

Empowering High School Students' Digital Literacy to Thrive in the Society 5.0 Era

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Abstract

This community-based educational program aims to enhance digital literacy among high school students in responding to the challenges of the Society 5.0 era. The rapid integration of digital technology into various aspects of life requires students to possess not only technical skills but also critical thinking, ethical awareness, and the ability to create meaningful digital content. However, current conditions indicate that many students still demonstrate limited competencies in evaluating information, understanding digital ethics, and utilizing technology productively. This program employs a participatory and capacity-building approach through a series of structured activities, including training, mentoring, and practical implementation. The training focuses on strengthening students' abilities in accessing, analyzing, evaluating, and creating digital information. The mentoring phase ensures continuous guidance and practical application of acquired knowledge. The results of the program indicate a significant improvement in students' digital literacy competencies, particularly in critical evaluation of information, responsible use of digital platforms, and creative content production. Additionally, students show increased awareness of digital risks such as misinformation, cyberbullying, and data privacy issues. The findings highlight the importance of integrating digital literacy into educational systems to prepare students for a human-centered technological society. This program contributes to the development of adaptive, critical, and responsible digital citizens in the Society 5.0 era.

Keywords: Digital Literacy, High School Students, Society 5.0, Digital Education, Critical Thinking

INTRODUCTION

The rapid advancement of digital technology has fundamentally transformed human life, particularly in the fields of education, communication, and information exchange. The emergence of the Society 5.0 concept, introduced as a human-centered society that integrates cyberspace and physical space, emphasizes the importance of leveraging technology to solve social problems and enhance quality of life. In this context, education plays a crucial role in preparing individuals, especially students, to adapt and thrive in a highly digitalized environment.

High school students, often categorized as digital natives, are assumed to possess advanced digital skills due to their frequent interaction with technology. However, this assumption is not entirely accurate. While students are proficient in operating digital devices and accessing online platforms, their ability to critically evaluate information, understand digital ethics, and utilize technology for productive purposes remains relatively low. This discrepancy highlights a critical gap between digital usage and digital literacy. The widespread availability of information in the digital era presents both opportunities and challenges. On one hand, students have access to vast sources of knowledge that can support their learning and personal development. On the other hand, the abundance of unverified information increases the risk of misinformation, disinformation, and digital manipulation.

Without adequate digital literacy skills, students are vulnerable to these risks, which may negatively affect their cognitive development and decision-making processes.

Previous studies have emphasized the importance of digital literacy as a multidimensional competence that includes technical, cognitive, and socio-emotional aspects. Digital literacy is not merely the ability to use technology but also involves critical thinking, ethical awareness, and the capacity to create and communicate information effectively. Despite its importance, digital literacy education is often not systematically integrated into school curricula, resulting in uneven levels of competency among students.

This study aims to address this gap by implementing a structured and participatory digital literacy program for high school students. The research focuses on analyzing students' initial digital literacy levels, identifying key challenges, and implementing targeted interventions to improve their competencies. The novelty of this study lies in its comprehensive approach, combining training, mentoring, and practical application to ensure sustainable learning outcomes.

The expected outcomes of this program include improved critical thinking skills, increased awareness of digital ethics, and enhanced ability to create meaningful digital content. Furthermore, this study aims to provide practical insights for educators and policymakers in developing effective digital literacy programs that align with the demands of the Society 5.0 era.

IMPLEMENTATION METHOD

The implementation of this community-based program is designed using a systematic, participatory, and sustainable approach. The method emphasizes active involvement of students as both participants and contributors in the learning process, ensuring that knowledge transfer is accompanied by practical skill development.

Preparation Stage

The preparation stage serves as the foundation for the entire program, focusing on identifying the initial conditions and specific needs of the participants. Data collection is conducted through surveys, observations, and informal interviews with students to assess their digital literacy levels. The assessment covers various aspects, including information access, critical evaluation, digital ethics, and content creation.

