Exploring Student Responses to a Constructively Responsive Discovery Learning Model in Digital Reading

Ida Hamidah[1*], Ifah Hanifah[2]
Universitas Kuningan[1,2], Kuningan, Indonesia

Corresponding email: ida.hamidah@uniku.ac.id.

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Abstract: *The shift from print to digital reading has posed new challenges for students, requiring them to navigate non-linear texts, evaluate multimodal information, and read reflectively. Although Discovery Learning has proven effective in enhancing comprehension, limited research has explored its integration with constructively responsive principles for digital reading. This study investigates student responses to a Discovery Learning model grounded in Constructive-Responsive principles at Universitas Kuningan. Using a qualitative case study design, 32 fifth-semester students from the Indonesian Language and Literature Education Program participated in four instructional sessions. Data were gathered through observation, interviews, and documentation, and then analyzed thematically. Findings show that students responded positively at each learning stage, with strong engagement during the stimulation and data collection phases. They displayed autonomy, metacognitive awareness, and strategic behavior through digital annotation, source evaluation, and collaborative synthesis. However, difficulties arose during the verification phase, particularly in assessing the credibility of sources. Overall, the model was well-received and viewed as effective in supporting digital reading comprehension. The study provides valuable insights for educators and curriculum developers seeking to promote digital literacy through responsive, student-centered instruction.*

Keywords: *constructive-responsive; digital literacy; discovery learning; higher education; student response*

Abstrak: *Peralihan dari membaca teks cetak ke digital telah membawa tantangan baru bagi mahasiswa. Mereka kini dituntut untuk memahami struktur teks yang tidak linear, menilai informasi dari berbagai media, serta membaca secara reflektif di lingkungan digital. Meskipun model pembelajaran* Discovery Learning *terbukti mampu meningkatkan pemahaman membaca, belum banyak penelitian yang mengkaji penerapannya secara terpadu dengan prinsip* constructive-responsive *dalam konteks membaca digital. Penelitian ini bertujuan untuk mengkaji respons mahasiswa terhadap implementasi model* Discovery Learning *berbasis prinsip* constructive-responsive *dalam pembelajaran membaca digital di Universitas Kuningan. Penelitian menggunakan pendekatan studi kasus kualitatif dengan melibatkan 32 mahasiswa semester lima Program Studi Pendidikan Bahasa dan Sastra Indonesia dalam empat sesi pembelajaran. Data dikumpulkan melalui observasi, wawancara semi-terstruktur, dan dokumentasi, kemudian dianalisis secara tematik. Hasil menunjukkan bahwa mahasiswa memberikan respons positif di seluruh tahapan pembelajaran, terutama pada fase stimulasi dan pengumpulan data. Mahasiswa menunjukkan keterlibatan aktif, kemandirian belajar, dan kesadaran metakognitif melalui strategi seperti anotasi digital, evaluasi sumber, dan sintesis kolaboratif. Kendala ditemukan pada fase verifikasi, terutama dalam menilai kredibilitas sumber digital. Secara umum, model ini dinilai efektif dalam meningkatkan pemahaman membaca digital dan relevan untuk diterapkan dalam pengembangan literasi digital mahasiswa. Studi ini memberikan wawasan berharga bagi para pendidik dan pengembang kurikulum yang ingin meningkatkan literasi digital melalui pembelajaran yang responsif dan berpusat pada siswa.*

Kata kunci: *literasi digital; model discovery learning; prinsip konstruktif-responsif; pendidikan tinggi; respons pelibat*

1. INTRODUCTION

In today's digital era, university students are expected to adapt to significant transformations in the literacy landscape, particularly the shift from printed texts to digital ones. This transition is primarily driven by advances in information technology, which enable rapid and easy access to a wide array of online learning resources, including electronic journals, digital books, and scholarly articles (Delgado et al., 2018).

Digital texts possess unique attributes, such as non-linear structure, hyperlinks, and multimodality, which combine text, images, audio, and video (Julie Coiro, 2021). Therefore, readers require strategies that differ from those used when reading printed materials (Cho, B.-Y., & Afflerbach, 2017). Unfortunately, a study by Amalia (2019) involving first-semester students from the Indonesian Language and Literature Education Program at Universitas Tridinanti Palembang revealed that their comprehension level was only 61.11%, with a reading speed of 244.83 words per minute—well below the ideal benchmark. Similarly, Ristianti (2022) noted that students at Universitas Negeri Semarang experienced difficulties understanding digital texts due to low digital literacy skills.

