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# Bridging the Gap between Teachers' Perceptions and Practices in Designing Digital Learning Materials: Evidence from Grade 1 Natural and Social in Vietnam

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**Abstract:** This study examines the gap between primary school teachers' perceptions and their actual use of digital learning materials (DLMs) in teaching Grade 1 Natural and Social Science in Vietnam. A survey of 138 teachers from urban, rural, and mountainous areas was conducted using a structured questionnaire and analyzed with descriptive statistics. Results show that teachers highly value the effectiveness of DLMs in enhancing student engagement and understanding. However, their classroom practices mainly rely on basic tools such as videos, images, and PowerPoint, while interactive and learner-centered applications are rarely used. The findings indicate a clear mismatch between teachers' positive perceptions and their pedagogical implementation. Key factors include limited training in digital pedagogy, insufficient digital competence, and restricted access to quality resources. This study contributes to the existing literature by providing empirical evidence of the mismatch between teachers' perceptions and classroom practices in the specific context of Grade 1 Natural and Social Science education in Vietnam.

**Keywords:** Digital learning materials; teachers' perceptions; teaching practices; primary education; digital competence; educational technology; digital transformation.

## INTRODUCTION

In the context of accelerating digital transformation in education, the design and use of digital learning materials (DLMs) have become essential components of effective teaching practices in primary education. In Vietnam, the implementation of the 2018 General Education Program emphasizes competency-based learning (Duong *et al*., 2023). For Grade 1 students, particularly in subjects such as Natural and Social Science, digital learning materials play a crucial role in supporting visual, experiential, and interactive learning, which aligns with young learners' cognitive and psychological characteristics.

Despite these opportunities, emerging evidence suggests a persistent gap between teachers' perceptions of digital learning materials and their actual classroom practices. Teachers generally acknowledge the importance of digital resources in enhancing teaching effectiveness; however, their practical implementation often remains limited in scope and pedagogical depth. For instance, research in Vietnam indicates that educators' digital competence is at a moderate level (Hoang *et al*., 2022). Primary school teachers have increased their use of basic digital tools such as interactive presentation software and learning management systems following online teaching periods (Moorhouse, 2023).

This gap is further reinforced by limitations in teacher training. Záhorec *et al*. (2021) argue that teacher education programs often focus on technical skills rather than the methodological integration of digital tools into teaching (Záhorec *et al*., 2021). As a result, teachers may be familiar with digital technologies but lack the pedagogical competence required to design meaningful digital learning experiences. Moreover, the design of digital learning materials is not solely an individual endeavor but is influenced by institutional culture and systemic support, including school infrastructure and professional development opportunities (Zhong, 2017).

From a pedagogical perspective, effective digital learning materials must go beyond content delivery to support experiential and context-based learning. Studies have demonstrated that integrating culturally relevant and experiential content- such as local knowledge, storytelling, and real-life contexts- significantly enhances students' engagement and understanding (Huang, 2007; N. Q. T. Nguyen *et al*., 2025). In addition, interactive digital tools and open educational resources (OER) have been shown to promote collaboration, self-assessment, and reflective learning among students (Blyznyuk, 2024).





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Theoretically, this issue can be understood through the lens of connected learning and organizational learning. The connected learning framework emphasizes integrating personal interests, academic content, and social interaction through digital media to create meaningful, participatory learning environments. Meanwhile, organizational learning theory highlights that knowledge is embedded not only in individuals but also in tools, processes, and collaborative networks, which collectively shape teaching practices (Argote & Miron-Spektor, 2011). These perspectives suggest that improving teachers' practices requires not only individual capacity building but also systemic changes in how knowledge and resources are structured and shared.

In the Vietnamese primary education context, especially in Grade 1 Natural and Social Science, the design of digital learning materials must align with young learners' psychological characteristics, such as short attention spans, preference for visual stimuli, and learning through play and experience. According to recent national studies, digital learning materials are expected not only to deliver content but also to create interactive, experiential, and context-based learning environments that support competency development under the 2018 General Education Program.