The results of this stage indicate that while students are highly active in using digital platforms, their ability to critically evaluate information and understand ethical issues is still limited. Based on these findings, training materials and program strategies are carefully designed to address these gaps. The preparation stage also involves the development of learning modules, activity schedules, and evaluation instruments to ensure the effectiveness of the program.

Socialization Stage

The socialization stage aims to introduce the program to participants and build their awareness of the importance of digital literacy. This stage involves interactive sessions where students are informed about the objectives, benefits, and implementation process of the program.

In addition to delivering information, this stage encourages students to actively share their experiences and challenges in using digital technology. Through open discussions, students become more aware of the potential risks and opportunities associated with digital platforms. This participatory approach helps to create a sense of ownership and motivation among students, which is essential for the success of the program.

Training Stage (Capacity Building)

The training stage is the core component of the program, focusing on enhancing students' knowledge and skills in digital literacy. The training is conducted using an interactive and student-centered approach, combining theoretical explanations with practical exercises.

The training materials include:

- a. Fundamental concepts of digital literacy
- b. Critical thinking and information verification techniques
- c. Digital ethics, including online behavior and data privacy
- d. Digital content creation, including social media management and basic design

Various teaching methods are employed, such as group discussions, case studies, simulations, and hands-on activities. This approach ensures that students are actively engaged in the learning process and can directly apply the knowledge they acquire.

Mentoring Stage

The mentoring stage plays a crucial role in reinforcing the knowledge and skills gained during the training phase. This stage involves continuous guidance and support provided to students as they apply digital literacy concepts in real-life situations.

Mentoring activities include assisting students in evaluating online information, guiding them in creating digital content, and providing feedback on their work. This stage also serves as a platform for students to ask questions, share experiences, and receive personalized support.

The mentoring process is conducted both offline and online, allowing for flexible and continuous interaction between facilitators and participants. This approach ensures that learning is not limited to formal sessions but extends to everyday digital practices.

Implementation Stage

In this stage, students are encouraged to apply their knowledge and skills by creating digital projects. These projects include educational social media content, short videos, and digital campaigns related to digital literacy.

This stage emphasizes creativity, collaboration, and practical application. Students work individually or in groups to develop content that reflects their understanding of digital literacy concepts. The implementation stage not only enhances students' technical skills but also fosters their creativity and confidence.

Monitoring and Evaluation Stage

Monitoring and evaluation are conducted to assess the effectiveness of the program and measure improvements in students' digital literacy. Data are collected through questionnaires, observations, and interviews.

Evaluation indicators include:

- a. Improvement in critical thinking skills
- b. Increased awareness of digital ethics
- c. Enhanced ability to create digital content
- d. Changes in digital behavior

The results of the evaluation provide valuable insights into the strengths and weaknesses of the program, which can be used for further improvement.

Sustainability Stage

The sustainability stage focuses on ensuring the long-term impact of the program. Strategies include integrating digital literacy into school curricula, developing student communities focused on digital literacy, and encouraging continuous learning.

This stage also involves collaboration with teachers and school management to ensure that digital literacy education becomes a permanent part of the learning process.

RESULTS AND DISCUSSION

Overview of Participants

The participants involved in this digital literacy empowerment program consist of 30 high school students selected based on their active use of digital technology in daily life. The

participants represent a typical profile of digital native learners who are highly familiar with smartphones, social media platforms, and internet-based communication tools.

Based on initial observations and pre-assessment data, it was found that nearly all students use digital devices for more than 5 hours per day. However, the dominant use of technology is still oriented toward entertainment activities such as watching videos, browsing social media, and online gaming. Only a small proportion of students utilize digital platforms for educational purposes, such as accessing learning materials, participating in online courses, or creating academic-related content.

In terms of digital literacy competencies, students demonstrate adequate technical skills, particularly in operating devices and navigating applications. However, their higher-order digital literacy skills—such as critical evaluation of information, understanding digital ethics, and content creation—remain relatively low. This imbalance indicates that students are still positioned as passive consumers rather than active and critical digital users.