Preliminary observations by the present researcher at Universitas Kuningan indicated similarly low levels of digital reading comprehension, with average scores in literal, inferential, critical, and creative aspects all falling short of ideal standards. This is consistent with findings by (Ramadhianti, A., & Somba, 2023), who observed that students struggle to identify main ideas and make inferences from academic texts. These findings reveal a mismatch between the demands of digital era learning and the actual abilities of students.

Various efforts have been made to improve students' digital reading skills. One of the more prominent strategies is the implementation of the Discovery Learning model, which has demonstrated success in enhancing reading comprehension across various educational levels (Dewi, 2021; Haslami, 2023). Hulu and Telaumbanua (2022) demonstrated that Discovery Learning increased student interest and achievement, while Rohmi and Wahyuni (2024) showed its relevance in digital English instruction. In digital contexts, the model supports the integration of multimedia and online resources to deepen meaning-making (Melatisari, 2022).

However, no study has explicitly integrated this model with principles of reading comprehension in a digital context through a constructively responsive lens. The constructively responsive principle emphasizes meaningful interaction between students and digital texts through active, reflective, and autonomous strategies (Cho, B.-Y., & Afflerbach, 2017). This process involves higher-order cognitive strategies such as making inferences, elaborating, and integrating information across sources. In digital reading instruction, this principle is especially critical, as it emphasizes the navigation, evaluation, and synthesis of information across various media formats (Latini et al., 2019). Moreover, it is essential to

acknowledge that digital reading requires not only technical skill but also reflective and evaluative competence (Li & Yan, 2024; van der Weel & Mangen, 2022). Hahnel et al. (2017) argued that reading digital texts involves continuous updating of working memory based on the structure and the reader's goals. Similarly, Makhafola et al. (2025) emphasized that digital literacy, competence, fluency, and dexterity are essential for engaging in meaningful digital reading.

Despite growing awareness of these complexities, a lack of pedagogical models remains that explicitly integrate Discovery Learning with constructively responsive principles in digital reading instruction. Hence, this research is urgently needed to address the gap between theoretical demands and actual instructional practices. The urgency of this study lies in the increasing pressure on higher education to equip students with critical, autonomous, and digitally fluent reading skills, in alignment with the demands of the Industry 4.0 era.

The novelty of this research lies in its design and implementation of a Discovery Learning model that is not only contextually grounded but also explicitly rooted in constructively responsive reading principles, tailored for digital text comprehension. To date, no empirical study has systematically evaluated such a model, particularly in the Indonesian higher education context.

The research problem addressed in this study is the low level of students' digital reading comprehension and the limited availability of pedagogical models that align with the nature of digital texts and the demands of 21st-century literacy. Based on this, the objective of the study is to explore student responses toward the implementation of a constructively responsive Discovery Learning model in digital reading instruction.

Building upon an earlier study that focused on the model's development (Hamidah, 2024), the present research investigates how students respond to the implementation of this model in practice. Understanding participant responses is essential to determine whether the model is not only theoretically robust but also pedagogically effective, well-received, and relevant to the needs of learners and instructors.

This study is framed by three central research questions that aim to explore the effectiveness of integrating constructively responsive principles within the Discovery Learning model in a digital reading context. First, the study investigates how students respond cognitively, affectively, and evaluatively throughout each phase of the Discovery Learning process. This includes examining their mental engagement, emotional involvement, and critical judgment as they navigate digital reading tasks. Second, it seeks to identify the specific constructively responsive strategies that students apply when interacting with digital texts, particularly in how they navigate content, evaluate multimodal sources, and synthesize information meaningfully. These strategies are essential for understanding how students exercise autonomy, metacognition, and critical thinking in a digitally mediated learning environment. Ultimately, the study seeks to identify both the challenges students encounter and the factors that support the successful implementation of this instructional model. By addressing these three

aspects, the research provides a comprehensive view of how constructively responsive pedagogy can be effectively integrated into digital reading instruction to enhance students' learning experiences and outcomes.

