

Digital-Mediated Transformative Learning: A Mezirowan Perspective on Meaning Reconstruction in Arabic Language Education

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ABSTRACT

This study aims to examine how digital media mediates the transformative learning process in Arabic language learning at MAN 1 Jember using the perspective of Jack Mezirow's transformative learning theory. This study used a qualitative approach with a single-classroom case-study design and a descriptive-interpretive orientation. Data were collected through classroom observations, semi-structured interviews, and analysis of digital learning artifacts. The results show that digital media functions as an epistemic mediator, raising disorienting dilemmas, facilitating critical reflection, strengthening reflective dialogue, and supporting the reconstruction of students' frames of reference. Digital mediation encourages a shift in students' understanding of Arabic from a structural subject to contextual, social, and meaning-oriented language practices. Theoretically, this study enriches Mezirow's framework by emphasizing the role of digital, multimodal cues in meaning reconstruction. Pedagogically, these findings provide a foundation for the development of digital-based Arabic language learning that is reflective and transformative.

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1. INTRODUCTION

The development of digital technology has redefined how learners process language, interact with texts, and construct meaning in foreign-language learning (Masterson, 2020; Pikhart, Klimova, & Al-Obaydi, 2024). In the context of Arabic language learning, this transformation does not stop at the adoption of digital tools but also affects epistemological changes in how linguistic understanding is constructed through multimodal interactions (Amro & Iversen, 2025). The digitization of learning encourages a shift from repetition-based learning practices to more reflective, interpretive, and dialogic learning experiences (Wynn, 2025; Benade, 2015). This shift opens up space to reexamine the traditional

learning paradigm that has dominated Arabic language classes in Indonesia (Hanani, Ahid, & Sufirmansyah, 2024).

However, Arabic language learning in Islamic educational institutions is still heavily influenced by a structural approach, oriented towards memorizing vocabulary and grammatical patterns. (Yahya, & ., 2024). This approach causes students to tend to be passive and view language as an academic object rather than a living social practice (Selim, 2023). Several studies have noted that low integration of digital technology and the lack of space for reflection lead the learning process to be mechanical and do not stimulate changes in students' perspectives on language (Ikhwan, 2019). This condition is not in line with the demands of 21st-century competencies, which emphasize critical, collaborative, and adaptive abilities in response to the dynamics of digital information (Thornhill-Miller et al., 2023).

The digital ecosystem provides pedagogical opportunities that enable learners to experience more authentic, contextual, and meaning-oriented language learning (AbuKhouza, El-Tahawy, & Atif, 2023; Dao, Nguyen, Bui, & Nguyen, 2025). Authentic digital texts, multimodal visuals, and interactive platforms allow learners to directly encounter the complexities of Arabic language use in real social contexts (Al-Shaye, 2021). Such exposure has the potential to create disorienting dilemmas, which are cognitive experiences that challenge old assumptions and encourage learners to reflect on and reconstruct their understanding (Blundell, Lee, & Nykvist, 2020). However, this potential does not automatically result in learning transformation if it is not integrated with the right pedagogical approach.

Jack Mezirow's study of transformative learning has been widely used in various educational contexts, including language education. In this field, Mezirow's theory is often used to explain how learning experiences that challenge learners' initial assumptions can trigger critical reflection, rational dialogue, and ultimately a change in perspective on language, identity, and learning practices. Several studies on language teacher education and second language learners show that transformative learning helps map changes in pedagogical beliefs and professional identity through the stages of disorienting dilemmas, critical reflection, and perspective transformation. In research on language teacher education, Mezirow's lens is used to trace the trajectory of changes in beliefs and identity through critical reflection as a central stage, especially when participants encounter new environments or challenging professional situations (Schnepfleitner & Ferreira, 2021). In the context of language classrooms, pedagogically designed critical reflection practices have been shown to help learners test assumptions about language, self, and social norms, in line with the mechanism of disorienting dilemma towards perspective transformation (Crane & Sosulski, 2020; Tural & Çetinkaya, 2025). Meanwhile, at the level of curriculum development and learning intervention, Mezirow's theory is used as a framework for designing learning experiences that target changes in perspective, not just improvements in linguistic skills (Wu & Chen, 2024). The entire study confirms that changes in meaning in language learning are not only cognitive in nature but also involve the restructuring of the frame of reference that shapes how learners understand language and their learning experiences.

However, most of these studies still place learning experiences within the framework of verbal discursive interaction, generally in face-to-face contexts or professional experiences. This means that the mechanisms of transformation are mostly explained through reflection and dialogue in conventional interaction spaces. In contrast, the role of multimodal digital ecosystems in shaping the meaning-making process has not been explored in depth.

