GHÂNCARAN: JURNAL PENDIDIKAN BAHASA DAN SASTRA INDONESIA
http://ejournal.iainmadura.ac.id/ghancaran
E-ISSN: 2715-9132; P-ISSN: 2714-8955
DOI *10.19105/ghancaran.v7i1.18998*

Integrating Mobile Learning and BOM ATOM Model in Teaching Observational Report Texts at Vocational High Schools

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Keywords: Mobile Learning; Tangkas Berobservasi; *BOM ATOM;* observation report text.

Abstract

This study aims to describe the application of mobile learning Tangkas Berobservasi model BOM ATOM in learning to write observation report text in class X SMK. The rapid advances of technology in the learning process require students to have digital literacy which is not only the ability to operate devices, but also the skills in understanding, using, and critically interacting with information and communication technology. In the context of learning, *mobile learning* is one of the innovative solutions that allows flexible access to materials anytime and anywhere. The implementation of Mobile learning Tangkas Berobservasi based on the BOM ATOM model in learning observation report text in vocational is one of the learning solutions with technology integration. This media is designed to develop students' critical, analytical, and collaborative thinking skills through the use of digital technology. This research uses a qualitative approach with interview and observation methods as data sources. The results showed that the use of Android-based Tangkas Berobservasi *mobile learning* is suitable for students' needs and able to improve digital literacy. In addition, this technology-based learning provides convenience in accessing materials, improving concept understanding, and supporting digital interaction and collaboration in the learning process. The implementation of BOM ATOM model in mobile learning also helps students in organizing information, developing reflective skills, and increasing active participation in learning.

Kata Kunci: Mobile Learning; Tangkas Berobservasi; *BOM ATOM;* Teks Laporan Hasil Observasi.

Abstrak:

Penelitian ini bertujuan untuk mendeskripsikan penerapan mobile learning Tangkas Berobservasi model BOM ATOM pada pembelajaran menulis teks laporan hasil observasi di kelas X SMK. Perkembangan pesat teknologi di dalam proses pembelajaran menuntut siswa untuk memiliki literasi digital yang tidak hanya sekadar kemampuan mengoperasikan perangkat, tetapi juga keterampilan dalam memahami, menggunakan, serta berinteraksi secara kritis dengan teknologi informasi dan komunikasi. Dalam konteks pembelajaran, *mobile learning* menjadi salah satu solusi inovatif yang memungkinkan akses materi secara fleksibel kapan saja dan di mana saja. Implementasi *Mobile learning* Tangkas Berobservasi berbasis model BOM ATOM dalam pembelajaran teks laporan hasil observasi di SMK menjadi salah satu solusi pembelajaran dengan integrasi teknologi. Media ini dirancang untuk mengembangkan keterampilan berpikir kritis, analitis, dan kolaboratif siswa melalui penggunaan teknologi digital. Penelitian ini menggunakan pendekatan kualitatif dengan metode wawancara dan

observasi sebagai sumber data. Hasil penelitian menunjukkan bahwa penggunaan *mobile learning* Tangkas Berobservasi berbasis Android sesuai dengan kebutuhan siswa dan mampu meningkatkan literasi digital. Selain itu, pembelajaran berbasis teknologi ini memberikan kemudahan dalam mengakses materi, meningkatkan pemahaman konsep, serta mendukung interaksi dan kolaborasi digital dalam proses pembelajaran. Implementasi model BOM ATOM dalam *mobile learning* juga membantu siswa dalam mengorganisasi informasi, mengembangkan keterampilan reflektif, dan meningkatkan partisipasi aktif dalam pembelajaran.

Terkirim: 7 Mei 2025; Revisi: 25 Mei 2025; Diterbitkan: 9 Juli 2025

INTRODUCTION

The development of digital technology has brought significant changes to various aspects of life, including the field of education (Selwyn, 2012; Haleem et al., 2022). Technological advancements in education have benefited both teachers and students. With these advancements, students now exist in a global learning environment that is interconnected through networks and supported by a wide range of digital learning resources and services (Akbar & Noviani, 2019; Kurniawati et al., 2024; Nisa et al., 2025).

The use of technologies such as computers, the internet, and mobile devices has enabled broad and effective access to information. Tondeur (2019) explains that technological progress has created a globally connected educational environment facilitated by digital networks. Technology provides flexibility in terms of time and place for learning, allowing students to study at their own pace and in the settings most comfortable to them (Escueta et al., 2017). Technologies such as computers, the internet, and smartphones have enabled effective and wide-reaching access to data. With the proliferation of learning platforms and digital technologies, both teachers and students can now access instructional materials that align with individual learning needs (Hidayatullah et al., 2023).

Moreover, interactive simulations, animations, and other digital learning media make lessons more engaging and immersive. In addition, technology has facilitated the development of various interactive and engaging learning approaches, including simulations, educational games, and multimedia-based learning. Digitalization offers advantages that extend beyond rapid access to knowledge via digital media; it also provides students with more engaging and participatory learning experiences. According to Boonmoh et al. (2022), technology plays a vital role in the dissemination of information and knowledge in the field of education. The improvement of educational systems is marked by the increasing availability of innovative learning resources and media.

Addressing this issue requires strategic actions, such as ensuring equitable access to technology, providing specialized training for educators on the effective integration of technology into teaching practices, and incorporating digital literacy into the curriculum (Wicaksono et al., 2021; Pratama et al., 2022).