2. RESEARCH METHODOLOGY

This study employed a qualitative approach with a case study design to explore student responses to the implementation of a Discovery Learning model integrated with constructively responsive principles in digital reading instruction at Universitas Kuningan. This approach was selected for its ability to provide deep insights into participants' lived experiences as active agents in the learning process. The case study design was deemed appropriate for investigating learning phenomena within real-life educational contexts, as it allowed the researcher to capture the dynamics of student interaction, engagement, and interpretation of the instructional model (Abdala, 2024; Ballester-Roca, M., & Ibarra-Rius, 2015; Werang & Leba, 2022).

The participants of the study were 32 fifth-semester students from the Indonesian Language and Literature Education Study Program at Universitas Kuningan. They were selected through purposive sampling based on their full involvement in all stages of the model implementation. The learning context focused on academic digital reading using online materials such as e-books, scholarly articles, and hyperlinked digital texts.

The Discovery Learning model was implemented through four instructional sessions, each structured around its core syntax: stimulation, problem statement, data collection, data processing, verification, and generalization. Constructively responsive teaching elements further enriched these. In the first session, students were exposed to digital stimuli, including infographics, hyperlinked texts, and video clips, to spark their curiosity and generate questions. They were guided to identify key problems related to digital reading. The second session focused on data collection, where students navigated digital sources in groups using tools like online databases, annotation software, and digital mind maps. The third session involved data processing, where students collaborated to critically analyze, compare, and evaluate the credibility of the information they had collected. The fourth session required students to generate conclusions and reflect on their learning by writing reflective journals and presenting digital portfolios. These sessions emphasized active participation, independent inquiry, peer collaboration, metacognitive awareness, and responsiveness to feedback, following the frameworks of (Afflerbach, P., Pearson, P. D., & Paris, 2008; Kintsch, 1998; Pressley, M., & Afflerbach, 1995).

To gather data, the researcher used three techniques: direct observation, semi-structured in-depth interviews, and documentation analysis. Observations were conducted during each session using a structured guide to record student engagement, inquiry behavior, use of digital tools, and collaborative interactions. The interviews were conducted with 12 selected

students who represented a range of participation patterns, aiming to explore their perceptions of each learning phase, including how they navigated digital texts, interacted with peers, and reflected on their comprehension processes. Documentation included reflective journals written by students at the end of each session, as well as digital reading artifacts, such as annotated texts and group summaries (Grønli et al., 2025; Gumede & Badriparsad, 2022).

The instruments used in this study consisted of observation guides, interview protocols, and documentation templates, all of which were developed based on theoretical indicators derived from the Discovery Learning syntax (Kemendikbud, 2017; Veermans, 2003) and constructively responsive learning principles (Kintsch, 1998; Pressley, M., & Afflerbach, 1995). For the observation guide, the indicators included stimulation (student engagement with digital content), problem identification (ability to formulate reading-related questions), data collection (autonomy in using digital tools), data processing (peer analysis and synthesis), verification (critical evaluation of information), and generalization (ability to draw conclusions and apply strategies). Indicators based on constructively responsive teaching included student agency in inquiry, metacognitive reflection, responsiveness to feedback, and collaborative meaning-making. Interview protocols were designed to explore students' understanding of the learning process, the usefulness of strategies employed, their experiences navigating non-linear digital texts, and their views on the feedback and support they received. Documentation indicators focused on the presence of metacognitive reflection, use of digital navigation strategies, evidence of synthesis, and application of reading strategies in digital tasks.

The collected data were analyzed using thematic analysis, following Braun and Clarke's (2006) six-phase framework. This involved transcribing the interview and observation data, conducting open coding, categorizing codes into emerging themes, and interpreting patterns in relation to the theoretical foundations of the model. The theoretical framework guided the development of codes, including autonomous navigation, peer-supported reasoning, strategic adjustment, and metacognitive regulation. From these, broader themes emerged, including critical digital engagement, reflective synthesis, and responsive collaboration, all of which were interpreted in light of the model's pedagogical goals (Holtmann et al., 2024; Mishra & Dey, 2022).