On the other hand, the literature on the use of digital media in Arabic language learning has seen significant developments over the last decade. Various studies report that the use of interactive videos, multimedia, mobile-based applications, and authentic digital materials contributes to increased motivation, Engagement, and linguistic achievement among learners. Multimodal instructional design studies, for example, confirm that infographics and interactive videos can enrich information processing and learning outcomes in vocabulary and grammar (Alwadei & Mohsen, 2023; Jurnal, Pendidikan, Haq, & Madany, 2025; Turfanda & Uludağ, 2025). In addition, research on the development of interactive video media also focuses on the impact on specific skills, such as improving

the ability to understand visual messages through H5P-based interactive videos (Azzahra & Septiaji, 2023). Other studies highlight the needs and preferences of students for interactive multimedia teaching materials, which show a shift from textual teaching materials to more varied digital learning resources (Primandhika, Hikmat, Safii, & Yani, 2025). Some studies also discuss Arabic language learning designs through applications, including how text, audio, image, and video content are packaged to support the learning process (Abidin & Arifin, n.d.; Robi'ah, Shodiq, Tukimin, & Astuti, 2023). These studies generally emphasize the effectiveness of multimodal instructional design in enriching information processing and improving the learning outcomes of specific skills, such as reading, vocabulary, and text comprehension. Digital media is positioned as a means of making learning more interesting, varied, and contextual than traditional print-based approaches.

These two bodies of literature essentially move in parallel, but are rarely brought together analytically. On the one hand, Mezirow's literature on language education has comprehensively explained the stages of transformation and the mechanisms of perspective change. However, relatively little detail has been provided on how these stages work when learning experiences are mediated by multimodal digital environments, including the role of visual and audio cues, digital social contexts, and shared epistemic objects in triggering disorienting dilemmas, deepening reflection, and forming interpretive dialogues. On the other hand, the literature on digital-based Arabic language learning has shown that it can increase Engagement and learning outcomes. However, it rarely explicitly examines the process of meaning reconstruction and changes in learners' frames of reference through a transformative learning framework. Thus, the aspects of meaning reconstruction and perspective transformation in digital-based Arabic language learning have not been systematically explained, opening up space for research that integrates these two perspectives conceptually and empirically.

Based on this gap, this study positions digital media not merely as an instructional tool but as an epistemic mediator in the transformative learning process. Using Mezirow's transformative learning theory as the main analytical framework, this study aims to systematically explain how digitally mediated Arabic language learning facilitates the emergence of disorienting dilemmas, critical reflection, reflective dialogue, and changes in students' perspectives. Through this integration, this study seeks to make a theoretical contribution to the development of transformative learning theory in the digital ecosystem, while enriching the study of Arabic language learning with an approach that emphasizes the reconstruction of meaning and the transformation of learners' ways of thinking.

Through the integration of transformative learning perspectives and digital-based Arabic language learning, this study offers two main contributions. Theoretically, this study advances transformative learning theory by showing how digital media can function as an epistemic mediator in the process of perspective change. This dimension remains underexplored in the Arabic language learning literature. Practically, the findings of this study provide a conceptual basis for the design of Arabic pedagogy that is more reflective, critical, and contextual, in line with the characteristics of the digital ecosystem and the demands of 21st-century education.

2. METHODS

This study uses a qualitative approach with a single classroom case study design and a descriptive interpretive orientation (Merriam & Tisdell, 2015). This design was chosen because the main objective of the study was not to test the effectiveness of digital media comparatively, but to gain an in-depth understanding of the phenomena occurring in the real classroom context and the close relationship between the process and its context, as emphasized in case study logic (K. Yin, 2023). The descriptive interpretive orientation was used to capture how participants interpreted their learning experiences and how researchers constructed interpretations based on empirical evidence, rather than simply comparing learning outcomes between treatments (Thorne, 2025). The focus of the analysis is directed at the dynamics of meaning reconstruction, critical reflection, and changes in the frame of reference of students in the context of transformative learning, which, in the latest literature, is still positioned as the core of transformative learning (McClain, 2024). This approach allows researchers to capture the

process of contextual, layered, and naturally evolving changes in perspective in classroom interactions, which cannot be reduced to quantitative measurements of linguistic achievement alone (Merriam & Tisdell, 2015)

The choice of a single classroom case study design was based on the consideration that the transformative learning process is a complex phenomenon that is greatly influenced by the pedagogical context, teacher practices, learner characteristics, and the configuration of digital media used (K. Yin, 2023). By focusing the research on a single classroom, researchers can conduct a holistic exploration of the mechanisms of digital mediation and the stages of learning transformation, while maintaining the sharpness of analysis of the interactions, reflective experiences, and changes in meaning experienced by students (K. Yin, 2023).

The research was conducted at MAN 1 Jember, an Islamic educational institution that has integrated digital media into Arabic language learning at the 11th grade level. The research participants included one Arabic language teacher and twenty-four students in one class who participated in digital-based learning for one semester. Participants were selected purposively based on the following criteria: (1) teachers who consistently use digital media such as digital textbooks, projectors, authentic videos, and learning support applications; and (2) students who have at least one semester of digital learning experience and can articulate their learning experiences, critical reflections, and changes in their understanding (Etikan, Musa, & Alkassim, 2015). This selection aimed to ensure that the data obtained represented the transformative process that took place continuously in a digital context (Merriam & Tisdell, 2015).