The digitalization of education encompasses not only the use of digital textbooks (such as e-books and e-modules) but also the application of instructional media design tools to construct digitally based curricula (Bahari et al., 2019; Pratama, Efendi, Umami, 2022; Zamahsari et al., 2023). The use of technologies, including interactive learning applications and video-based e-books, has improved the quality of education by making it more relevant, dynamic, and tailored to students' needs (Kiswanto, 2022). The process of adapting to technological advancements must be undertaken by both educators and learners. Given the rapid pace of technological change, the role of education is expected to support national competitiveness in the global arena (Khasanah & Herina, 2019).

Media plays a vital role in educational activities. The learning process significantly benefits from the use of media, particularly in enhancing the effectiveness and efficiency of information delivery (Kusum, et al., 2023; Anisah, 2023; Hasan et al., 2021; Fathoni et al., 2023). Instructional media facilitates the communication of information in a more engaging and comprehensible manner for students. All communication tools—such as printed materials, graphics, animations, audio, and video—are included in the category of educational media and technology (Ahdan et al., 2020). Multimedia technology in education integrates all these elements—print, graphics, animation, audio, and video—into cohesive learning experiences. Instructional media must be interactive, as it supports interactivity, which is a key aspect of effective learning. A new and increasingly popular learning system, known as web-based learning or e-learning, has emerged due to the wide array of facilities offered by the internet (Ardiansyah & Nana, 2020).

The development of instructional media has also led to the rise of mobile learning. According to Warsita (2010), mobile learning is a learning model that utilizes portable devices, enabling students to access content, instructional guidance, and learning applications without limitations of location or time. Mobile learning is available in various formats, including videos, websites, games, and applications. Commonly referred to as M-learning, mobile learning applications are typically designed for Android and iOS platforms and serve as complementary tools to conventional learning methods. This mode of learning allows for anytime, anywhere access to educational content (Sari & Priatna, 2020; Kurniawati et al., 2024). Mobile learning applications have gained increasing popularity and demand in recent years and have become a common feature

in modern educational systems (Al-Rahmi et al., 2022). By utilizing various digital learning tools, educators can present lessons in a way that is both engaging and relevant, thereby enhancing students' curiosity and creativity (Iswanto & Amin, 2023). This development aligns with advancements in digital technology, which continue to facilitate easier access to information and learning at any time and from any location.

Based on preliminary observations conducted at SMK Negeri Kudu, the study involved both students and the Indonesian language teacher of grade X at SMK Negeri Kudu, Jombang. The findings from questionnaires and interviews revealed that students often feel bored and disinterested in the Indonesian language learning process, as it predominantly relies on conventional instructional tools such as textbooks, modules, and student worksheets. Students expressed greater enthusiasm for learning activities that incorporate technology, such as smartphones or laptops, noting that they feel more flexible and engaged when learning materials are accessible through digital devices. Furthermore, the content of Indonesian language lessons was considered less appealing because it lacked relevance to the students' chosen vocational fields.

In terms of learning content, interviews with both students and Indonesian language teachers at the vocational school level indicated that one of the topics students struggle with the most is the *observation report text*. This difficulty primarily stems from the scientific nature of the text—both linguistically and conceptually—which many students find complex and difficult to understand. Another factor contributing to the difficulty of this material is the absence of an engaging learning model that stimulates students' interest and facilitates their understanding of the material. In addition, the topics commonly featured in observation report texts are often perceived as irrelevant to the students' vocational specializations, thereby diminishing their interest and motivation to engage with the material. According to Kosasih (2013), an observation report text presents factual information obtained through direct observation. One of the defining characteristics of this text type is its objective to provide readers with clear and informative knowledge.

Previous studies support the integration of mobile learning in educational contexts. Crompton and Burke (2018) reported a rapid increase in mobile device ownership and found that mobile learning has a positive impact on students' academic achievement, particularly in the domain of language learning, which has become one of the most frequently researched areas. El-Sofany and El-Haggar (2020) concluded that mobile technology is perceived as an effective tool to enhance students' skills, including positive thinking, collaboration, and communication. Similarly, Naveed, et al. (2023) emphasized the importance of understanding and developing mobile learning (M-learning) as a

potential educational platform, particularly in improving accessibility and the overall effectiveness of digital learning.

In Indonesia, several researchers have also conducted studies on mobile learning. A study by Hasanudin, et al. (2021) & Rosnaeni, (2021) developed innovative teaching materials based on mobile learning for teaching writing skills in the 21st century. The findings concluded that the development of innovative teaching materials utilizing mobile learning could be effectively achieved by implementing appropriate instructional strategies. Meanwhile, Widyatama and Pratama (2022) investigated the development of an Android-based mobile learning application called *PINTHIR* as a learning resource and problem-solving tool for high school trigonometry. The study demonstrated that the mobile learning application developed using Android Studio was valid, practical, and feasible for use in teaching trigonometry at the high school level.

