literacy skills. *Education Quarterly Reviews*, 5(2), 469-483. DOI: 10.31014/aior.1993.05.02.506
- Reineck, D. & Lublinski, J. (2015, October). *Media and information literacy: A human rights-based approach in developing countries*. <https://www.dw.com/downloads/29875203/media-information-literacy.pdf>
- Rohitsathien, R. (2020, November 9). *Policy and focus of Ministry of Education fiscal year 2021 (Additional)*. <https://moe360.blog/2020/11/09/policy-focus-64/>
- Roscorla, T. (2010, November 23,). *Ten steps to strengthen digital and media literacy*. <https://www.govtech.com/education/10-steps-to-strengthen-digital-and-media-literacy.html>
- Rovinelli, R.J., & Hambleton, R.K. (1977). On the use of content specialists in the assessment of criterion-referenced test item validity. *Dutch Journal of Educational Research*, 2, 49-60.
- Salamat, L. Ahmad, G. Bakht, M. I. & Saifi, I. L. (2018). Effects of e-learning on students' academic learning at university level. *Asian Innovative Journal of Social Sciences & Humanities (AIJSSH)*, 2(2), 1-12.
- Sangsingkaew, S. & Duangphummet, N. (2020). *Media, information and digital literacy: "Concept" and "Tool" for developing media literate children and youth citizenship*. *Journal of Communication Arts Review*, 24(3), 54-67. <https://so06.tci-thaijo.org/index.php/jca/article/view/244818/165996>
- Sanrattana, W. (2018). *Research in educational administration: Concepts, practices and case studies* (4th Ed.). Thiphawisut.
- Secretariat of the Cabinet (Thailand). (2019). *Policy statement of the cabinet*. <https://bit.ly/2JZif9O>
- Segar, S. (2021, July 7). *The importance of teaching 21st century skills to 21st-century learners*. <https://www.experientiallearningdepot.com/experiential-learning-blog/teaching-21st-century-skills-to-21st-century-learners>
- Sha, R. (2017, March 6). *Why media literacy is important*. <https://www.theodysseyonline.com/basketball-vs-hockey>
- Simons, M. Meeus, W. and T'Sas, J. (2017). Measuring media literacy for media education: development of a questionnaire for teachers' competencies. *Journal of Media Literacy Education*, 9 (1), 99 - 115. DOI:10.23860/JMLE-2017-9-1-7
- Spicer, S. Kellner, D. & Share, J. (2021, August 2). *Integrating media literacy concepts and skills into teaching*. <https://libguides.umn.edu/c.php?g=1137999>
- Stansbury, M. (2010, November 10). *Ten steps for better media literacy skills*. <https://www.eschoolnews.com/2010/11/10/ten-steps-for-better-media-literacy-skills/>
- The Success Manual. (n.d.). *How to be media literate then?* <https://www.thesuccessmanual.in/chapter/media-literacy-skills-a-simple-guide>
- Thoman, E. & Jolls, T. (n.d.). *Media literacy: A national priority for a changing world*. <https://www.medialit.org/reading-room/media-literacy-national-priority-changing-world>
- Thoman, E. (1991). *Four steps to success in media literacy*. <https://www.medialit.org/reading-room/four-steps-success-media-literacy>
- Thoman, E. (1993). *Skills & strategies for media education*. <https://www.medialit.org/reading-room/skills-strategies-media-education>
- Thoughtful Learning. (n.d.). *How to improve media literacy*. <https://k12.thoughtfullearning.com/blogpost/how-improve-media-literacy>
- UCLA: Statistical Consulting Group. (August 22, 2016) . *What does Cronbach's alpha mean?* <https://stats.oarc.ucla.edu/spss/faq/what-does-cronbachs-alpha-mean/>
- UNESCO. (2013, December 23). *Media and information literacy: Policy and strategy guidelines*. <https://www.comminit.com/la/content/media-and-information-literacy-policy-and-strategy-guidelines>
- UNESCO. (n.d.). *Media & information literacy*. <https://en.unesco.org/fieldoffice/amman/Media-Information-Literacy>

- Vu, E. (n.d.). *Eight characteristics of media literacy*. <https://quizlet.com/368973801/chapter-1-8-characteristics-of-media-literacy-flash-cards/>
- Weiβ, S. and Baderr, H. J. (2010). How to improve media literacy and media skills of secondary school teachers in order to prepare them for the next generation of learners: A new type of in-service training for teachers. In book *Looking Toward the Future of Technology-Enhanced Education*. DOI: 10.4018/978-1-61520-678-0.ch003
- Williams, R. (2018, June 27). *The importance of media in the classroom*. <https://www.theclassroom.com/importance-media-classroom-8038897.html>
- Yamkasikorn, M. (2008). How to use efficiency criterion in media research and development: The Difference between 90/90 Standard and E1/E2. *Education Journal Burapha University*, 19(1), 1-16.
- Young African Leaders Initiative. (2015, May 21). *Media literacy: Five core concepts*. <https://yali.state.gov/media-literacy-five-core-concepts/>

Appendix

The student's Media Literacy Skills Self- Assessment form used in the research.

Characteristics of Media Literacy Skills	Your opinion levels				
	5	4	3	2	1
Media Access					
1) I access the media in a variety of ways and customize them to my needs.					
2) I access media with tools, equipment and technology according to specified conditions.					
3) I understand the media access prerequisites.					
4) I access media with proper browsing process.					
5) I can interpret the media from reliable sources after accessing it.					
6) I learned how to approach media creatively.					
7) I share content to create knowledge.					
8) I know how to access Internet media from various sources.					
9) I can search to verify the truth in the media.					
Media Analysis					
10) I understand the purpose of media analysis.					
11) I have media analytical skills.					
12) I can distinguish between formats and types of media.					
13) I can utilize the media analytics.					
14) I have a strategy for media analysis.					
15) I can think analytically.					
16) I can distinguish between truth and lie.					
Media Evaluation					
17) I know the fundamentals of evaluating media based on objectives, concepts and perspectives.					
18) I can check media information from concept.					
19) I can assess the media and interpret it by watching, reading and listening.					
20) I have the skills to assess the media to determine whether it is accurate or not.					
21) I can reflect on the results of using media and technology.					
22) I understand the impact of media on individuals, society and culture.					
23) I can assess the reliability, fidelity and quality of media.					
Media Utilization					
24) I exchange and learn from various media sources.					
25) I communicate in a variety of ways.					
26) I use my skills, techniques and experience to communicate.					
27) I use the media ethically. according to the specified legal conditions					
28) I avoid inaccurate news and choose the right media source.					
29) I process and make decisions about the use of media.					
Media Creation					
30) I have the ability to create my own media creatively.					
31) I can develop effective media in a variety of contexts.					
32) I am able to create media from direct daily experience based on the principles of creating the right media.					
33) I can think and invent the media to match other learning subjects.					
34) I can produce objective media creatively and ethically.					