Data collection was conducted through participatory observation, semi-structured interviews, and digital document analysis, in line with recommendations to strengthen contextual depth through multiple data sources in case studies (K. Yin, 2023). Observations were conducted ten times during the learning process to identify situations that gave rise to disorienting dilemmas, reflective dialogue, and student responses to authentic digital material. Video recordings supported the observations, enriching the data trail of interactions and enabling more careful review, taking into account methodological and ethical considerations in video recording as qualitative data (Karlsen, Sørensen, Hofset Larsen, Heyn, & Gerwing, 2025; Lau & Bratby, 2024). Semi-structured interviews were conducted with teachers and 12 students, selected to reflect the variation in their reflective experiences, with interview guides systematically developed to be consistent, focused, and adaptable to participants' responses (Kallio, Pietilä, Johnson, & Kangasniemi, 2016). In addition, document analysis was conducted on digital textbooks, teacher presentation materials, recordings of learning activities, and student assignment artifacts, using the principles of qualitative document analysis to select documents, assess their relevance, and interpret their meaning in a structured manner (Morgan & Morgan, 2022).

The data were analyzed using thematic analysis. The coding and theme development process followed contemporary thematic analysis guidelines that emphasize transparency of analytical decisions and tracking of analytical traces, so that the resulting themes can be accounted for (Nowell, Norris, White, & Moules, 2017a). The thematic categories were then conceptually aligned with key elements of transformative learning such as disorienting dilemmas, critical reflection, meaningful dialogue, and frame of reference change, with reference to the latest developments in the discourse of transformative learning that affirm the continued relevance of these concepts in the context of contemporary learning, including technology-based learning (McClain, 2024). The analysis process is supported by analytic memos to maintain consistency in reasoning and depth of interpretation, as well as to document analytical decisions sequentially (Nowell, Norris, White, & Moules, 2017b)

The researcher's position as an academic in the field of Arabic language education and educational technology was recognized as a potential source of interpretive bias. To minimize this bias, the researcher compiled a reflexive journal during the research process and conducted regular peer debriefings with two language education experts. This step aimed to ensure that data interpretation remained based on empirical evidence and was not dominated by the researcher's personal assumptions.

Data validity is maintained through source triangulation, method triangulation, member checking, and audit trails. Source triangulation was conducted by comparing observational data, interviews, and digital documents. Method triangulation was used to ensure consistency of findings across data collection techniques. Member checking was conducted by asking participants to review the researcher's summary of interpretations to ensure consistency of meaning, while audit trails were systematically compiled to maintain transparency of the research process and enable analytical tracing by other researchers (K. Yin, 2023).

This study obtained official permission from the school and consent from all participants. All participants were informed of the research objectives and their rights to participate. Participant identities were disguised, and all data were stored in password-protected digital formats to maintain confidentiality.

3. FINDINGS AND DISCUSSION

This section presents the results of the research, which were analyzed conceptually to answer the research objective: to explain how digital media mediates the transformative learning process in Arabic language learning through the lens of Mezirow's transformative learning theory. The presentation of the results is organized not only to describe the empirical findings emerging in the classroom but also to interpret them within the theoretical framework of transformative learning and digital mediation.

The discussion in this section is organized into three main sub-themes. The first sub-theme outlines the framework that integrates transformative learning, digital mediation, and Arabic language learning as the analytical basis of the research. The second sub-theme presents the dynamics of the digitally mediated transformative learning process, tracing the emergence of disorienting dilemmas, critical reflection, reflective dialogue, and changes in the learners' frame of reference. The third sub-theme focuses on the theoretical implications of the research findings, specifically on how digital media functions as an epistemic mediator that enriches and broadens Mezirow's perspective on the reconstruction of meaning through multimodal cues and the context of digital-based language learning.

With this structure, the research results are not presented as a description separate from theory, but rather as a synthesis of empirical data and a conceptual framework that directly addresses the research questions and demonstrates the theoretical contribution of the research to the study of Arabic language learning and transformative learning in the digital age.

3.1 Framework for Transformative Learning, Digital Mediation, and Arabic Language Learning

The theoretical framework of this research is built through the integration of three main conceptual domains: transformative learning, digital mediation, and Arabic language learning. The integration of these three domains aims to explain how meaning transformation in learners occurs through the dynamic interaction between learning experiences, digital environments, and language pedagogical contexts. Within this framework, learning is not understood simply as a process of accumulating linguistic knowledge, but rather as an epistemic process involving changes in how learners interpret learning experiences, understand language, and reconstruct their position as learning subjects. Therefore, the conceptual framework of this research begins with the assumption that language learning experiences can trigger changes in perspective when learners face situations that challenge their initial assumptions about language and the learning process.

The primary epistemic foundation of this framework stems from the transformative learning theory developed by Jack Mezirow. In this theory, learning is understood as a process of changing frames of reference, namely, the structure of assumptions, beliefs, and experiences that shape how individuals understand reality (Mezirow, 1991). This change in perspective is usually triggered by a disorienting dilemma, a learning situation that shakes previously held assumptions and creates tension between old understandings and new experiences. The transformative learning literature indicates that perspective transformation generally proceeds through several main stages: the emergence of a disorienting dilemma, critical reflection on previously unquestioned assumptions, rational dialogue

with others to test the validity of understanding, and finally, a restructuring of frames of reference that produces a new perspective on the learning experience (Mezirow, 1978; Sisola, 2004). In the context of language learning, several studies have shown that complex linguistic experiences — such as exposure to authentic texts, cross-cultural differences in meaning, and interpretive conflicts in language use — can trigger critical reflection on learners' linguistic identities and learning strategies (Li, Huang, & Deng, 2025; Uygur, Mutlu, & Çinpolat, 2025). However, most of these studies still place the transformation process primarily within discursive interactions that occur in face-to-face learning environments. Therefore, the mechanisms by which these transformative learning stages occur when learning experiences are mediated by digital technology remain inadequately explained in the existing literature. This gap serves as the starting point for this study, specifically in answering the research question of how digital learning experiences can create disorienting dilemmas and encourage critical reflection in Arabic language learning.