This study differs from previous research in several key aspects. Its novelty lies in the integration of mobile learning with an innovative instructional model known as BOM ATOM—an acronym for (*Baca, Orientasi, Mengelompok, Amati, Tangkas, Olah, dan Merefleksi*)—which is applied to the teaching of observation report texts (*teks laporan hasil observasi*) in vocational high schools. Learning models are important for planning and preparing classroom learning (Sodiq, 2015). This model, when combined with mobile learning implementation, has not yet been applied in the Indonesian context. It is designed to strengthen students' digital literacy through an active and contextual learning approach that utilizes mobile devices as the primary medium in the learning process. The study not only offers innovation in technology-based instructional design but also emphasizes the development of 21st-century competencies such as critical thinking, collaboration, and digital communication skills.

Another distinctive feature of this study is its alignment between the flexibility of mobile learning strategies and the characteristics of vocational school students, who tend to engage in practice-based and project-based learning. To date, Indonesian language instruction in vocational schools has largely focused on general thematic texts rather than those tailored to vocational content. By positioning students as active agents directly involved in observation and reporting processes through digital devices, this study has the potential to foster more meaningful, applicable, and career-relevant learning experiences. Furthermore, the study stands out from previous research by harmoniously integrating educational technology approaches with constructivist theory, thus contributing significantly to the development of mobile-based learning media in vocational education contexts.

Based on the above description, the implementation of *Mobile Learning Tangkas Berobservasi* using the BOM ATOM model in teaching observation report writing can serve as a viable and innovative solution for Indonesian language instruction in vocational schools. Therefore, this study aims to describe the implementation of *Mobile Learning Tangkas Berobservasi* based on the BOM ATOM model for the teaching of observation report texts in vocational high schools.

METODE

This study employed a qualitative method to describe the implementation of *Mobile Learning Tangkas Berobservasi* using the BOM ATOM model in teaching observation report writing, the challenges faced by teachers, and the school's efforts to address these challenges. A directed content analysis approach was used, which begins with relevant theories or previous research findings (Hsieh & Shannon, 2005). SMK Negeri Kudu Jombang was selected as the research site due to its implementation of technology-based learning approaches. However, initial observational data indicated that many learning activities still relied on conventional methods, despite students' expressed interest in technology-integrated instruction. Additionally, the school has demonstrated a strong commitment to supporting instructional innovation, such as the integration of technology in writing instruction. Its accessible geographical location and the administration's openness to research activities were also major considerations in selecting this site.

According to Sugiyono (2012), qualitative methods aim to describe phenomena as experienced directly by research participants. In this study, the qualitative method involved evaluative procedures to generate descriptive data in the form of verbal and spoken expressions from research participants. The primary data in this study consisted of questionnaire results, interview data, and student learning outcomes. The research informants were selected from Grade X students of the Agricultural Product Processing Technology (APHP) class at SMK Negeri Kudu. The selection of grade X students of the Agricultural Product Processing Expertise Program (APHP) at SMK Negeri Kudu as research subjects was based on several considerations. First, students at grade X level are in the early stages of learning in a vocational high school environment, so it is the right moment to measure the effectiveness of a learning model or media in building the required competency basis. Second, the APHP Expertise Program has learning characteristics that emphasize understanding theoretical concepts as well as practical skills, making it suitable for innovative learning approaches, especially technology-based

ones such as mobile learning. Third, SMK Negeri Kudu is one of the schools that actively develops learning innovations, so it supports the smooth implementation of research both in terms of facilities and teacher involvement in the mentoring process.

Document analysis, interviews, and field observations were employed as data collection techniques. All collected data were processed and reviewed systematically. A systematic review refers to the process of selecting, identifying, and synthesizing research findings to provide a comprehensive and reliable representation of the subject under review. To ensure data validity, techniques such as prolonged observation and source triangulation were employed. Furthermore, the data analysis procedures followed the stages of data reduction, data display, and conclusion drawing (Afrizal, 2016).

RESULTS AND DISCUSSION

This research was conducted at SMK Negeri Kudu during the 2024/2025 academic year, beginning on March 8 and continuing through March 15, 2025. The objective of the study was to describe how the use of *Tangkas Berobservasi* mobile learning, based on the BOM ATOM model, impacts the teaching of observation report writing. In addition, this study aimed to explain the implementation process, student responses, learning outcomes, and challenges encountered in the instruction of observation report texts using the *Tangkas Berobservasi* media.

The findings of the research are described in the following sub-sections: (1) Students' need for digitalized learning; (2) General overview of *Tangkas Berobservasi* media; (3) Implementation of observation report writing instruction using *Tangkas Berobservasi* media; (4) Student learning outcomes in writing observation report texts using the media; (5) Students' perceptions of the implementation of observation report writing instruction with the media; and (6) Constraints and challenges encountered during the learning process.

Students' Need for Digitalized Learning

In designing the instructional media, the first step taken by the researcher was to distribute a needs-assessment questionnaire regarding the learning process. The survey was administered to 92 respondents, all of whom were vocational high school (SMK) students. The questionnaire was distributed conveniently through WhatsApp groups and social media platforms.

Based on the results, 94.6% of students agreed that learning activities in Indonesian language instruction are engaging and enjoyable. Furthermore, 82.6% of students agreed

that the Indonesian language learning process should consistently utilize engaging instructional media. Regarding the use of interesting media, 97.8% of students expressed agreement and enthusiasm when such media were incorporated into learning activities. This engaging media was subsequently used in the instruction of writing observation report texts. This suggests that multimodal content delivery—incorporating different formats—is not only desirable but essential to cater to different learning styles (Fleming & Baume, 2021).

