Iranian Journal of Educational Sociology

Journal Website

Article history:
Received 13 March 2024
Revised 11 May 2024
Accepted 25 May 2024
Published online 13 July 2024

Iranian Journal of Educational Sociology

Volume 7, Issue 3, pp 123-130

Quarterly
Iranian Journal of Educational Sociology

E-ISSN: 2645-3460

Identifying the Components of Teaching Digital Media Literacy in Primary Schools

Masoumeh Farahani [1], Adel Hallaj Dehghani [2*], Khadijeh Khanzadi [3]

[1] PhD Student, Department of Education Management, Garmsar Branch, Islamic Azad University, Garmsar, Iran
[2] Assistant Professor, Department of Educational Management, Garmsar Branch, Islamic Azad University, Garmsar, Iran.
[3] Assistant Professor, Department of Educational Management, Garmsar Branch, Islamic Azad University, Garmsar, Iran.

*** Corresponding author email address**: halajadel@gmail.com

A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Farahani, M., Hallaj Dehghani, A., Khanzadi, Kh. (2024). Identifying the Components of Teaching Digital Media Literacy in Primary Schools. *Iranian Journal of Educational Sociology*, *7*(3), 123-130.
http://dx.doi.org/10.61838/kman.ijes.7.3.15

A B S T R A C T

Purpose: In the context of rapidly evolving digital landscapes, digital media literacy has become a foundational element in primary education, crucial for preparing students to navigate and influence their digital surroundings effectively. This study aims to identify and describe the key components of digital media literacy as taught in primary schools, focusing on the insights of faculty members from Iran to understand how these components are integrated into the educational system.

Methodology: Employing a qualitative research design, this study gathered data through semi-structured interviews with 21 faculty members who are directly involved in teaching digital media literacy in primary schools across Iran. Theoretical saturation was achieved to ensure comprehensive coverage of the concepts. Data were analyzed using NVivo software to facilitate a thorough thematic analysis, identifying the core components of digital media literacy education.

Findings: The analysis revealed five main themes central to digital media literacy in primary education: Transfer, Usage, and Digital Competence; Computer Fundamentals; Online Basics Skills; Word Processing, Spreadsheet, and Presentation Skills; and Database and Data Security Skills. Each theme comprised several categories that detailed specific skills and knowledge areas essential for comprehensive digital literacy, ranging from basic computer operations to advanced data management and security.

Conclusion: The study underscores the importance of a robust digital media literacy curriculum in primary education, highlighting specific skills that are crucial for students' development as competent digital citizens. It also points to the need for ongoing teacher training to keep pace with technological advancements, ensuring that educators are well-equipped to impart these essential skills.

Keywords: *Digital media literacy, primary education, qualitative research, Iran, educational technology, thematic analysis.*

1. Introduction

The integration of digital media literacy within primary schools has emerged as a crucial educational imperative. The advent of the digital age has not only transformed how knowledge is consumed but also how it is imparted, necessitating a reevaluation of pedagogical strategies particularly in the wake of global disruptions such as the COVID-19 pandemic (Akil & Adnan, 2022; Saud, 2021a).

The importance of digital literacy extends beyond basic computer skills, encompassing the ability to navigate, evaluate, and create information using a range of digital technologies. According to Cruzado, Campión, and Compaña (2021), the post-COVID-19 era has indisputably marked the acceleration of digital literacy as a fundamental component of education, urging educators to adopt comprehensive digital literacy frameworks (Cruzado et al., 2021). Similarly, Dridi (2021) emphasizes the necessity of embedding digital media literacy within the curriculum to enhance the educational resilience and adaptability of students (Dridi, 2021). This perspective is echoed in the work of Goodfellow (2011), who argues that literacies in the digital realm are complex and multifaceted, requiring educational systems to foster a broad spectrum of digital skills and competencies (Goodfellow, 2011).

