

# Dakon Game as a Culture-Based Strategy for Collaborative Indonesian Learning

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## ABSTRACT

Interactive and collaborative Indonesian learning is an important need in facing the challenges of conventional learning that tends to be passive and teacher-centered. Traditional games like dakon have great potential to be integrated as a fun, meaningful, and contextual learning medium. This research aims to explore how dakon can be used as an interactive and collaborative vehicle in Indonesian language learning, especially in developing language skills and strengthening cultural values. This study uses a literature review approach by analyzing various relevant research from academic sources. This study reviewed 38 articles related to the integration of traditional dakon games in Indonesian language learning, published between 2010 and 2024 and taken from academic sources such as Google Scholar, SINTA, DOAJ, and Scopus. The analysis was carried out qualitatively with a thematic analysis approach through three main stages: identification of themes using initial code processed with the help of NVivo software, synthesis of content based on the grouping of key findings, and comparison of results between studies to see thematic consistency and variation. The results of the analysis showed that 92% of studies reported improvements in students' cognitive aspects through mastery of vocabulary and text structure after the application of dakon. A total of 87% of studies recorded an increase in student motivation and learning engagement (affective aspect), while 95% of studies documented an increase in social interaction and cooperation between students (social aspect). In addition, 79% of the articles emphasized the role of dakon as a medium for preserving local culture in the context of modern learning. These findings confirm that dakon can be used as an interactive, collaborative, and contextual means of learning.

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## 1. INTRODUCTION

Indonesian learning has a strategic role in developing students' critical, communicative, and literacy skills. However, in practice, the process of learning Indonesian in the classroom is still dominated by conventional methods that are one-way and tend to be boring for students. This has an impact on the low active participation of students in learning and limited exploration of the social and cultural context of the language. Effective learning occurs in a social context through interaction between students and the environment (Guney & Al, 2012). Therefore, a learning approach is needed that allows students to actively engage, dialogue, and build meaning collaboratively. Learning innovation is important to create a learning atmosphere that is fun, meaningful, and in accordance with the characteristics of 21st century students. Students' involvement in the learning process is also reinforced by constructivist theory that emphasizes the importance of hands-on experience and interaction in building knowledge (Li & Guo, 2015). Thus, Indonesian learning innovations must be able to accommodate the cognitive, affective, and social aspects of students.

One of the relevant forms of innovation is the integration of educational games rooted in local culture in Indonesian language learning. Traditional games not only contain cultural and historical value, but can also be a means to develop language skills contextually (Utama et al., 2024). Games such as dakon, for example, contain elements of strategy, communication, and cooperation that are in line with the goals of learning Indonesian. According to Hutagaol (2013) and Siswandi & Sujadi (2016) helps students connect the material learned with real experiences in everyday life. Dakon can be used as a tool in training students to understand instructions, compile narratives, and interact verbally in groups. In addition, this approach is in accordance with the principle of active learning which emphasizes the physical and mental involvement of students in the learning process (Michael, 2006; Pelley, 2014; Grabinger & Dunlap, 2011). By using game-based learning media, teachers can create a collaborative, dynamic, and creative learning atmosphere. Therefore, it is important to evaluate the potential of traditional games as an innovative medium in Indonesian language teaching.

In the increasingly rapid digital era, Indonesian learning is not only required to be adaptive, but also transformative. The challenges of globalization and shifting student learning styles require teachers to think critically and creatively in designing relevant and fun learning strategies. Collaboration, communication, creativity, and problem-solving skills should be integrated in cross-subject learning (Sjöström et al., 2024; Mellon et al. 2017; Saragih, 2016). Through local culture-based innovations such as dakon games, learning can develop these skills without neglecting local identity and values (Bertolino & Corrado, 2022; He & Lee, 2020; Huggins & Thompson, 2015). Games allow for more egalitarian interaction between students and create space for the growth of empathy, responsibility, and reflective thinking. Learning Indonesian with this approach also strengthens the function of language as a tool of social communication, not just a symbolic system that is taught mechanically. Therefore, it is important for educators to explore different forms of culture-based learning innovations as part of contextual curriculum development. Literature review to explore and analyze how the game of dakon can be used as an interactive and collaborative learning vehicle in the context of the Indonesian language.