In this context, digital mediation in this study is positioned not merely as a pedagogical tool but as an epistemic mechanism that shapes how learners process information and construct meaning. In the literature on technology-based language learning, digital media is often associated with increased learning motivation, student Engagement, and access to a wider range of learning resources. However, studies in Computer-Assisted Language Learning show that digital technology also influences learners' cognitive and interpretive processes in language understanding (Gazi, Ait-Hroch, & Ibrahim, 2025; Nguyen, Choe, & Vicentini, 2022). One of the main characteristics of digital environments is their multimodal nature, namely the integration of various representations of meaning such as text, visuals, and audio, as well as more authentic communication contexts (Al-Muttairi & Al-Alusi, 2025). This multimodality enables learners to access various contextual clues to understand language, thereby expanding the meaning-making process during learning. Within the framework of this research, digital mediation is understood to operate through three main epistemic mechanisms. First, digital media creates tensions of meaning when the authentic material presented challenges traditional learning strategies based on memorization or literal translation (Jannah, Sudana, & Hilman, 2025). Second, multimodality expands the sources of meaning by enabling learners to integrate various forms of information representation in their understanding of language (Gunawan, Humaira, Hardini, & Zifana, 2025). Third, the digital environment opens up spaces for reflection and dialogue, allowing learners to reevaluate their learning strategies and construct new interpretations of the learning experience (Bortoluzzi, Boato, Salvador, & Marenzi, n.d.). Thus, digital media not only enriches the language learning experience but also serves as a catalyst, triggering disorienting dilemmas and deepening learners' critical reflection (Godwin-Jones, 2018). This perspective is directly related to the research question of how learning experiences mediated by digital media can foster critical reflection and negotiation of meaning in Arabic language learning.

Meanwhile, Arabic language learning within the framework of this research is treated as a pedagogical context in which meaning transformation takes place. In pedagogical practices at many Islamic educational institutions, Arabic language learning traditionally tends to be oriented towards mastering grammatical structures (*nahwu* and *sharaf*), memorizing *mufradāt*, and practicing the reproduction of language forms through mechanical practice patterns. This approach positions language as a system of symbols learned structurally and relatively separate from the social context in which it is used. Although this approach is effective in developing a structural understanding of language, the language learning literature shows that a focus on structure can limit students' opportunities to develop more contextual interpretations of meaning and to understand real-life communication practices. The development of digital technology has opened new possibilities in Arabic language learning by presenting the language in more authentic social contexts through digital texts, videos, audio, and various forms of communication representation used in everyday life (Faiqoh, Gadoum, & Baity, 2025; Sari & Sidik, 2025). Exposure to this authentic material requires students to interpret meaning, make contextual inferences, and negotiate understanding more complexly than traditional structural approaches (N. Chen & Zhou, 2024). The differences between traditional learning

practices and digital learning experiences create epistemic tension between old learning strategies and the demands of new meanings. This tension becomes a crucial condition for the emergence of disorienting dilemmas, thereby opening space for critical reflection and changes in learners' perspectives on Arabic and on the language learning process itself.

Based on the integration of these three domains, this study views digital-based Arabic language learning as an epistemically mediated, transformative learning process. Within this framework, transformative learning theory explains what changes: learners' frames of reference for understanding language and the learning process. Digital mediation explains how this change is made possible through multimodality, complexity of meaning, and epistemic tensions that challenge old learning assumptions. Meanwhile, Arabic language learning demonstrates where this transformation takes place: within the pedagogical context of language, which has traditionally been structural but is now presented in more contextual and authentic communication practices. This framework serves as an analytical foundation for interpreting the research's empirical findings by exploring the dynamics of disorienting dilemmas, critical reflection, reflective dialogue, and the restructuring of frames of reference experienced by learners during learning. Thus, this theoretical framework provides a coherent conceptual basis for understanding digitally mediated Arabic language learning as a process of meaning change that is reflective, contextual, and transformative.

3.2 The Dynamics of Digital-Mediated Transformative Learning Processes in Arabic Language Learning

Arabic language learning mediated by digital media at MAN 1 Jember, as revealed by this study, shows the dynamics of a transformative learning process that unfolds gradually and contextually. This process does not occur instantly, but develops through a series of interrelated learning experiences during the learning activities. At the beginning, students experience a shake-up of the learning assumptions they have held until then and are encouraged to critically reflect on their learning strategies. This process is further strengthened through reflective dialogue in the classroom and ultimately leads to a change in students' perspectives on Arabic and on the learning experience. Throughout this process, digital media serves as an epistemic mediator, actively shaping how students construct, reflect on, and reconstruct meaning in Arabic language learning.