Ethical research practices were followed throughout the study. Participants provided informed consent and were assured of confidentiality and the right to withdraw from the study at any point. Although formal ethical board approval was required for classroom-based research at the institution, all procedures adhered to accepted research ethics.

To ensure the research's credibility and trustworthiness, data and methodological triangulation were employed, along with member checking and audit trail documentation. These measures strengthened the reliability of the findings and ensured that the interpretations accurately reflected the participants' experiences (Ardic et al., 2025). The overall methodological

framework allowed for a robust exploration of how students perceived, interacted with, and responded to a constructively responsive Discovery Learning model within the domain of digital reading.

3. RESULT

The findings of this study reveal that students exhibited varied levels of engagement across the six syntactic phases of the Discovery Learning model. These variations reflect the cognitive demands and levels of autonomy required in each phase. The highest engagement in the Data Collection and Stimulation phases aligns with studies by Dewi (2021) and Rohmi & Wahyuni (2024), which found that students are most motivated when involved in exploratory, inquiry-based activities that allow personal relevance and freedom. The Discovery Learning model in this study successfully triggered such engagement through the use of contextual stimuli and open access to digital resources.

Conversely, lower engagement during the Verification and Problem Statement phases underscores challenges students face when asked to perform critical and abstract thinking tasks. This finding is consistent with those of Hahnel et al. (2017) and van der Weel & Mangen (2022), who argue that digital reading often requires advanced evaluative strategies that many students have not yet mastered. Evaluating source credibility and synthesizing abstract generalizations require both digital literacy and metacognitive regulation—areas in which many learners still struggle.

The application of constructively responsive strategies—such as source triangulation, concept mapping, guided questioning, and digital annotation—demonstrates that students gradually shifted from passive consumption to active construction of knowledge. This transformation mirrors what Cho and Afflerbach (2017) describe as a progression from superficial to strategic reading. It also aligns with Latini et al. (2019), who emphasized that competent digital readers integrate non-linear information through self-regulated learning processes.

The pedagogical implications of this study are multifaceted. First, the constructively responsive Discovery Learning model provides a viable framework to bridge the gap between digital reading challenges and instructional design. Second, it reinforces the need for embedding explicit instruction on evaluation and verification within digital literacy curricula. Third, the findings suggest that responsive scaffolding, such as prompting questions, collaborative activities, and digital tools, can significantly enhance student autonomy and reflective thinking (Dorey et al., 2023; Makhafola et al., 2025).

Limitations of the study include its focus on a single institutional context, a limited sample size, and the time-bound nature of the implementation, which may restrict the generalizability of the findings. Furthermore, the absence of pre- and post-assessment data limits the ability to make strong causal claims about the model's effectiveness on learning outcomes.

Future research could explore several essential directions. First, quantitative studies

using control groups could assess the measurable impact of this model on reading comprehension and critical literacy. Second, longitudinal research could examine how students internalize and transfer constructively responsive strategies across disciplines and academic years. Third, future studies might incorporate eye-tracking or digital trace data to investigate how students navigate multimodal texts in real time. Lastly, the role of instructors, as facilitators of constructively responsive learning, could be further examined to understand how their strategies influence student autonomy and engagement.

In conclusion, this study contributes to the growing body of research on digital reading pedagogy by offering a practical and theoretically grounded instructional model. It affirms that when digital reading is supported by responsive teaching and inquiry-based structures, students can engage deeply and purposefully with complex texts in digital environments.

3.1 Participant Responses toward the Discovery Learning Model Based on Constructively Responsive Principles

Based on the results of classroom observations, in-depth interviews, and reflective documentation, the implementation of the Discovery Learning model, grounded in constructively responsive principles within the context of digital text reading, demonstrated promising outcomes in terms of participant responses. In this study, participant responses refer to the cognitive, affective, and evaluative engagement shown by students throughout the learning process.

Quantitatively, the level of student engagement was assessed based on the six syntactic phases of the Discovery Learning model: stimulation, problem statement, data collection, data processing, verification, and generalization. To illustrate the degree of engagement at each phase, the following data were obtained from the analysis of observation scores and reflective documentation.