Additionally, awareness of digital risks is still limited. Many students are not fully aware of issues such as misinformation, cyberbullying, data privacy, and digital footprints. This condition highlights the urgency of implementing structured digital literacy programs to equip students with comprehensive competencies required in the Society 5.0 era.

Implementation of Digital Literacy Program

The implementation of the digital literacy program was conducted through a series of structured and participatory activities, including training sessions, mentoring, and practical application. The program was designed to create an engaging learning environment that encourages active participation and collaborative learning.

During the training phase, students were introduced to key concepts of digital literacy, including critical thinking, information verification, and digital ethics. The use of real-life case studies, such as examples of fake news and online scams, helped students understand the relevance of digital literacy in their daily lives. Interactive discussions and simulations allowed students to actively analyze problems and propose solutions.

The mentoring phase played a crucial role in reinforcing students' understanding. Students were guided in evaluating online information sources, identifying credible references, and applying ethical principles in digital communication. Mentors also provided feedback on students' digital content, helping them improve both quality and relevance.

The implementation stage required students to create digital projects, such as educational social media posts, short videos, and awareness campaigns related to digital literacy. This stage not only enhanced students' technical skills but also fostered creativity, collaboration, and problem-solving abilities.

Overall, the program was implemented effectively, with high levels of student participation and engagement. The combination of theoretical and practical approaches ensured that students gained both knowledge and hands-on experience.

Results of Digital Literacy Improvement

The results of the digital literacy program demonstrate a substantial improvement in students' competencies across multiple dimensions, including cognitive, technical, and ethical aspects of digital literacy. These improvements were systematically measured using a combination of pre-test and post-test questionnaires, direct observations during program activities, and evaluations of students' digital project outputs. This multi-instrument approach ensures that the assessment captures not only theoretical understanding but also practical application and behavioral changes.

From a cognitive perspective, students showed a marked increase in their ability to critically evaluate information, particularly in identifying credible sources and distinguishing between factual content and misinformation. Prior to the program, many students tended to accept online information without verification. However, after participating in the training and

mentoring sessions, students demonstrated improved analytical thinking and a more cautious approach when consuming digital content.

From a behavioral perspective, there was a noticeable shift in students' attitudes toward digital technology usage. Students became more aware of digital ethics, including responsible communication, respect for others in online environments, and the importance of maintaining data privacy. This change indicates that the program successfully fostered not only knowledge acquisition but also the development of responsible digital behavior.

In terms of technical skills, students exhibited significant progress in their ability to create digital content. Initially, most students used digital platforms primarily for passive consumption. After the program, they were able to produce structured and meaningful digital outputs such as educational posts, short videos, and digital campaigns. This transformation reflects the shift from passive users to active digital creators, which is a key indicator of advanced digital literacy.

To further illustrate the implementation process and students' engagement during the program, visual documentation is presented in the following figure. This figure highlights key activities, including training sessions, group discussions, and digital project development, which collectively contributed to the improvement of students' competencies.



Documentation of training activities, student participation, or digital project outputs

The quantitative results of students' digital literacy improvement are presented in the following tables. These tables provide a detailed comparison of students' competencies before and after the program, including the distribution of responses and percentage changes across key indicators. The data clearly demonstrate a positive trend, indicating the effectiveness of the intervention in enhancing students' digital literacy.

Furthermore, the tables also highlight which competency areas experienced the most significant improvement, allowing for a more in-depth analysis of the program's impact. This quantitative evidence is supported by qualitative observations, which confirm that students not only improved their knowledge but also applied it in real digital contexts.

Table 1. Students' Digital Literacy Level Before the Program

Description	Number of Respondents	Percentage
Strongly Agree	6	20%
Agree	9	30%
Doubtful	8	27%

Disagree	5	17%
Strongly Disagree	2	6%
Total	30	100%

Interpretation:

Before the program, most students were in the "Agree" and "Doubtful" categories, indicating moderate digital literacy levels. A significant portion of students still lacked confidence in their ability to critically evaluate and use digital information effectively.