Aspect 1: The Emergence of Disorienting Dilemmas through Exposure to Authentic Digital Material

The results of the study indicate that the initial stage of transformative learning in digitally mediated Arabic language learning at MAN 1 Jember is marked by the emergence of *disorienting dilemmas* when students confront authentic digital material. The material presented through videos, digital texts, and Arabic visuals presents a form of language that is significantly different from conventional print-based learning materials. The language used is more contextual and multimodal, and it is not always accompanied by direct translations, requiring students to understand the meaning by integrating linguistic, visual, and situational elements simultaneously.

Based on classroom observations, students appeared to experience confusion in the early stages of using digital media. When the teacher showed Arabic conversation videos or authentic digital texts via a projector, most students had difficulty following the flow of meaning. They could not immediately rely on the learning strategies they had been using, such as memorizing vocabulary or translating word-for-word. The classroom situation at this stage was characterized by increased pauses in comprehension, expressions of uncertainty, and questions that indicated uncertainty in understanding the content.

These observation findings were reinforced by interviews with Arabic teachers, who explained that at the beginning of the implementation of digital media, students appeared "shaken" because they could not understand the material as usual. The teacher revealed that when authentic digital material was presented without a direct translation, students had difficulty following the dialogue due to rapid intonation, unfamiliar vocabulary, and the need to infer meaning from the visual context and

conversational context. This condition made students realize that their previous learning strategies were no longer adequate for understanding Arabic in a more realistic, complex context.

Students also reported similar experiences. Students reported feeling confused and uncomfortable when they first encountered videos or digital texts without direct teacher explanations. The main difficulty students faced was the inability to fully understand the meaning when relying solely on memorization of vocabulary. Some students realized that, even though they knew many words, they still could not understand the meaning of the conversation or the content of the text.

This realization shook students' initial assumption that understanding Arabic could be achieved simply by mastering language forms and literal translations. In addition, analysis of learning documentation—such as the digital materials used by teachers and recordings of classroom activities—showed that authentic materials consistently presented complex meanings that could not be reduced to structural exercises.

Video conversations, informative digital texts, and supporting visuals require learners to connect language with social contexts, nonverbal expressions, and specific communication situations. Interaction with this type of material creates epistemic tension when old ways of learning become irrelevant, triggering disorienting dilemmas.

In Mezirow's transformative learning perspective, this experience is the initial trigger for a transformation of perspective. The disorienting dilemmas experienced by students in digital-based Arabic language learning are not only technical difficulties with understanding the material, but also shocks to their established ways of thinking and assumptions about learning. It is this epistemic tension that opens space for students to begin questioning the effectiveness of old learning strategies and serves as the basis for developing critical reflection in the next stage.

Thus, the results of this study indicate that exposure to authentic digital material plays an important role in creating disorienting dilemmas as the initial stage of transformative learning. Digital media not only enriches the variety of material, but also epistemically creates learning conditions that challenge learners' old assumptions and encourage them to engage in a more in-depth reflection process on how to understand Arabic.

Aspect 2: Critical Reflection on Learning Assumptions and Strategies

The results of the study show that the disorientation experienced by students in the early stages of learning did not stop at mere confusion, but developed into critical reflection on the assumptions and learning strategies that they had previously considered effective. After several encounters with authentic digital material that was difficult to understand through conventional approaches, students began to realize the limitations of learning strategies based on vocabulary memorization and literal translation.

This awareness marked an important shift from simply experiencing difficulties to making a reflective effort to understand their source. Based on classroom observations, the students' critical reflection was evident in the gradual changes in their learning behavior. In the early stages, students tended to be passive and wait for the teacher's explanation when they encountered difficulties. However, as digital-based learning progressed, students began to show signs of self-evaluation of their learning process.

This can be seen in students' increased participation in asking reflective questions, such as those about the context of the conversation, the purpose of communication, or the reasons for using certain expressions in Arabic texts and videos. This change in the type of questions shows that students no longer focus only on lexical aspects but have begun to think about meaning more conceptually and contextually.

These observational findings are reinforced by interviews with Arabic teachers, who reported that after experiencing difficulties understanding digital materials several times, students began to question their learning methods. Teachers noted that students no longer simply asked "what does this word mean," but began to ask "why is this sentence used," "what does the speaker mean," or "how does the

context of the situation affect the meaning.” According to the teacher, this change indicates that students are beginning to realize that understanding Arabic requires more than just mastery of language forms; it also requires an understanding of the context and purpose of communication.

Critical reflection was also clearly evident in interviews with students. Students stated that when old learning strategies no longer helped, they began to try other approaches to understand the material. Some students reported paying attention to the visual context, the speaker’s expressions, and the situations depicted in the videos to interpret the meaning. Students also realized that relying solely on word-for-word translations actually hindered their understanding, so they began focusing on the overall meaning before the vocabulary.

In addition, learning documentation shows that students’ critical reflection was repeated and continuous. In their assignment notes and class activities, it was evident that students began to use more varied comprehension strategies, such as noting vocabulary based on context, connecting the text content with supporting visuals, and discussing their understanding with peers. These activities show that critical reflection is not only internal but also manifests in concrete changes in how students approach learning materials.

In Mezirow’s transformative learning perspective, critical reflection is a key stage that allows learners to evaluate previously unconscious assumptions. The findings of this study indicate that digital media plays an important role in facilitating critical reflection by providing learning experiences that consistently challenge the effectiveness of old strategies. Digital media provides continuous epistemic stimuli, encouraging learners not only to recognize difficulties but also to examine their causes and adjust their learning methods more consciously.