However, despite the recognized importance of digital learning materials, many materials used in practice remain fragmented, low in interactivity, and insufficiently aligned with pedagogical requirements. Teachers often face challenges in designing contextually appropriate and engaging digital resources, particularly for early primary learners.

Therefore, this study not only examines the gap between teachers' perceptions and practices but also situates this gap within the specific pedagogical and contextual demands of Grade 1 Natural and Social Science education in Vietnam.

## LITERATURE REVIEW

### Teachers' Perceptions and Digital Readiness

Teachers' perceptions and readiness play a critical role in determining how digital learning materials are adopted and implemented in classroom practice (Sari *et al*., 2017). Previous studies consistently indicate that educators generally hold positive attitudes toward the use of digital technologies in teaching (Ahmed & Hina Hussain Kazmi, 2020). However, this positive perception does not necessarily translate into effective practice.

In the Vietnamese context, Hoang *et al*. (2022) found that teachers' digital competence remains at a moderate level, with significant limitations in content development and problem-solving in digital environments (Hoang *et al*., 2022). These findings suggest that while teachers are aware of the importance of digital transformation, their practical readiness to design and implement digital learning materials is still insufficient. Similarly, Santos *et al*. (2022) reported that teachers primarily use the internet as a source of teaching materials but tend to apply these resources in relatively simple ways, such as creating presentation slides, rather than developing interactive or student-centered learning experiences (Dos Santos *et al*., 2022).

Furthermore, Záhorec *et al*. (2021) emphasize that teacher training programs often focus on basic technical skills rather than the pedagogical and methodological aspects of digital integration (Záhorec *et al*., 2021). This imbalance leaves teachers technically capable but pedagogically unprepared to leverage digital tools effectively. Consequently, there exists a disconnect between teachers' perceived value of digital learning materials and their actual ability to design and implement them in meaningful ways.

### Practices and Design Processes of Digital Learning Materials

The design of digital learning materials is a complex process that requires integrating pedagogical, technological, and contextual considerations. Research highlights that effective digital materials are not simply digitized versions of traditional resources but are designed to support interactive, experiential, and learner-centered approaches.

Area *et al*. (2023) argue that the transformation of instructional materials from print to digital formats is influenced not only by individual teachers but also by broader institutional and cultural factors (Area-Moreira *et al*., 2023). The most effective approach is a hybrid model that combines traditional and digital resources to maximize learning outcomes. This perspective underscores the importance of systemic support in enabling teachers to design high-quality digital materials.



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From a design perspective, the Design-Based Research approach provides a robust framework for developing digital learning materials. Design-Based Research proposes a four-phase iterative process-analysis, solution exploration, design, and reflection-which involves collaboration among teachers, students, and experts (Cochrane *et al*., 2024). This approach ensures that digital materials are contextually relevant and pedagogically effective.

In Vietnam, institutional guidelines emphasize the importance of aligning technological design with pedagogical objectives (Li *et al*., 2024). Similarly, digital learning materials should reflect local cultural characteristics and promote experiential learning (V. De Nguyen *et al*., 2025) even though this study focuses on ethnic minority boarding schools. These principles are highly relevant to primary education, where contextual and experiential learning are particularly important.

**Pedagogical Effectiveness of Digital Learning Materials**

The effectiveness of digital learning materials depends largely on their ability to support meaningful and engaging learning experiences. Research has shown that digital resources can significantly enhance students' understanding when they are designed to facilitate interaction, exploration, and real-world connections.

For example, using culturally grounded materials such as folktales can transform abstract concepts into emotionally engaging learning experiences, leading to improvements in both cognitive and behavioral outcomes. Similarly, integrating digital libraries and interactive maps into social studies instruction helps students develop critical skills such as information searching, collaboration, and contextual understanding.

In addition, interactive digital tools, such as Kahoot and Padlet, promote active learning and self-assessment. These tools not only support content delivery but also encourage student participation and reflection, which are essential components of effective learning.