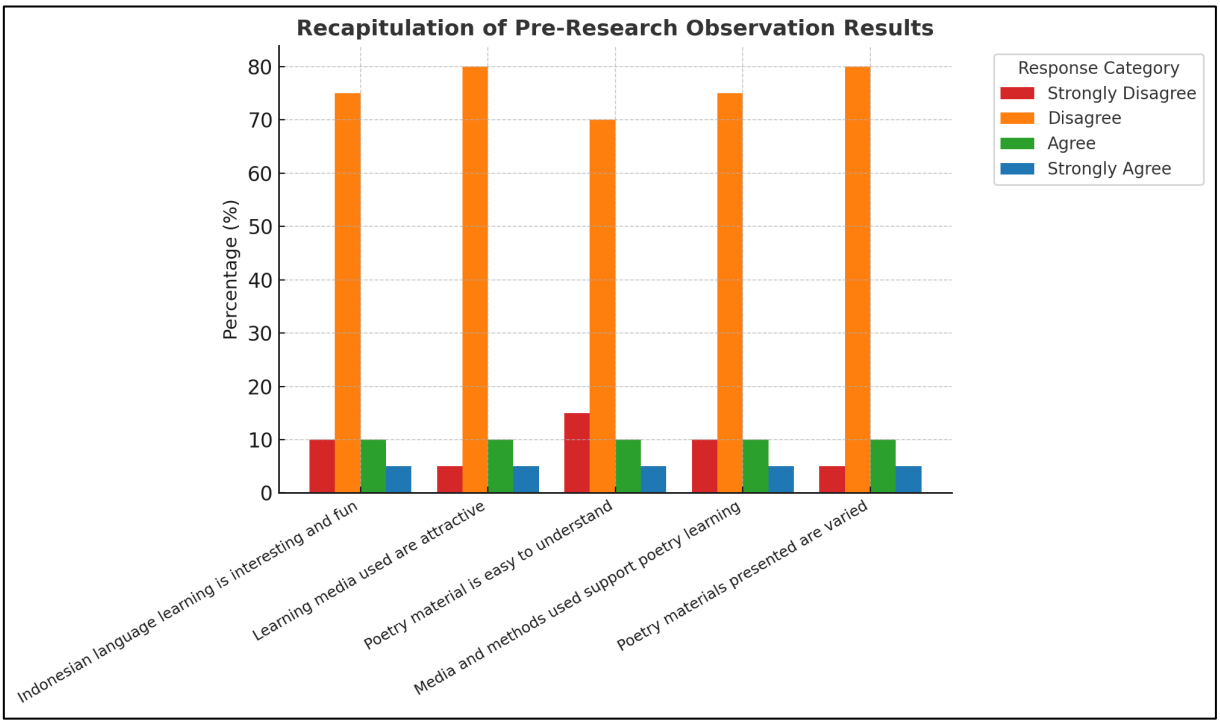

Figure 1. Recapitulation of Pre-Research Observation Results

The chart displays student responses to five indicators, each rated using a four-point Likert scale (*Strongly Disagree, Disagree, Agree, Strongly Agree*). The overall distribution of responses reveals a strong inclination toward the adoption of digital media and mobile technology in learning processes. A substantial proportion of respondents indicated agreement or strong agreement with the preference for smartphone-based digital assessments. This reflects a growing acceptance of mobile-assisted assessment as a practical and accessible tool for measuring learning outcomes.

The second item highlights students' preference for assessment methods that not only focus on assignment completion but also value active participation. This aligns with the current trend in education toward authentic assessment models that incorporate behavioral engagement and active learning components (Maxwell, 2012).

Responses show a clear preference for reading learning materials on smartphones instead of printed textbooks. This finding that digital natives increasingly favor portable and easily accessible reading formats. However, the pedagogical implications call for careful digital content design to maintain readability and engagement. The majority of students expressed a positive response toward learning environments that incorporate both traditional textbooks and smartphones. This dual approach resonates with the TPACK (Technological Pedagogical Content Knowledge) framework, which advocates for seamless integration of technology into pedagogy (Mishra & Koehler, 2006). The final item underscores the role of engaging digital media in enhancing the learning experience. Students indicated that they find learning more stimulating when supported by interesting media formats.