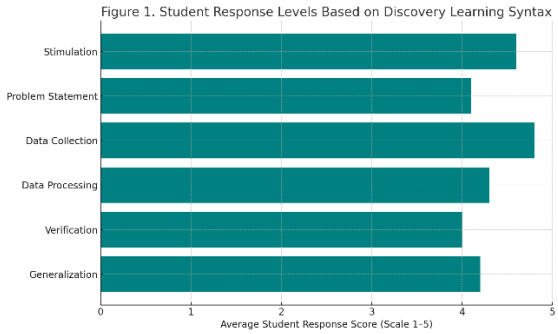

Figure 1. Student Response Levels Based on Discovery Learning Syntax

Based on the diagram, it is evident that student response levels vary across each phase of the Discovery Learning model. The *Data Collection* phase recorded the highest average score of 4.8 on a 5-point scale. This indicates that students were highly active in seeking, evaluating, and gathering information from various digital sources. During this phase, they demonstrated substantial learner autonomy by conducting searches through academic databases, accessing digital journals, and engaging in small group discussions to compare their findings. Students felt both challenged and motivated, as the learning environment granted them wide exploratory freedom. This autonomy likely played a crucial role in fostering high levels of engagement in this phase.

The *Stimulation* phase obtained the second highest score, with an average of 4.6. This suggests that students were highly interested when presented with real-world problems relevant to their academic and personal lives. The instructor's triggering questions successfully sparked curiosity and encouraged active classroom discussions. This initial stimulation provided a solid foundation for subsequent engagement, as students felt that the problems addressed were closely tied to their own lived experiences.

The *Data Processing* phase also showed a relatively high level of response, with an average score of 4.3. In this stage, students began analyzing the information they had gathered, comparing arguments from different sources, and constructing preliminary understandings. Although the overall engagement was positive, some students admitted facing difficulties in organizing complex data and distinguishing between main and supporting ideas. Their critical thinking skills appeared to be still developing, which highlights the importance of the instructor's role in providing scaffolding or academic support.

The *Generalization* phase earned an average score of 4.2. At this stage, students started to conclude the exploration and analysis they had conducted. They attempted to formulate general principles or syntheses based on the gathered information. However, the quality of generalizations varied. Students with greater experience in digital reading found it easier to produce well-structured conclusions. In contrast, others required guidance to move beyond merely summarizing content and construct new, meaningful insights from the data.

The *Problem Statement* phase received an average response score of 4.1. Initially, students were somewhat passive when asked to formulate research problems from the phenomena presented. Many were unfamiliar with generating open-ended, analytical questions without explicit prompts. However, engagement began to increase once the instructor initiated open discussions and provided examples of critical questioning. Peer interaction during this process helped students gain the confidence to formulate researchable problems independently.

The *Verification* phase yielded the lowest average score, at 4.0. This suggests that students encountered challenges when asked to verify information or assess the validity and credibility of digital sources. Many expressed uncertainties in evaluating source reliability, particularly when the content did not come from indexed journals or official institutions. Instead of applying systematic evaluation criteria, students tended to rely on intuition or the majority opinion within their group. This finding suggests that evaluative skills remain a weak area in digital reading instruction and should be strengthened through explicit instruction on how to assess digital information critically.

Overall, the bar chart illustrates that students were most responsive during the exploratory and initial phases, such as *Stimulation* and *Data Collection*, where they experienced greater freedom and creativity. In contrast, response levels declined during the evaluative and reflective phases, including *Verification* and *Problem Statement*, which require more complex

and abstract cognitive processes. This pattern underscores the importance of pedagogical interventions that strike a balance between exploration and evaluation in digital learning, ensuring that students not only gain access to information but also develop the critical capacity to filter and construct meaning independently.

To further detail the findings, the following table presents a breakdown of student responses in each phase of the learning process.

Table 1. Summary of Student Responses by Discovery Learning Syntax

Discovery Learning Syntax	Description of Student Responses	Average Score
Stimulation	Interested, reflective toward real-life issues	4.6
Problem Statement	Initially passive, improved after open discussion	4.1
Data Collection	Most active; exploratory and collaborative	4.8
Data Processing	Actively analyzed and compared information	4.3
Verification	Faced challenges in validating information	4.0
Generalization	Able to formulate principles from exploration results	4.2

Based on Table 1, it can be concluded that the overall level of student engagement in the Constructive-Responsive Discovery Learning model is relatively high, with average scores ranging from 4.0 to 4.8 on a 5-point scale. This indicates that students responded actively and positively to nearly all stages of the learning process, although variations in engagement levels were observed across different syntax stages.