Research on digital literacy initiatives, such as those reviewed by Hobbs (2004), underscores the significance of school-based programs that incorporate media literacy to develop critical thinking and analytical skills among students (Hobbs, 2004). These programs are vital in enabling students to effectively engage and interact with digital content. Furthermore, the curriculum developments discussed by Kailani, Susilana, and Rusman (2021) illustrate practical approaches to integrating digital literacy in elementary education, highlighting the pedagogical adjustments needed to accommodate the digital transformation in educational settings (Kailani et al., 2021).

The incorporation of digital literacy is not without challenges. As noted by Weninger (2022) and Jones (2022), the integration of digital literacy involves not just the acquisition of skills but also the development of social practices that support critical engagement with digital media (Weninger, 2022). This is particularly pertinent in environments where digital resources are used to enhance learning outcomes, as demonstrated by Maulid and Sakti (2021) in their study on the effectiveness of learning videos (Maulid & Sakti, 2021).

In addition to the technical aspects, digital literacy also includes critical dimensions as identified by Afrilyasanti, Basthomi, and Zen (2022), who analyze the use of web-based applications to foster critical media literacy. This is crucial for empowering students to navigate the vast landscape of digital information responsibly (Afrilyasanti et al., 2022). The works by Saud (2021) on the digital literacy competencies of teachers further highlights the need for ongoing professional development to equip educators with the necessary skills to facilitate digital learning effectively (Saud, 2021a, 2021b).

This study seeks to explore and identify the components of teaching digital media literacy in primary schools, focusing on the qualitative insights provided by faculty members in Iran—a region where digital educational reforms are progressively being implemented. Through this study, we aim to contribute to the current literature on digital media literacy in education and provide actionable insights that can guide curriculum developers, policymakers, and educators in enhancing digital literacy education in primary schools. The ultimate goal is to prepare students not only to thrive in a digitalized world but also to shape it responsibly and creatively.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a qualitative research methodology to explore the components of teaching digital media literacy in primary schools. The qualitative approach was chosen to gain deeper insights into the perspectives and experiences of the faculty members involved in this educational sector.

The participants of this study consisted exclusively of faculty members from various primary educational institutions across Iran. These individuals were selected based on their expertise in digital media literacy and their involvement in curriculum development for primary education. The selection aimed to represent a broad spectrum of insights related to the integration of digital media literacy into school curriculums.

Theoretical saturation was reached after conducting interviews with a sufficient number of participants to ensure that no new themes or relevant information emerged. This saturation point indicated that the data collected was robust enough to support comprehensive analysis and conclusions.

All participants were provided with a detailed explanation of the study's objectives and the use of their data. Informed

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E-ISSN: 2645-3460

consent was obtained from each participant, ensuring confidentiality and the right to withdraw from the study at any time without any repercussions.

2.2. Measures

2.2.1. Semi-Structured Interview

Data was collected through semi-structured interviews, which allowed for flexibility in the responses and enabled participants to discuss their experiences and opinions in depth. Each interview was designed to explore specific aspects of digital media literacy, including challenges, strategies, and the effectiveness of current practices in primary education. The interviews lasted approximately 45-60 minutes and were conducted in Farsi, the native language of the participants.

2.3. Data Analysis

The data from the interviews were transcribed verbatim and analyzed using NVivo software, a leading qualitative data analysis tool. NVivo facilitated the organization and coding of the data, allowing for the identification of recurrent themes and patterns. The analysis was guided by grounded theory principles, focusing on generating a theory that is deeply rooted in the data itself.

3. Findings and Results

The study involved 21 participants, who were faculty members actively engaged in teaching digital media literacy in primary schools across Iran. The age distribution of the participants was diverse, with 6 individuals (28.57%) aged between 35 and 40 years, 5 participants (23.80%) aged between 41 and 45 years, another 6 (28.57%) between 46 and 50 years, and 4 participants (19.04%) over the age of 51 years. Regarding gender, 8 of the participants (38.09%) were female, and 13 (61.90%) were male. The educational background of the participants was notably high, with 19 holding a doctoral degree (90.47%) and 2 possessing post-doctoral qualifications (9.52%). In terms of employment duration, the participants' experience ranged from 1 to 15 years, with 5 participants (23.80%) having 1 to 5 years of experience, 7 (33.33%) between 6 and 10 years, and 9 (42.85%) with 11 to 15 years of experience.