Thus, critical reflection in digitally mediated Arabic language learning emerges as a process that develops from challenging learning experiences to in-depth evaluation of assumptions and learning strategies. This process prepares learners to enter the next stage of transformative learning, namely reflective dialogue, where the results of critical reflection are negotiated and deepened through interaction with others.

Aspect 3: Digital Media-Mediated Reflective Dialogue

The results show that students’ critical reflection, which developed after experiencing disorienting dilemmas, was reinforced through reflective dialogue in classroom interactions. This dialogue did not arise in isolation but developed as a continuation of the process of reflecting on the learning difficulties experienced by students. The use of digital media, particularly authentic Arabic-language visuals and videos, plays an important role in shifting the pattern of learning interactions from a one-way to a more dialogical, participatory, and interpretive model.

Based on classroom observations, the discussions that took place when digital material was presented showed clear differences compared to discussions in conventional learning. When the teacher projected conversation videos, digital texts, or contextual visuals, students were not only asked to answer closed questions. However, they were also encouraged to convey their interpretations of the material’s meaning. This situation created a space for dialogue in which students compared their understanding, expressed their reasons, and responded to their peers’ views. The digital material displayed serves as a shared epistemic reference, focusing the discussion and facilitating collective negotiation of meaning.

These observational findings are reinforced by interviews with Arabic teachers, who stated that the use of digital media makes classroom discussions livelier and less oriented toward right-or-wrong answers. Teachers observed that students were more courageous in expressing their opinions, even though their interpretations differed. In this context, the teacher’s role shifted from an information provider to a dialogue facilitator who directed the flow of discussion, asked provocative questions, and helped students reflect on the differences in understanding that arose.

Digital media became the primary driver of the emergence of diverse perspectives, as visuals and authentic contexts expanded the space for interpretation. This experience of reflective dialogue was also consistently revealed in interviews with students.

Students stated that class discussions became more interesting and open when digital materials were presented. They felt more encouraged to speak because they were not always required to give the “right” answer; rather, they were asked to explain how they understood the material. Some students expressed that differences in understanding with their friends actually helped them see meaning from other perspectives, making their understanding richer and deeper.

In addition, learning documentation shows that reflective dialogue not only occurs verbally but is also mediated by multimodal cues inherent in digital materials. Visuals, speakers’ facial expressions in videos, voice intonation, and the situational context displayed become sources of meaning that are discussed together. Learners often refer to specific visual parts or situations in the video to explain their interpretations. This shows that reflective dialogue in digitally mediated Arabic language learning is multimodal, not limited to verbal language exchange alone.

In Mezirow’s transformative learning perspective, reflective dialogue is an important stage in which the results of critical reflection are tested and negotiated through interaction with others. The findings of this study indicate that digital media expands the form of reflective dialogue by providing shared epistemic objects that are rich in visual and contextual cues. Dialogue not only functions as a means of exchanging rational arguments but also as an interpretive space in which meaning is collaboratively constructed through the integration of language, visuals, and social experiences.

Thus, digitally mediated reflective dialogue plays a key role in deepening the transformative learning process. Through discussions based on authentic digital materials, learners not only revise their initial understandings but also learn to appreciate the diversity of interpretations and construct meaning collectively. This process becomes an important bridge between critical reflection and changes in learners’ frames of reference, which will be discussed in the next stage.

Aspect 4: Changes in Students’ Frame of Reference

The results show that the final stage of the digitally mediated transformative learning process is evident in changes in students’ frame of reference toward Arabic and their learning experiences. After going through the stages of disorienting dilemmas, critical reflection, and reflective dialogue, students began to show fundamental changes in their interpretation of Arabic. Arabic is no longer understood solely as an academic subject focused on mastering grammatical rules and memorizing vocabulary, but as a living, meaningful language used in various real-life communication contexts.

Based on classroom observations, this change in frame of reference is reflected in students’ attitudes, which are more open and no longer show excessive anxiety when dealing with Arabic language material. Students appear more willing to try to understand the content of texts or videos, even if they do not fully master all the vocabulary. They no longer passively wait for the teacher’s explanation; instead, they try to build an initial understanding independently before discussing it in class. This change in attitude indicates a shift in perspective from learning Arabic as a mechanical activity to a process of reflective meaning-making.

These observations were reinforced by interviews with Arabic teachers, who stated that after digital-based learning was implemented continuously, students began to view Arabic as a communication tool relevant to real life. Teachers observed that students no longer asked solely about language rules or forms, but also showed interest in the use of Arabic in social and cultural contexts as presented through digital media. According to the teacher, this change signifies a restructuring of students’ thinking about the purpose and meaning of learning Arabic.

This change in frame of reference was also clearly expressed in interviews with students. Students stated that they began to understand Arabic not only as a subject in class, but as a language that its speakers actually use in everyday life. Exposure to videos, digital texts, and authentic visuals made students realize that Arabic has a real communicative function. This awareness changed their learning

motivation from simply completing academic assignments to a desire to understand the meaning and context of language use.

In addition to a change in perspective, the study's results also showed increases in students' intrinsic motivation and independence in learning. Some students actively sought and accessed Arabic language materials independently outside of class through digital media, such as watching Arabic videos or reading simple texts that interested them. These activities were not directly directed by the teacher but emerged as the students' own initiative. These findings show that digitally mediated learning not only affects students' cognitive understanding but also shapes reflective and autonomous attitudes in learning.