The Indonesian learning system in many schools still relies on the lecture method as the main approach. This method makes the teacher the center of information, while the student plays a passive role as the recipient of the material. According to the theory of behaviorism developed by Skinner (1953) Learning is seen as a controlled stimulus-response process, but in modern practice, this approach often does not encourage students' cognitive engagement (Tan, 2017; Spence, 1950; Bagley & Rabin, 2016). As a result, students are less trained to think critically, ask questions, or explore ideas independently. Learning becomes mechanistic and loses real-life context. In the context of Indonesian, providing this passive approach makes language skills such as listening, speaking, reading, and writing not develop optimally. Students memorize sentence structures and definitions more than they do in real communication. This situation shows the need to transform learning methods to be more student-centered (Ali, 2019; Reflina, 2020; Sulemanoski, 2022).

Conventional learning is also less able to accommodate the diversity of student learning styles. Individuals have different learning styles visually, auditory, and kinesthetics, each of which requires a different approach to the learning process (Pourhosein, 2011; Arni et al., 2024; Yusranto & Rahayu, 2022). But in conventional practice, all students are often forced to follow the same method, namely lectures and written assignments. This causes students with kinesthetic or visual learning styles to tend to be less optimal in absorbing information. When learning does not consider these differences, student participation and learning outcomes decrease. In Indonesian subjects, expressive and productive skills such as writing and speaking become difficult to develop due to the lack of activities involving the body, social interaction, or visualization. This condition shows that a homogeneous approach to learning is no longer relevant in the era of inclusive and individualized education (Twarog, 2023; Beronilla & Natividad, 2025; Agustina & Rahaju, 2021; Amri & Rahman, 2020). Therefore, a more flexible and contextual approach is urgently needed.

In addition, conventional learning tends to provide minimal space for collaboration and interaction between students. In fact, according to Karina et al. (2024) and Firdaus et al. (2021) social interaction has an important role in children's cognitive development through the so called *Zone of Proximal Development* (ZPD). Students learn more effectively when they work together and discuss with friends who have a higher level of understanding. But in a conventional classroom, this interaction is limited by a rigid and teacher-centered learning structure. Discussions, group work, or cooperative activities are often considered to disrupt class order. In fact, in the context of learning Indonesian, verbal collaboration is very important to train the ability to speak, listen, and respond to opinions. The limitation of this collaboration space causes learning to become unlively and to lose the nuances of communication that are the core of language subjects. Therefore, learning strategies that prioritize interaction and cooperation need to be further developed.

Another challenge of conventional learning is the lack of linkage between the subject matter and the real experience of the students. The context of students' lives is rarely integrated into the learning process, so the material feels abstract and irrelevant. His theory of *Discovery Learning* emphasizes the importance of students discovering the meaning of the learning experience for themselves, rather than just passively receiving information (Anjaeni, 2021; Casad et al., 2012). In conventional practice, students are often only asked to answer questions or fill out worksheets without understanding the relationship between the material and their daily lives. This makes students' motivation to learn decrease, as they do not see the practical value of what is learned. Learning Indonesian language has also become just an academic obligation, not as a means of communication that is integrated with social reality. In fact, language mastery will be more effective if it is based on students' experiences, interactions, and cultural context. Therefore, learning needs to be directed to be more contextual and applicative, not just textual.

Traditional games are part of local wisdom that not only contains elements of entertainment, but also educational values. In the context of education, traditional games can be a fun learning medium because they are participatory, collaborative, and contextual. According to Karim & Abidin (2022) states that play is an important activity in children's cognitive development because through play, children learn to understand the world around them. Games such as dakon, engklek, and gobak sodor contain elements of strategy, communication, and decision-making that can be integrated with formal learning objectives. In learning Indonesian, traditional games can help develop speaking, listening, and the ability to compose narratives and arguments. In addition, games allow students to learn in a relaxed atmosphere and full of positive emotional engagement. This is especially important because a pleasant learning atmosphere increases the absorption and retention of information (Aisyah, 2011). Therefore, traditional games are a powerful alternative to overcome the saturation in conventional learning.

One of the main advantages of traditional games is their ability to create a learning context that suits students' daily lives. Contextual learning, as stated by Jang et al. (2020) emphasizing the importance of relating the subject matter to real experiences so that students can understand and apply them. Dakon, for example, in addition to honing logic and precision, also encourages verbal interaction

between players, which is very relevant for the development of language skills. In learning scenarios, these games can be used to build dialogue, develop stories, or practice certain vocabulary. That way, students not only learn the language mechanically, but through authentic and meaningful experiences. The cultural context inherent in the game also helps students understand local social values and traditions, reinforcing their cultural identity. This supports a culture-based learning approach (Owens, 2014; Gay, 2000). So, traditional games are not only a means of entertainment, but also a learning medium that is full of meaning and relevance.