Table 1

Themes and Subthemes Identified in the Qualitative Analysis of Digital Media Literacy Components

Core Theme	Organizing Themes
Transfer, Usage, and Digital Competence	Digital Transfer
	Digital Usage
	Digital Competence
Computer Fundamentals	Computers and Devices
	Desktop, Icons, and Settings
	Outputs
	File Management
	Networks
	Security and Welfare
Online Basics Skills	Web Browsing Concepts
	Web Browsing
	Web-Based Information
	Communication Concepts
	Email Usage
Word Processing Skills	Application Usage
	Document Creation
	Formatting
	Objects
	Merging
	Referencing
	Productivity Enhancement
	Collaborative Editing
	Output Preparation
Spreadsheet Skills	Application Usage
	Cells/Houses
	Worksheet Management

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	Formulas and Functions
	Formatting
	Charts
	Output Preparation
	Analysis
	Validation and Auditing
	Productivity Enhancement
	Collaborative Editing
Database Skills	Database Concepts
	Application Usage
	Tables and Relationships
	Information Retrieval
	Forms and Objects
	Outputs and Reports
	Productivity Enhancement
Presentation Skills	Application Usage
	Presentation Planning
	Development of a Presentation
	Text
	Charts and Diagrams
	Graphic Objects
	Multimedia
	Output Preparation
	Productivity Enhancement
	Presentation Management
Data Security Skills	Data Threats
	Information Value
	Personal Security
	File Security
Malware	Definitions and Applications
	Types of Software
	Protection
Network Security	Networks
	Network Communications
	Wireless Network Security
	Access Control
Safe Web Usage	Web Browser
	Social Networks
Communications	Email
	Instant Messaging
Secure Data Management	Data Security and Backup
	Secure Destruction

The qualitative analysis of the semi-structured interviews with faculty members from various primary educational institutions across Iran revealed several core themes and organizing themes associated with teaching digital media literacy in primary schools. The data were organized into several categories, each addressing different aspects of digital literacy.

Transfer, Usage, and Digital Competence: This theme encapsulates three main aspects: digital transfer, digital usage, and digital competence. Faculty members emphasized the importance of these skills as foundational to enabling students to navigate and utilize digital tools effectively. One participant noted, "It's essential that we not only teach how to use digital tools but also how to transfer these skills across different platforms and contexts," highlighting the adaptive nature of digital competence.

Computer Fundamentals: Covering a range of basic skills from operating computers and devices to understanding desktop environments and managing files, this theme is crucial for building a baseline of technical knowledge. "Students must understand the hardware before they can master the software," one interviewee stated, reflecting on the need for a comprehensive approach to computer education.

Online Basics Skills: Including web browsing, handling web-based information, and using email, this theme reflects

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E-ISSN: 2645-3460

the essential skills for interacting with the online world. As one faculty member expressed, "Navigating the web safely and efficiently is a critical skill for our students in this digital age."

Word Processing, Spreadsheet, and Presentation Skills: These themes were discussed extensively, highlighting the practical applications of digital literacy in school settings. Participants detailed how these skills are not only about using applications but also about enhancing productivity, collaboration, and the quality of academic work. "Teaching students to effectively use word processors and spreadsheets is not just about technical skills but also about enhancing their ability to communicate and organize information," explained a participant.

Database and Data Security Skills: Faculty members highlighted the importance of understanding databases and ensuring data security. The rise of data-intensive environments in education necessitates that students not only know how to use databases but also understand the principles of data security and privacy.

Network and Malware Security: This theme addressed the critical aspects of network interactions and the threats posed by malware. "Our responsibility includes making students aware of the potential risks and teaching them how to protect themselves in digital spaces," a faculty member remarked.

Secure Data Management: Emphasizing the need for secure practices in handling and storing digital information, this theme included discussions on data backup and secure destruction of sensitive information.