An analysis of learning documentation, such as student assignments and activities, further reinforces these findings. In assignments completed after digital-based learning, students appear to be more confident in interpreting meaning and relating the material to a broader context. The learning strategies used by students have also become more varied and adaptive, indicating that changes in their frame of reference are reflected in concrete shifts in their approach to Arabic language learning.

In Mezirow's transformative learning perspective, a change in frame of reference is a key indicator of a transformation in perspective. The findings of this study show that this change did not occur suddenly, but was the result of a gradual process mediated by digital media. Digital media provide a richly contextual and multimodal learning experience, enabling learners to reconstruct the meaning of Arabic more reflectively and contextually.

Overall, this subsection confirms that digital media plays an important role in mediating the dynamics of transformative learning, from the emergence of disorienting dilemmas, the development of critical reflection, the establishment of reflective dialogue, to the change in learners' frames of reference.

Digital-based Arabic language learning, therefore, cannot be understood merely as a variation in method or the use of technology, but rather as an epistemic process that enables the reconstruction of meaning and profound changes in learners' perspectives.

3.3 Digital Mediation as an Epistemic Mediator in Meaning Reconstruction: Expanding Mezirow's Perspective

The findings of this study have theoretical implications for understanding transformative learning, particularly in expanding on Mezirow's perspective by considering digital as an *epistemic mediator*. In Mezirow's transformative learning framework, changes in learners' perspectives are understood as a process of reconstructing the *frame of reference* mediated by critical reflection and rational dialogue on experiences that challenge initial assumptions (*disorienting dilemmas*). However, the results of this study indicate that, in the context of digital-based Arabic language learning, the process of reconstructing meaning is not only mediated by verbal and rational interactions but also by a multimodal, contextual digital environment.

Digital media in this study functions as an epistemic mediator, actively shaping how learners experience, interpret, and reflect on their learning. Exposure to authentic digital materials—such as videos, visual texts, and situational contexts—presents a complex learning experience that cannot be fully understood through a linear linguistic approach. This complexity creates epistemic tension that, as described in Mezirow's theory, triggers disorienting dilemmas, but with a different character: the experience of shaking assumptions does not only come from internal cognitive conflict, but also from learners' interactions with multimodal representations of meaning.

These findings enrich our understanding of critical reflection in transformative learning. In the classical Mezirow framework, critical reflection is primarily positioned as a process of rational evaluation of unconscious assumptions. The results of this study show that critical reflection in digitally mediated learning is also triggered and deepened by visual cues, intonation, expressions, and the social context inherent in digital materials. Reflection no longer takes place solely as a language-based cognitive process but as an epistemic process that integrates cognitive, affective, and contextual

dimensions. Thus, digital media expands the field of critical reflection by providing multimodal stimuli that challenge learners' understanding of meaning.

In addition to critical reflection, the findings of this study also have implications for the concept of reflective dialogue in transformative learning. Mezirow emphasizes rational dialogue as a means of testing assumptions and building a more inclusive understanding. In digitally mediated Arabic language learning, reflective dialogue not only takes place through the exchange of verbal arguments but is also mediated by shared epistemic objects, such as authentic digital material. Visuals, texts, and videos serve as shared reference points, allowing students to compare interpretations, negotiate meaning, and collaboratively revise their understanding. This shows that reflective dialogue in a digital context is more interpretive and multimodal than the dialogue described in Mezirow's initial formulation.

The most prominent theoretical implication is evident in the process of restructuring the frame of reference. The results show that changes in learners' perspectives on Arabic are triggered not only by reflections on past experiences but also by new learning experiences presented concretely through digital media. The digital environment allows learners to interact directly with contextual and authentic language practices, so that the reconstruction of meaning takes place through the encounter between old assumptions and real linguistic experiences. This process shows that the frame of reference can be restructured through repeated multimodal experiences, not just through discursive reflection.

Thus, the concept of *digital as epistemic mediator* broadens Mezirow's perspective by emphasizing that perspective transformation does not only depend on the individual's capacity for rational reflection, but also on the character of the learning environment that mediates the experience. Digital media functions as an epistemic mediator, connecting learners with rich, diverse, and contextual sources of meaning, enabling a more profound and relevant reconstruction of meaning in language learning.

Overall, the findings of this study indicate that the integration of digital media into Arabic language learning not only affects pedagogical aspects but also contributes theoretically to the development of transformative learning. By positioning digital media as an epistemic mediator, this study enriches Mezirow's theory by incorporating the roles of multimodal cues, social context, and digital experiences in the processes of critical reflection, reflective dialogue, and the restructuring of the frame of reference. These implications emphasize that transformative learning needs to be understood more contextually in the digital ecosystem, especially in language learning, where meaning is constructed through the integration of language, visuals, sound, and social experiences.

Discussion

The results of this study indicate that the integration of digital media in Arabic language learning at MAN 1 Jember facilitates a transformative learning process, as described in Mezirow's transformative learning theory. The transformation of students' perspectives does not occur spontaneously, but develops through a series of interrelated stages: the emergence of disorienting dilemmas, the development of critical reflection on learning assumptions, the formation of reflective dialogue, and ultimately, the restructuring of students' frames of reference regarding Arabic and the language learning experience itself. These findings reinforce Mezirow's view that transformative learning is a process of changing meaning frameworks that occurs through critical reflection on previously unconscious assumptions (Mezirow, 1991).