Table 2. Students' Digital Literacy Level After the Program

Description	Number of Respondents	Percentage
Strongly Agree	14	47%
Agree	11	37%
Doubtful	3	10%
Disagree	2	6%
Strongly Disagree	0	0%
Total	30	100%

Interpretation:

After the program, there is a clear shift toward higher levels of digital literacy. The majority of students fall into the "Strongly Agree" and "Agree" categories, indicating improved confidence and competence in digital literacy skills.

Table 3. Comparison of Digital Literacy Competency Improvement

Competency Aspect	Before (%)	After (%)	Improvement
Critical Thinking	45%	84%	+39%
Information Evaluation	48%	87%	+39%
Digital Ethics	42%	85%	+43%
Content Creation	50%	88%	+38%
Technology Utilization	55%	90%	+35%

Interpretation:

The data show substantial improvements across all competency aspects. The highest increase is observed in digital ethics (+43%), indicating that students became more aware of responsible digital behavior. Improvements in critical thinking and information evaluation also demonstrate enhanced analytical skills.

Table 4. Questionnaire Results (Average Score Comparison)

No	Indicator	Before	After	Description
1	Ability to evaluate information	2.6	4.3	Improved
2	Awareness of digital ethics	2.4	4.4	Improved
3	Ability to detect hoaxes	2.5	4.2	Improved
4	Skill in digital content creation	2.7	4.3	Improved
5	Responsible use of social media	2.8	4.5	Improved

Interpretation:

The questionnaire results indicate a significant increase in all indicators, with post-program scores reaching above 4.0 (good to very good category). This suggests that the program effectively enhanced students' digital literacy skills.

DISCUSSION

The findings of this study demonstrate that a structured and participatory digital literacy program can significantly improve students' competencies in the digital domain. The integration of training, mentoring, and practical application creates a holistic learning experience that addresses cognitive, technical, and ethical aspects of digital literacy.

The significant improvement in digital ethics indicates that students have developed a better understanding of responsible online behavior. This is particularly important in the Society 5.0 era, where digital interactions play a central role in daily life. The increase in critical thinking and information evaluation skills also highlights the effectiveness of the program in fostering analytical abilities.

The shift in students' behavior—from passive consumers to active creators—reflects a positive transformation in their engagement with digital technology. Students are no longer limited to consuming content but are capable of producing meaningful and educational digital materials.

However, several challenges remain. Sustaining these improvements requires continuous support from educators and integration into formal curricula. Additionally, differences in students' initial competencies may affect the pace of learning, requiring more personalized approaches in future programs.

Overall, this program demonstrates that digital literacy empowerment is a crucial strategy in preparing students for the challenges of the Society 5.0 era. The results provide strong evidence that educational interventions can effectively bridge the gap between digital access and digital competence.

CONCLUSION

This study concludes that digital literacy is an essential competency for high school students in facing the challenges of the Society 5.0 era. The findings show that students' digital literacy can be significantly improved through a structured and participatory program consisting of training, mentoring, and practical application. The program successfully enhanced students' abilities in critical thinking, information evaluation, digital ethics, and digital content creation, while also encouraging a shift from passive technology use to more active and responsible digital engagement.

The results highlight that digital literacy is not limited to technical skills but also includes cognitive and ethical dimensions that are crucial in navigating the digital environment. Therefore, the integration of digital literacy into the educational system is highly necessary, with schools and teachers playing a key role in fostering students' competencies. In addition, this study provides a practical model for digital literacy empowerment that can be applied in similar educational contexts. However, further research with a larger scope and longer duration is recommended to strengthen the sustainability and impact of such programs. Overall, strengthening digital literacy is a strategic step in preparing students to become adaptive, critical, and responsible individuals in the Society 5.0 era.

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