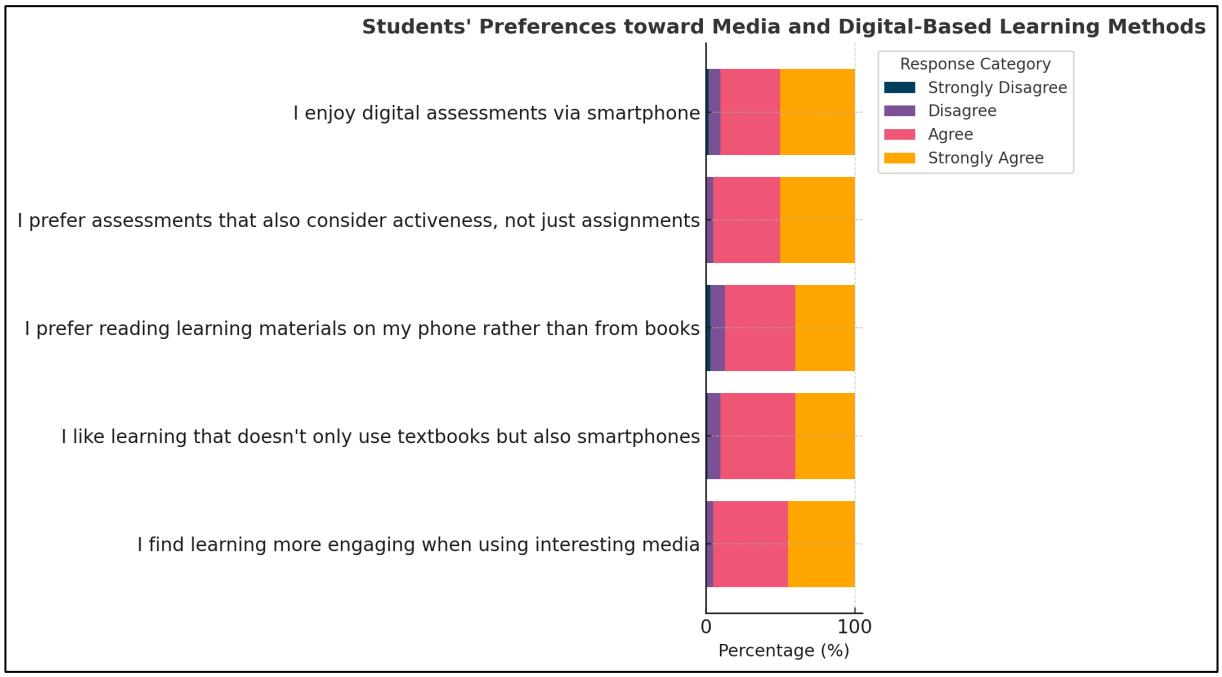

Figure 2. Students' P references toward Media and Digital-Based Learning Methods

Overview of the Mobile Learning Media

The results of the needs analysis indicated that students are more interested in engaging and smartphone-based learning media. One instructional media model that teachers can utilize is mobile learning, which relies on technology and mobile devices. This model must include several key features, such as the ability to connect with other devices, particularly computers; the capacity to deliver instructional content; and the functionality to facilitate communication between teachers and students. The following is the prototype design of the mobile learning media developed in this study.

The initial interface presents an illustration of students enthusiastically engaging with the topic of observation report texts. This section serves as the landing page of the

M-learning application, which functions as the medium for the teaching and learning process of observation report writing. It also displays the learning objectives, which focus on enhancing students' ability to write observation report texts. The subsequent section includes initial instructions for using the application. Here, students are prompted to fill in personal information before progressing through the challenges embedded in each section of the media menu.

Figure 3. Tangkas Berobservasi Menu

After logging in, students are presented with the main menu containing the various features they will explore. This menu interface is designed in alignment with the learning objectives and constructed in an engaging manner to motivate students to participate actively in the learning process, consistent with the results of the needs questionnaire. The evaluation component is designed to assess students' comprehension, not only through assignments but also via self-assessment and reflection.

In the reading skills section, students are provided with a complete observation report text accompanied by an analysis example to enhance their understanding of the material. In addition, relevant theoretical concepts pertaining to the elements of observation report texts are presented according to the students' needs. This section also stimulates students' creativity, enabling them to generate their own ideas for comprehending and analyzing the content of observation texts. Beyond presenting content on observation report texts (LHO), the media also incorporates a series of challenges that students must complete. These challenges aim to assess students' ability to fully understand observation texts. This section is designed to provide students with structured guidance in developing their talents.

At this stage, students are encouraged to express their thoughts and creative ideas both orally and in writing. Throughout the learning process, writing skills must be demonstrated. This media enhances students' writing abilities by offering a *Tangkas Berobservasi* perspective that outlines how to write creatively, gather ideas from everyday experiences, and articulate those ideas effectively. Once students are able to write observation report texts with the support of the media stimuli, they are expected to complete a project. This project comprises several stages, from selecting a theme and collecting data collaboratively, to independently producing a final observation report text.

The media includes a *Creative Project* menu, in which the researcher has provided student worksheets for use throughout the project. Additionally, there is a *Motivation* menu designed to cater to students' daily experiences during the observation and interview phases. The purpose of these components is to enable students, during implementation, to enhance both their digital literacy and their ability to write observation report texts.

Figure 4. Student Reflection Chart

The final section of the *Tangkas Berobservasi* media presents a rubric for students to reflect on what they have learned and their impressions of the learning process. This

section serves as feedback for educators to assess students' understanding and needs. It may also serve as a guide for applying the media in future learning materials.

Implementation of Learning using *Tangkas Berobservasi* Mobile Learning in Writing Observational Report Texts

The implementation of *Tangkas Berobservasi* mobile learning in teaching students to write observational report texts was carried out in three stages: preparation, implementation, and evaluation. The research was conducted directly by the researcher, assisted by a peer who is an Indonesian language teacher at SMK Negeri Kudu, Jombang. This collaboration aimed to minimize subjectivity in the research and to ensure time efficiency during the teaching process.