The *Data Collection* stage received the highest score of 4.8, making it the most engaging phase for students. This high level of involvement reflects their enthusiasm in exploring various digital learning resources. Students exhibited exploratory, collaborative, and independent behaviors as they searched through journals, scholarly articles, and other online references. They felt empowered to develop their directions in searching for information, which in turn fostered deeper, active involvement in the learning process.

The *Stimulation* stage followed closely with an average score of 4.6. At this stage, students showed strong interest in current issues or contexts relevant to their experiences. Stimuli, such as guiding questions, short videos, or brief discussions, successfully triggered their curiosity and encouraged them to engage in critical thinking from the outset of the lesson. This engagement suggests that contextual and problem-based approaches are highly effective in building cognitive and emotional engagement among learners.

Next, the *Data Processing* stage received a score of 4.3 in terms of student engagement. Students appeared quite active in processing the information they had gathered, including comparing sources, analyzing arguments, and composing preliminary syntheses. Although some students still required guidance, they generally demonstrated higher-order thinking in researching and organizing the available information.

The *Generalization* stage received a score of 4.2, indicating that students could formulate general principles or conclusions based on the processed data. During this stage, they attempted to connect the acquired information with existing

theories and summarize key findings in a concise format. Engagement at this level reflects students' development in reflective and conceptual thinking, although the quality of generalizations still varies among individuals.

The *Problem Statement* stage recorded an engagement score of 4.1. Initially, students displayed passive attitudes when asked to formulate problems based on presented phenomena. However, with open discussion facilitated by the instructor, their involvement increased. Students began to demonstrate confidence in raising critical questions and constructing more focused problem statements. This stage highlights that with appropriate pedagogical support, students' analytical thinking abilities can continue to grow.

Finally, the *Verification* stage received the lowest engagement score of 4.0. This suggests that evaluative tasks, particularly in verifying the reliability and validity of digital information, continue to be challenging for students. They tended to be uncertain when assessing the quality of sources and often relied on the opinions of peers or instructors. This highlights the need to strengthen evaluative literacy and information verification strategies in digital learning curricula.

Overall, the data in Table 1 indicate that students were more engaged during exploratory and contextual early stages, while engagement declined at stages requiring critical evaluation and conceptual abstraction. These findings underscore the importance of designing learning strategies that not only foster initial enthusiasm but also support the development of higher-order thinking skills essential for a deep and responsible comprehension of digital texts.

3.2 Implementation of Constructive-Responsive Principles in Digital Text Reading

The constructive-responsive principle requires learners to actively construct meaning from texts through processes involving higher-order thinking strategies. In the context of digital reading instruction, this principle combines deep reading skills with digital literacy competencies such as hypertext navigation, source evaluation, and multimodal integration.

Based on documentation and reflective notes, it was found that students employed various cognitive strategies, reflecting active engagement in understanding digital texts. One commonly used strategy was integrating information from two to four different digital sources to obtain a more comprehensive understanding. Students did not rely on a single source but compared content, perspectives, and depth of information across multiple references. They also constructed concept maps as visual aids to organize and connect the information gathered. These maps helped clarify argument structures, illustrate relationships between ideas, and trace the logical flow of the content.

Additionally, during group discussions, students utilized evaluative tools, such as the CRAAP test or source evaluation checklists, to assess the credibility of their digital information. The use of such tools encouraged more critical engagement in selecting relevant, accurate, and academically responsible digital sources.

These findings align with the study (Latini et al., 2019), which emphasized that effective digital learning should encourage information

integration and synthesis across multiple sources, supported by metacognitive strategies and nonlinear navigation. In the process, students demonstrated an understanding that digital texts are not linear like print texts, thus requiring a more flexible and reflective reading approach.