In the Vietnamese context, several studies have highlighted the importance of designing digital learning materials that are pedagogically appropriate for primary students (Niu & Niranjan, 2025; Chuyên, Hương, Thuy, Thu, & Minh, 2024, p. 7). Research has shown that digital learning materials should integrate multimedia elements such as images, videos, and interactive activities to enhance students' engagement and support experiential learning. However, existing materials are often limited in interactivity and lack alignment with students' cognitive characteristics, particularly in Grade 1.

Previous studies also emphasize that teachers face difficulties in selecting reliable digital resources and designing materials that meet curriculum requirements while maintaining student engagement. These challenges further contribute to the gap between teachers' awareness of the importance of digital materials and their actual classroom practices.

**Theoretical Foundations for Digital Learning Design**

The design and use of digital learning materials can be understood through several theoretical frameworks that emphasize the integration of technology, pedagogy, and social context.

The concept of connected learning emphasizes the role of digital media in linking learners' personal interests with academic content and social interaction (Ito *et al*., 2013). This approach supports the creation of meaningful learning environments in which students actively engage with content through collaboration and production-based activities.

In parallel, organizational learning theory (Argote & Miron-Spektor, 2011) suggests that knowledge is embedded in systems, tools, and collaborative networks, rather than residing solely within individuals. This perspective highlights the importance of institutional structures, shared resources, and professional communities in shaping teachers' practices.

Together, these theoretical perspectives provide a foundation for understanding why the gap between teachers' perceptions and practices persists. While individual teachers may recognize the value of digital learning materials, their ability to implement effective practices depends on broader systemic factors, including training, resources, and collaborative support.

## RESEARCH METHODOLOGY

**Research Design**

This study adopts a quantitative research approach using a survey design to investigate primary school teachers' perceptions and practices in designing and using digital learning materials for Grade 1 Natural and Social Science. The study aims to identify the extent to which teachers' perceptions





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align with their actual practices, thereby revealing potential gaps that may affect the effectiveness of digital transformation in education.

**Participants**

The participants consisted of 138 primary school teachers currently teaching Grade 1 in various regions, including urban, rural, and mountainous areas. This diverse sample was selected to ensure representation of different teaching contexts and access to digital resources.

The variation in participants' backgrounds allowed for a more comprehensive understanding of how contextual factors influence teachers' use of digital learning materials.

**Data Collection Instruments**

Data were collected through a structured questionnaire designed based on previous studies on digital competence and instructional design.
The questionnaire included three main sections:
- Teachers' use of digital learning material (types of materials and frequency of use)
- Purposes of using digital learning materials (e.g., enhancing engagement, supporting understanding)
- Teachers' perceptions of effectiveness (perceived benefits and suitability for Grade 1 students)

The instrument primarily used closed-ended questions with Likert-scale responses and multiple-choice items to facilitate quantitative analysis.

**Data Analysis**

The collected data were analyzed using descriptive statistics, including frequencies and percentages. This method was employed to identify patterns in teachers' responses and to compare their perceptions with their reported practices.

## RESULTS

**Types of Digital Learning Materials Used**

The results indicate that teachers utilize a variety of digital learning materials; however, the frequency of use varies significantly across types.

**Table 1:** Frequency of Teachers' Using types of Digital Learning Materials (Likert Scale)

| Type of Digital Learning Material | Often (%) | Sometime (%) | Rarely (%) |
|---|---|---|---|
| Videos | 83.4% | 15.9% | 0.7% |
| Electronic textbooks | 79.3% | 17.1% | 3.6% |
| Interactive applications | 67.9% | 28.6% | 3.5% |
| Digital presentations | 94.3% | 5.7% | 0% |
| Digital mind maps | 57.1% | 36.4% | 6.5% |

The data shows that teachers predominantly rely on digital presentations, videos, and electronic textbooks. Digital mind maps are rarely used, since they offer relatively limited interactive potential in comparison to alternative learning materials, potentially hindering active student participation.