In the first stage, instructional administration was prepared, and students were introduced to the *Tangkas Berobservasi* media. In the second stage, the learning process was implemented by following the instructional steps from the preliminary activities to the closing activities, incorporating a reflection component. The third stage involved evaluating the learning process, identifying both successful and less successful outcomes. The analysis results showed that 57.4% of students strongly agreed, and 33.8% agreed that *Tangkas Berobservasi* serves as an effective alternative assessment medium.

The data indicates that the use of *Tangkas Berobservasi* mobile learning yielded positive results. During the learning activities, students reported feeling happy, enthusiastic, motivated, and actively engaged. This is consistent with the theory proposed by Ozdamli & Cavus (2011), which states that the engaging features of mobile learning increase students' interest and motivation to learn. Mobile learning typically includes features such as learning, practicing, playing, and evaluating, while the *Tangkas Berobservasi* media includes functions for sending messages, commenting, and engaging in discussions.

Previously, learning media consisted mainly of textbooks. The learning process significantly improved through the use of mobile learning and the assessment variations applied by the researcher. This improvement is attributed to the use of technological tools, such as mobile phones, during classroom instruction. Mobile phones, in particular, are favored by students and align with the characteristics of the Industry 4.0 era, which emphasizes the use of technology. Therefore, the implementation of *Tangkas Berobservasi* mobile learning in writing observational report texts provided students with an enjoyable and novel learning experience.

Based on interviews conducted by the researcher, it was found that learning evaluations were previously conducted through assignments and daily tests administered after lessons. Although there were assessments of student participation, these were not always consistently applied, and students were unaware of the characteristics of the assessment process. This made the evaluation process feel monotonous. In contrast, authentic assessment supported by *Tangkas Berobservasi* encouraged greater student engagement and enthusiasm, as the assessments were conducted in a more open and transparent manner.

Students' Learning Outcomes in Writing Observational Report Texts

Students' learning outcomes refer to the academic achievements attained through assignments and tests, as well as their active participation in asking and answering questions that support the learning process. According to Saputra et al. (2019), there are several variables that influence student learning outcomes, including internal variables originating from within the student and external variables derived from the student's environment. Learning outcomes are defined by the extent to which students achieve specific performance criteria as measured by predetermined scores.

Assessment of students' learning outcomes in writing observational report texts was conducted through two types of evaluation: informal assessment based on teacher observation, question rubrics, and checklists; and formal assessment through the submission of individual assignments in the form of observational report texts. Teacher observation was carried out using a behavioral journal rubric, which recorded students' performance throughout the learning process. The results indicated that using the *Tangkas Berobservasi* mobile learning media encouraged students to be more active, creative, enthusiastic, and innovative in expressing their ideas.

The question rubric was implemented through a checklist of student participation in responding to questions. These questions were delivered in two formats: via mobile learning media and orally by the teacher. However, students were not expected to answer immediately or compete to respond verbally. Instead, they accessed an evaluation link shared by the teacher and submitted their responses to a shared discussion wall. The checklist data showed that out of 36 students in the class participating in the study, the majority answered the questions posed by the teacher; only five students did not respond. This result is positive, as it indicates active engagement, with some students responding to more than three questions through the shared link.

Self-assessment is one method for evaluating students' self-concept. The benefits of self-assessment include enabling educators to gain insights into students' strengths and weaknesses, providing students with an opportunity to reflect on their actions, allowing them to assess their responses independently, fostering intrinsic motivation, encouraging greater student participation, and serving as a reference for tracking student development. Through self-assessment, students can measure their learning progress, assess their mastery of the material, develop honesty and independence, identify areas needing improvement, and gain a better understanding of their abilities. Educators also receive meaningful feedback on student comprehension, making it easier to conduct remedial instruction and to reflect on the effectiveness of the learning process. In the context of writing observational report texts, students completed a reflection journal distributed by the teacher.

Students' Perceptions of the Implementation of Writing Observational Report Texts using *Tangkas Berobservasi* Media

To assess students' responses toward the implementation of the *Tangkas Berobservasi* mobile learning platform in writing observational report texts, a questionnaire was distributed. The questionnaire was administered to 28 students using a Likert scale. There were two answer options provided: yes and no. The questionnaire consisted of 10 items related to the learning process that had been conducted. The indicators in each item were designed to reflect students' perceptions of the application of *Tangkas Berobservasi* in the learning of observational report writing.

Although the questionnaire was distributed to 36 students, the responses collected from 28 participants revealed a variety of perspectives. After compiling and analyzing the data from the 10-item questionnaire, the results showed a generally positive trend in student responses. Based on the distributed survey, students reported feeling happy, active, and communicative during the learning activities. They were able to engage easily in the learning process, participate in assessments integrated throughout the lessons, and share their learning experiences through the reflection rubric. Students' interest in the learning media contributed significantly to these outcomes. The use of diverse materials—such as videos, images, and PowerPoint presentations—within the mobile learning platform enhanced the appeal of the lessons and made the learning process more flexible and enjoyable for students.