4. Discussion and Conclusion

This study explored the essential components of teaching digital media literacy in primary schools through qualitative analysis based on semi-structured interviews with faculty members from Iran. The findings revealed several key themes: Transfer, Usage, and Digital Competence; Computer Fundamentals; Online Basics Skills; Word Processing, Spreadsheet, and Presentation Skills; Database and Data Security Skills. These themes collectively emphasize the necessity of a holistic approach to digital literacy that encompasses a broad spectrum of competencies from basic computer operations to advanced data management and security practices, which are crucial for students navigating the digital world.

This study identified five main themes associated with teaching digital media literacy in primary schools. These themes were Transfer, Usage, and Digital Competence; Computer Fundamentals; Online Basics Skills; Word Processing, Spreadsheet, and Presentation Skills; and Database and Data Security Skills. Each theme encompasses several categories, highlighting specific aspects of digital literacy that are crucial for primary education. The categories under each theme further delineate the specific skills and concepts necessary for comprehensive digital media literacy.

The theme of Transfer, Usage, and Digital Competence includes categories such as Digital Transfer, Digital Usage, and Digital Competence. Digital Transfer focuses on the ability to adapt and apply digital skills across different technologies and platforms, reflecting a dynamic understanding of technology use. Digital Usage encompasses practical skills and knowledge for operating digital devices and software effectively. Digital Competence involves a deeper mastery and strategic use of digital environments to accomplish specific goals, indicating a higher level of proficiency and understanding.

Under the theme of Computer Fundamentals, the categories identified were Computers and Devices, Desktop, Icons, and Settings, Outputs, File Management, Networks, and Security and Welfare. Computers and Devices covers basic knowledge about different types of hardware and their functions. Desktop, Icons, and Settings deals with understanding and managing user interfaces. Outputs refer to handling different outputs from devices, such as prints and screens. File Management emphasizes the organization and safety of files. Networks focus on understanding and utilizing internet and local network connections, while Security and Welfare involves protecting information and ensuring safe computing environments.

Online Basics Skills include Web Browsing Concepts, Web Browsing, Web-Based Information, Communication Concepts, and Email Usage. Web Browsing Concepts and Web Browsing teach students how to navigate the internet effectively and safely. Web-Based Information deals with the ability to find, evaluate, and use information found online. Communication Concepts and Email Usage involve understanding and utilizing online communication tools to foster effective digital communication.

This theme comprises Application Usage, Document Creation, Formatting, Objects, Merging, Referencing, Productivity Enhancement, Collaborative Editing, and Output Preparation. Each category delves into various aspects of popular productivity software applications. Application Usage covers basic and advanced functions of software tools. Document Creation and Formatting focus on

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E-ISSN: 2645-3460

creating and designing documents. Objects and Merging involve manipulating and combining multiple types of content. Referencing and Productivity Enhancement look at tools for academic and professional work, while Collaborative Editing and Output Preparation address collaborative work dynamics and finalizing documents for presentation.

The final theme, Database and Data Security Skills, includes Database Concepts, Application Usage, Tables and Relationships, Information Retrieval, Forms and Objects, Outputs and Reports, and Productivity Enhancement. Database Concepts introduces the basic principles of database structure and function. Application Usage relates to using database software effectively. Tables and Relationships and Information Retrieval focus on organizing data and extracting it as needed. Forms and Objects concern creating interfaces for data entry and interaction. Outputs and Reports discuss generating usable reports from data. Productivity Enhancement highlights efficiency in using these tools.

The thematic analysis indicated significant emphasis on Transfer, Usage, and Digital Competence, echoing the findings of Cruzado, Campión, and Compaña (2021), who highlighted the necessity of enhancing teacher digital literacy in the post-COVID era as an "indisputable challenge (Cruzado et al., 2021). Our study extends this by focusing on the transferability of digital skills, a component that is crucial for students to adapt and apply their knowledge across various platforms and contexts. This is also supported by Tomczyk (2019), who identified digital safety skills as a key aspect of digital literacy among teachers, suggesting that these competencies are equally vital for students to navigate safely and efficiently in the digital world (Tomczyk, 2019).