**Teachers' Purposes of Using Digital Learning Materials**

Teachers reported multiple pedagogical purposes for using digital materials in their teaching.

**Table 2:** Purposes of Using Digital Learning Materials

| Purpose | Frequency (n) | Percentage (%) |
|---|---|---|
| Encouraging student interaction | 80 | 58% |
| Enhance mnemonic retention | 78 | 56.5% |
| Supporting group activities and learning games | 67 | 48.6% |
| Expediting the planning phase | 61 | 44.2% |
| Differentiated instruction | 56 | 40.6% |

The findings indicate that teachers are highly aware of the motivational and cognitive benefits of digital materials. However, fewer teachers reported using them to differentiate instruction, suggesting a limited pedagogical scope.

**Perceived Effectiveness of Digital Learning Materials**

In practice, the design and utilization of digital learning resources are not always feasible for educators.



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**Table 3:** Teachers' Challenges in Design and Implementation(Likert Scale)

| Statement | Agree (%) | Neutral (%) | Disagree (%) |
|---|---|---|---|
| Time-consuming resource sourcing | 58.7 % | 36.2% | 5.1% |
| Labor-intensive electronic content development | 59.4% | 35.5% | 5.1% |
| Scarcity of digital educational resources | 64.5% | 29% | 6.5% |
| Unreliable technological infrastructure | 68.8% | 26.1% | 5.1% |

Survey results indicate that educators encounter significant impediments in designing and implementing digital learning resources. Most notably, inadequate school infrastructure remains the primary barrier, failing to meet pedagogical demands.

**The Gap between Teachers' Perceptions and Practices**

A comparison between teachers' perceptions and their actual practices reveals a significant gap.

**Table 4:** Comparison Between Perceptions and Practices

| Aspect | Perception Level | Practice Level |
|---|---|---|
| Use for engagement | High | High |
| Use for visualization | High | Moderate |
| Use for interaction | High | Low |
| Use for experiential learning | High | Low |
| Use of advanced technologies | Moderate | Low |

The results indicate that while teachers recognize the importance of interactive and experiential learning, their actual implementation remains limited.

This gap reflects constraints in pedagogical skills, digital competence, and access to appropriate resources (Alptekin & Taneri, 2025). It also suggests that teachers tend to use digital tools at a surface level rather than for deeper instructional transformation (Aleksieva *et al*., 2025).

These findings highlight a significant discrepancy between what teachers believe digital learning materials can achieve and how they actually use them in practice.

These findings reveal a consistent mismatch between teachers' positive perceptions and their actual classroom practices, highlighting the need for more structured professional development and pedagogically grounded digital design training.

## DISCUSSION

The findings reveal a clear mismatch between teachers' positive perceptions of digital learning materials and their actual classroom practices. While teachers recognize the importance of interaction and experiential learning, their use of digital materials remains largely limited to content delivery tools such as videos and PowerPoint presentations (P. Gao *et al*., 2020).

This result is consistent with previous studies indicating that teachers tend to use technology at a surface level rather than for pedagogical transformation. One possible explanation lies in the lack of pedagogical training in digital design, as teachers are often equipped with technical skills but not with instructional design competencies (Chin & Chen, 2023).

In addition, the specific characteristics of Grade 1 students further complicate the design process. Young learners require highly interactive, visually engaging, and short-duration learning materials. However, designing such materials demands both time and expertise, which many teachers lack.

Furthermore, institutional constraints such as limited access to high-quality digital resources and insufficient professional development opportunities also contribute to this gap.

These findings suggest that improving teachers' practices requires more than enhancing individual competencies. It also requires structured support systems, including training programs, shared digital resource repositories, and collaborative design communities.

Future studies could expand the sample size to include more provinces and educational contexts across Vietnam. In addition, qualitative approaches such as classroom observations and in-depth interviews are recommended to gain deeper insights into teachers' pedagogical decision-making and digital design practices.





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