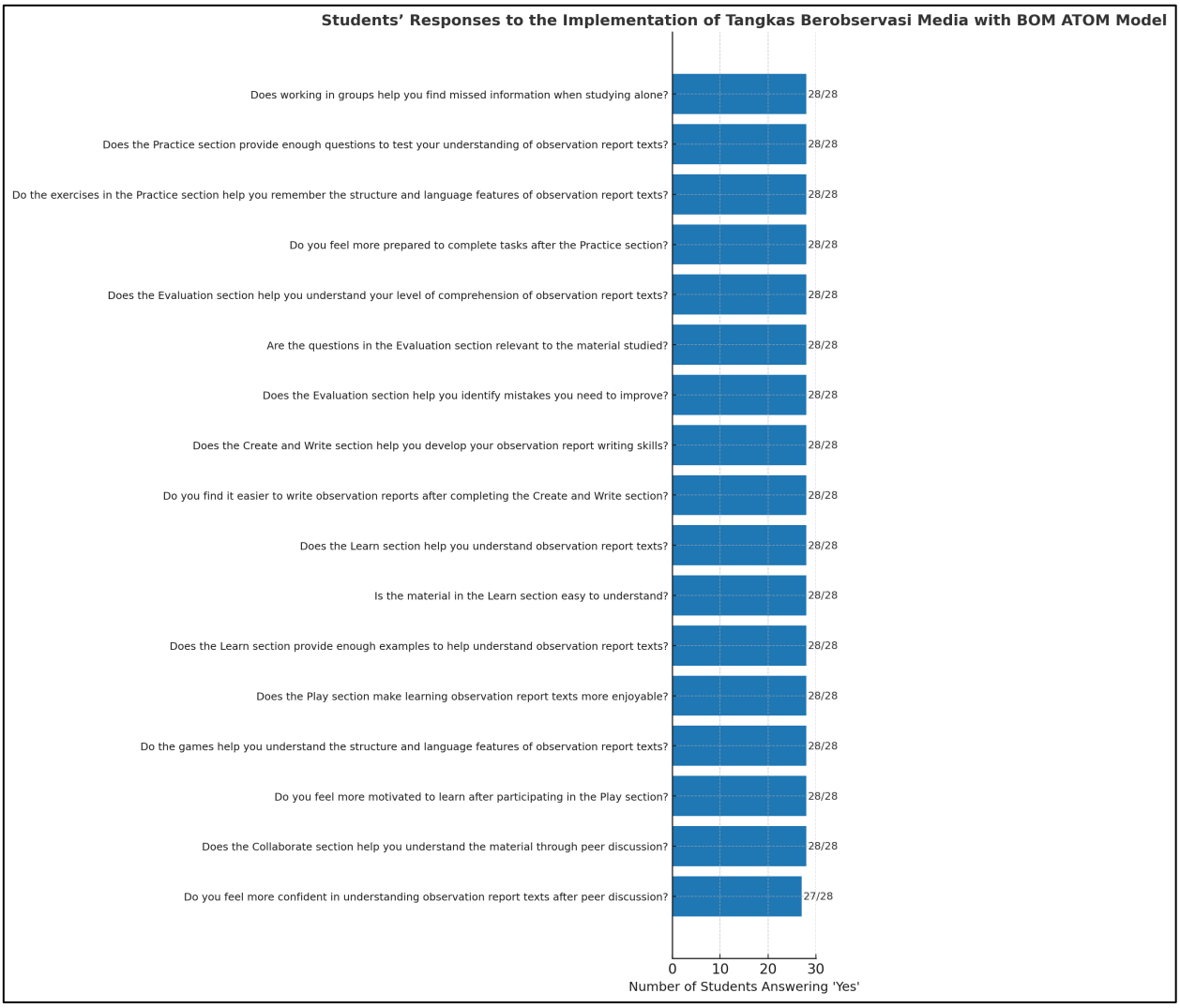

Figure 5. Student Responses to the Implementation of Tangkas Berobservasi Media with BOM ATOM Model

The data presented in the bar chart illustrates students' perceptions regarding the implementation of the *Tangkas Berobservasi* media, facilitated through the BOM ATOM learning model, during the learning of observation report texts. The responses are overwhelmingly positive, as evidenced by the near-universal selection of "Yes" across all measured indicators. All 28 respondents (100%) agreed that each segment of the BOM ATOM model—particularly the *Learn*, *Practice*, and *Evaluation* sections—facilitated their comprehension of the structure and language features of observation report texts. Specifically, items such as “Do the exercises in the Practice section help you remember the structure and language features of observation report texts?” and “Does the Evaluation section help you understand your level of comprehension of observation report texts?” received unanimous affirmation.

This indicates that the model's segmentation of learning activities aligns with *scaffolded instruction* theory, where learners benefit from structured, staged guidance

(Vygotsky & Cole, 1978). Moreover, the “Practice” and “Evaluation” components serve as formative assessments that, as Black & Wiliam (1998) argue, significantly enhance learning when used to inform instruction and provide feedback.

The “Play” section, which integrates gamified elements, was unanimously appreciated for enhancing the enjoyment of learning (“Does the Play section make learning observation report texts more enjoyable?” – 28/28). Furthermore, all students reported feeling more motivated after participating in this section. This finding is consistent with the literature on gamification in education, which has been shown to foster increased motivation and engagement, particularly when integrated with pedagogically meaningful tasks (Deterding et al., 2011; Hamari et al., 2014). The BOM ATOM model leverages this by embedding playful elements in a structured academic framework. The *Collaborate* section also received high approval, with 28 out of 28 students acknowledging its role in enhancing understanding through peer discussion. Notably, 27 students (96.4%) also reported increased confidence in understanding observation report texts after peer discussions.