The identified need for Computer Fundamentals and Online Basics Skills aligns with the research by Dridi (2021), which emphasized the importance of these foundational skills in building a resilient and adaptive educational environment (Dridi, 2021). Similarly, the role of these basic skills in fostering a secure and informed online presence resonates with the findings of Saud (2021), who discussed the digital literacy competencies necessary for effective online instruction (Saud, 2021a).

The study's focus on Word Processing, Spreadsheet, and Presentation Skills reflects a practical aspect of digital literacy that is crucial for both educational and professional development. This finding aligns with the work of Maulid and Sakti (2021), who demonstrated the effectiveness of digital tools, such as learning videos, in enhancing student engagement and learning outcomes (Maulid & Sakti, 2021). The emphasis on productivity tools within our study suggests a growing recognition of their importance in educational settings, as highlighted by Anggraeni (2023), who explored the integration of digital-based learning media in physics education (Anggraeni, 2023).

Database and Data Security Skills were highlighted as increasingly important, supported by Vice, Pittman, and Warnick (2023), who discussed the challenges and benefits of digital literacy projects, including the critical aspect of data security (Vice et al., 2023). This component is crucial in preparing students to handle data responsibly and securely, a skill that is becoming indispensable in the digital age.

Despite the clear benefits of integrating digital literacy into the curriculum, our findings also highlight challenges such as ensuring equitable access to technology and the need for continuous professional development for teachers—a point underlined by Saud (2021). The need for ongoing training and support for teachers to maintain and update their digital skills is crucial for the successful implementation of digital literacy programs, as also noted by Akil and Adnan (2022) in their case study on promoting digital literacy in higher education (Akil & Adnan, 2022; Saud, 2021a).

Moreover, the study reflects on the importance of critical and reflective engagement with digital media, as discussed by Jones (2022) and Weninger (2022), who argue for a more nuanced understanding of digital literacy that transcends mere skill acquisition to include critical engagement with digital content (Jones, 2022; Weninger, 2022).

The study confirms the critical role of digital media literacy in the primary education sector, highlighting specific areas of competency that are essential for students' successful integration into the digital age. The insights gained from the faculty members provide a comprehensive overview of the skills needed to foster a digitally literate student population, capable of adapting to and thriving in an increasingly digital world. As digital media becomes further embedded in educational settings, the importance of these competencies will only continue to grow, underscoring the need for curricula that are both responsive and forward-thinking.

This study, while insightful, has several limitations. The sample was confined to faculty members from Iran, which may limit the generalizability of the findings to other cultural or educational contexts. Additionally, the qualitative nature of the study, focusing solely on semi-structured interviews, may not capture the full spectrum of perspectives or

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E-ISSN: 2645-3460

experiences of all stakeholders involved in digital literacy education, such as students, parents, and other educators. These limitations suggest a need for caution when extending these findings beyond the immediate study context.

Future research should consider expanding the demographic and geographic scope of participants to include a more diverse range of educators, as well as students and parents, to provide a more comprehensive understanding of digital literacy needs and challenges across different educational systems and cultural contexts. Additionally, longitudinal studies could be beneficial in understanding how the implementation of digital literacy curricula impacts student outcomes over time. Exploring the integration of digital literacy with other curricular areas to see how interdisciplinary approaches can enhance learning would also be valuable.

The findings from this study suggest several practical implications for educators and policymakers. Schools should consider integrating comprehensive digital literacy programs that not only focus on technical skills but also emphasize critical thinking and secure online practices. Professional development programs should be developed to continuously equip teachers with up-to-date digital skills and pedagogical strategies. Moreover, policymakers should ensure that digital literacy curricula are adaptable and inclusive, considering the diverse needs of all students to prevent a digital divide. Collaboration between educational institutions and technology providers could also enhance the quality and accessibility of digital literacy resources.

Authors' Contributions

The first author was responsible for conducting the interview and collecting data, and the other authors were responsible for analyzing the data and writing the article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We hereby thank all participants for agreeing to record the interview and participate in the research.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethics Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent.

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