In the context of digital-based Arabic language learning, this study shows that disorienting dilemmas are primarily triggered by exposure to authentic, multimodal digital materials. Videos, digital texts, and Arabic visuals present complex meanings that cannot be grasped through traditional learning strategies based on memorization and literal translation. These findings align with recent research in technology-based language learning, which emphasizes that multimodal digital environments expand learners' linguistic experiences and require more complex meaning-making processes (Canals, 2021; Rahmanu & Molnár, 2024). This research suggests that integrating text, visuals,

and audio in digital environments can create learning experiences that challenge language learners' initial assumptions and encourage the emergence of more contextually grounded comprehension strategies.

Furthermore, this study found that this disorientation developed into a critical reflection on the learning strategies students had been using. Students began to question rote-based learning approaches and shifted toward a more contextual understanding of meaning. This phenomenon is consistent with recent research in language learning, which shows that digital learning environments can encourage learners to develop metacognitive awareness of their learning process (S. Chen, 2025; Ganesan, Aziz, & Ismail, 2025). Digital environments provide multiple sources of meaning that enable learners to interpret language through visual, situational, and social contexts, thereby deepening the process of critical reflection in language learning.

This critical reflection is then deepened through reflective dialogue that occurs in classroom interactions. The findings of this study indicate that the use of authentic digital materials shifts learning communication patterns from one-way to more dialogic and interpretive. Digital materials serve as a shared epistemic reference point, allowing learners to compare interpretations and collectively negotiate understanding. These findings align with recent research in Computer-Assisted Language Learning, which shows that digital technology can create collaborative discussion spaces that enrich the meaning-construction process in language learning (Lim & Aryadoust, 2022). Digital media-based discussions enable learners to connect multiple sources of meaning representation, resulting in richer, more interpretive, reflective dialogue.

The final stage of the transformative learning process in this study is evident in the change in students' frame of reference regarding Arabic. Students begin to view Arabic not merely as a structural subject, but as a living language used in real-life communication contexts. This finding aligns with recent research on digital media-based Arabic language learning, which shows that exposure to authentic digital materials can increase linguistic awareness and students' intrinsic motivation to learn the language (Habib, 2025; Hasanuddin, 2024). Digital environments enable learners to interact with more realistic language use, helping them understand language as a meaningful social practice.

From a theoretical perspective, this research finding enriches transformative learning theory by positioning digital media as an epistemic mediator in the process of meaning reconstruction. In digital learning environments, critical reflection and reflective dialogue are mediated not only by the exchange of rational arguments but also by various multimodal cues such as visuals, intonation, and the sociocultural context inherent in digital materials. Recent studies on multimodal learning confirm that human understanding of information is constructed through the integration of various sensory and symbolic representations that operate simultaneously in the cognitive process (Murray & Shams, 2023; Wallace, Woynaroski, & Stevenson, 2020).

The pedagogical implications of these findings emphasize that the integration of digital media in Arabic language learning cannot be understood simply as a modernization of learning tools. Teachers need to design digital learning experiences that intentionally challenge students' assumptions, open opportunities for interpretation, and facilitate reflective dialogue in multimodal contexts. With this approach, digital media can serve as a means of providing authentic linguistic experiences that foster students' critical and reflective thinking skills.

4. CONCLUSION

This study shows that the integration of digital media in Arabic language learning at MAN 1 Jember plays a significant role as an epistemic mediator in facilitating the transformative learning process as formulated in Mezirow's perspective, where student interaction with authentic texts and videos gives rise to disorienting dilemmas that challenge rote learning patterns, trigger critical reflection, and encourages a review of initial assumptions about language learning. The digitization of learning not only enriches the complexity of the material but also creates epistemic tension that serves as the starting point for a change in perspective, while strengthening reflective dialogue through

multimodal interactions that enable critical and collaborative negotiation of meaning. The process of visual-based discussion, reinterpretation of experiences, and collective evaluation of initial understanding encourages meaning reconstruction that is not found in conventional learning, resulting in a shift in students' frame of reference from viewing Arabic as a structural subject to understanding it as a living social and cultural practice, which in turn increases intrinsic motivation, linguistic imagination, and learning independence. Theoretically, these findings expand the application of transformative learning theory to digital-based language learning by emphasizing that meaning reconstruction occurs through individual reflection as well as technology-mediated multimodal interaction, so that digitization functions not merely as a pedagogical tool but as a catalyst for cognitive, social, and affective transformation. In practice, these research results emphasize the importance of designing digital learning experiences that deliberately stimulate critical reflection and meaningful dialogue by presenting challenges to students' initial assumptions and fostering collaborative spaces for interpretation. However, this study is limited to a single class and has not examined the long-term impact of perspective transformation. Therefore, further studies are needed in a broader, longitudinal context, including the development of quantitative instruments to measure the intensity of perspective change and its relationship with digital exposure and critical reflection, to strengthen the conceptual and empirical contributions of transformative Arabic language learning in the twenty-first-century era of education.

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