This supports the role of social constructivism, as theorized by Bandura (1986) and later by Lave & Wenger (1991), who emphasized that learning is not solely an individual cognitive process but also a social one. Peer interaction fosters deeper understanding through negotiation of meaning and shared construction of knowledge. The *Create and Write* section, which tasks students with composing their own observation report texts, was also universally seen as helpful. Students indicated that the process of creating and writing reports post-instruction contributed positively to their writing skill development and task completion ability. This aligns with the *process writing* approach, which emphasizes drafting, revising, and constructing texts in meaningful contexts to promote writing competence (Grabe & Kaplan, 2014). The BOM ATOM model appears to support this approach effectively.

Challenges and Obstacles Encountered During the Learning Process

The learning process using mobile learning in writing observational report texts, while offering numerous advantages and benefits across various aspects, also presents certain limitations. Data regarding the challenges and obstacles were collected through interview instruments. These interviews aimed to identify the difficulties experienced during the implementation of the learning process.

Interviews were conducted with 30 students at the end of the learning session in the classroom. Each student was provided with a guided interview sheet consisting of four

open-ended questions related to challenges encountered during the lesson. Based on the interview results, the majority of students expressed enjoyment in learning through the *Tangkas Berobservasi* mobile learning platform. However, they also reported several challenges, including network issues, limited memory capacity, and low RAM on their mobile phones.

The first major challenge was related to unstable network or signal issues. This problem arose because the classroom Wi-Fi network was experiencing technical difficulties, particularly when accessed simultaneously by multiple users. To address this, the researcher advised students with sufficient personal data plans to use their mobile data instead of relying on the shared Wi-Fi connection.

The second challenge concerned the limited storage capacity on students' mobile phones. Most students' phones were already filled with various applications and documents, which resulted in slower performance of the mobile learning platform and hindered the overall learning process. Another issue was the frequent occurrence of errors within the application, particularly in menu navigation. These technical problems were mainly attributed to the limited RAM of the students' devices and inconsistent signal strength.

The challenges encountered during the use of the *Tangkas Berobservasi* mobile learning platform in writing observational report texts serve as valuable feedback for evaluation. These findings will inform future improvements and the development of appropriate solutions to ensure a smoother and more effective learning experience in subsequent implementations.

CONCLUSION

This study examined the implementation of mobile learning through the *Tangkas Berobservasi* platform in teaching observational report text (LHO) writing at SMK Negeri Kudu, Jombang. *Tangkas Berobservasi* mobile learning media, developed based on the BOM ATOM model, effectively addresses the needs of vocational high school students for engaging and relevant digital-based learning. The needs analysis showed that the majority of students prefer technology-based learning media that support active interaction in the learning process. This preference formed the foundation for developing a media that integrates various multimodal formats to accommodate diverse learning styles.

The design of the *Tangkas Berobservasi* media was systematically developed by considering essential components in digital learning, such as content delivery,

interactivity, and authentic assessment. Each menu within the application corresponds to the stages of the BOM ATOM model. These features provide a comprehensive and in-depth learning experience, from material introduction to learning reflection.

The implementation of this media in teaching observation report texts yielded positive results. Students demonstrated increased motivation, active engagement, and better understanding of the material. Evaluation through assignments, observation, and self-reflection showed that students were able to express their ideas in a more structured and creative manner. The media also facilitates collaboration and enjoyable writing practice.

Student responses to the media usage were very positive. All aspects of the BOM ATOM model were found to help their understanding of the structure and language features of observation report texts. The *Play* and *Collaborate* sections received high appreciation for fostering learning enthusiasm and boosting confidence through peer discussion. This shows that learning is not only individual but also social and participatory.

Nevertheless, some challenges were identified during implementation, such as internet connectivity issues, limited device memory, and performance problems on phones with low RAM. These technical issues can be addressed through further system development and infrastructure improvement. Evaluating these obstacles provides valuable input for future media refinement.

Overall, the *Tangkas Berobservasi* media based on the BOM ATOM model proves effective in improving the quality of learning observation report texts in vocational schools. This media enhances not only cognitive learning outcomes but also strengthens affective aspects and 21st-century skills such as collaboration, communication, creativity, and digital literacy. Therefore, it can serve as an innovative alternative in technology-based learning within vocational education settings.

Compared to previous studies on mobile-assisted language learning (MALL), which underscore the importance of learner autonomy, motivation, and digital engagement (Kukulska-Hulme & Shield, 2008; Viberg & Grönlund, 2013), this study contributes by demonstrating the specific benefits and obstacles of mobile-based instructional tools in the context of writing skill development within vocational secondary education. It also reinforces the findings of more recent studies emphasizing the pedagogical affordances of mobile technology in Indonesian classrooms (Cahyono & Astuti, 2019; Rosiva, Kuswandi, & Soepriyanto, 2022).

Future research should address the technical constraints experienced during implementation by incorporating more comprehensive infrastructure assessments and

providing digital literacy support to both teachers and learners. Longitudinal studies may also be conducted to assess the sustainability and long-term impact of mobile learning platforms on students' writing competencies and critical thinking skills.

ACKNOWLEDGEMENTS

The author would like to thank the entire academic community of Universitas Negeri Surabaya and Beasiswa Pendidikan Indonesia (Ministry of Primary and Secondary Education) of the Republic of Indonesia.

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