Moreover, the implementation of constructive-responsive principles was evident in the learning strategies developed by students throughout the course. Most students began to demonstrate metacognitive awareness regarding the importance of effective and purposeful digital reading strategies. One frequently applied strategy was digital highlighting using PDF reader applications. This allowed students to mark important information, annotate main ideas, and facilitate review of complex readings. Before engaging with long digital texts, students also developed guiding questions to help focus attention on relevant information and direct the meaning-making process more systematically. This strategy enabled them to read with a clear purpose, rather than merely skimming through the text linearly. Additionally, students collaborated via platforms such as Google Docs to co-construct syntheses with peers. This activity not only enriched their perspectives but also fostered academic collaboration and the development of a collective understanding in a structured manner. These strategies show that students are not merely passive readers but are evolving into strategic readers who are conscious of their learning processes.

This progression indicates that students are not only absorbing information but also modifying and evaluating their learning methods. According to Cho, B.-Y., & Afflerbach (2017), such transformation represents a shift from passive to active and reflective learners.

3.3 Implementation Dynamics and Pedagogical Recommendations

During the implementation of the model, several challenges were identified, particularly related to technological readiness, student capacity, and instructional time management. Not all students were familiar with digital tools such as Zotero, Miro, or Google Jamboard. Moreover, limited class time hindered in-depth engagement in the verification and generalization stages, which are crucial for building stronger conceptual understanding.

These findings are consistent with (Dorey et al., 2023), who argue that the success of a pedagogical intervention depends not only on the learning design but also heavily on the availability of supporting resources and the flexibility of the institutional context in which the model is applied. In this study, student digital literacy, infrastructure availability, and institutional support were all key factors influencing the effectiveness of the Constructive-Responsive Discovery Learning model.

In response to these challenges, several strategic recommendations are proposed. First, digital literacy training should be provided at the beginning of the semester to equip students with essential technical skills for effectively navigating, evaluating, and managing digital information. This will help ensure baseline readiness and reduce disparities in digital competence among students. Second, formative assessments based on reflective practices should be integrated into the learning process, such as through digital learning journals and case-based

discussions. These assessments serve not only as evaluation tools but also as instruments to capture students' deeper and contextual thinking processes. Third, institutions should enhance their support for digital learning infrastructure. This includes providing access to scholarly journals, reliable online discussion platforms, and collaborative tools such as visualization apps or digital workspaces. If implemented synergistically, these three recommendations will enhance the model's effectiveness, ensuring that digital learning occurs not only on a technical level but also pedagogically and contextually.

This model is highly relevant to 21st-century literacy needs and the demands of Industry 4.0, which require readers to be not only competent in absorbing information but also critical, reflective, and adaptive to various forms of digital texts.

This discussion comprehensively demonstrates that the Discovery Learning model based on Constructive-Responsive principles has a significant impact on student engagement, autonomy, and digital literacy development. Students not only learn to understand textual content but also how to understand the reading process itself within a complex digital context. Therefore, this model presents a pedagogically responsive, contextually relevant, and practically applicable alternative for addressing the challenges of reading instruction in the digital era. The following section presents the main conclusions of this study, along with its systematic implications and recommendations.

4. CONCLUSION

The findings of this study indicate that student engagement in the Discovery Learning model based on Constructive-Responsive principles for digital text reading at Universitas Kuningan was generally positive—cognitively, affectively, and evaluatively. Students actively participated in almost all stages of the learning process, particularly during the exploratory phases such as stimulation and data collection. They demonstrated not only improvement in their ability to access and comprehend digital information but also began developing metacognitive awareness through more reflective and purposeful reading strategies.

These findings address the central research problem, confirming that a learning model designed in alignment with the characteristics of digital texts and grounded in constructive-responsive principles can foster deeper, more contextual, and applicable student engagement and understanding. The constructive-responsive Discovery Learning model has shown potential to balance learner autonomy with instructional structure, supporting students' growth as strategic and reflective digital readers.

Accordingly, this model is worth considering as an alternative approach in digital literacy instruction at the tertiary level. The positive engagement response indicates that developing digital reading competencies relies not only on technological proficiency but also on pedagogical design that stimulates critical thinking, nurtures learning autonomy, and facilitates active meaning-making as students interact with complex digital texts.

In conclusion, constructively responsive Discovery Learning offers not only a theoretically sound but also a pedagogically effective model for preparing students to become thoughtful, critical, and adaptive readers in the digital age. This model bridges the gap between instructional design and digital literacy needs, providing a strong foundation for further innovation in higher education reading instruction.

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