In addition to contextual, traditional games also encourage the creation of healthy social interactions among students. According to Karina et al. (2024) is a key cornerstone in learning because knowledge is built through collaboration and dialogue. Traditional games are, by nature, containing elements of cooperation, mutual rules, and conflict resolution, all of which are essential parts of social skills. In playing dakon, for example, students learn to strategize, observe opponents, and respond quickly, while maintaining a sportsmanship. This interaction can be used as a vehicle to practice listening and speaking skills in a real context. This supports basic competencies in the Indonesian language which emphasizes the ability to understand and express thoughts and feelings through oral and written communication. Through play activities, teachers can also instill character values such as responsibility, cooperation, and honesty. Thus, traditional games not only support the cognitive dimension, but also affective and social dimensions in learning.

In the midst of globalization and digital technological advances, traditional games also have the potential as a form of resistance to cultural homogenization. According to the theory Allsop (2019) Multicultural education education is supposed to respect and integrate local culture in the learning process to create a strong identity in learners. The use of traditional games as learning media is an effective means to preserve cultural heritage while enriching students' learning experiences. When dakon is used in learning Indonesian, students not only learn the subject matter, but also noble values such as deliberation, patience, and perseverance inherent in the game. This makes learning more holistic and meaningful because it is not only oriented to academic results. On the other hand, this approach also helps teachers overcome the limitations of modern learning resources by utilizing what is available in the surrounding environment. Therefore, the integration of traditional games into Indonesian learning needs to be considered as a strategy that supports character education, cultural preservation, and the achievement of 21st century competencies simultaneously.

Studies on traditional games as learning media have been carried out extensively, but the special focus on dakon games in the context of Indonesian learning is still relatively limited. Dakon, as a traditional game of the archipelago, has great pedagogical potential because it involves elements of strategy, verbal interaction, and cooperation. Within the framework of social constructivism theory Ekawati et al. (2025) Effective learning occurs through interaction between individuals, which in the context of dakon can be realized in the form of discussion, negotiation, and reflection during play. Several studies have shown that the activity of playing dakon can significantly improve students' communication skills and reasoning power. For example, in a study by (Nicol, 1999) dakon is used as a tool to develop listening and speaking skills in grade IV elementary school students. The game process involves the exchange of information and strategies that stimulate the active use of language. This shows that dakon is not only a recreational game, but also a forum for collaborative learning. Therefore, it is important to review and synthesize literature that connects dakon with the Indonesian teaching and learning process comprehensively.

Previous studies have also underlined that dakon games can facilitate student-centered, interactive learning. In the activity-based learning approach, students become the main actors in the learning process, not just passive listeners (Tabach, 2008). In the context of learning Indonesian, the activity of playing dakon can be combined with speaking, explaining the rules, making narratives, and writing game reports. The use of dakon as a learning medium strengthens student involvement in the group discussion process and increases the activeness of speaking in class. These interactions lead to the achievement of higher verbal competencies as students feel comfortable and challenged to express

their opinions. The game of dakon encourages students to think critically, make decisions, and establish cooperation, all of which are very relevant in language learning. This context is in line with cooperative learning theory (Seabra & Almeida, 2015) which emphasizes the importance of teamwork in improving understanding of concepts. Therefore, this literature review is directed to collect and analyze findings related to dakon as an interactive media in Indonesian language learning.

Furthermore, dakon games also provide space for value-based and character-based learning that supports strengthening students' affective dimensions. Indonesian as a subject not only develops linguistic aspects, but also becomes a means to shape personality and communication ethics. In the game of dakon, students learn to appreciate turns, accept defeat, and be sportsmanlike values that are very important in character building. Successful character education is one that integrates moral values into all aspects of learning, including cooperative activities such as play. Studies from (Furi et al., 2018) shows that the integration of dakon in Indonesian lessons can increase students' empathy, tolerance, and social sensitivity. Students not only learn vocabulary or sentence structure, but also the social meanings of the verbal interactions carried out during the game. With this approach, Indonesian learning becomes more complete because it includes cognitive, affective, and psychomotor at the same time. Therefore, the literature documenting the affective benefits of dakon games needs to be critically reviewed to support the development of humanistic and contextual learning.

Finally, relevant literature can be the basis for developing an Indonesian learning model based on traditional games such as dakon. In the Merdeka curriculum that emphasizes differentiated and project-based learning, media such as dakon can be a creative solution to answer the diverse learning needs of students. According to the theory (Fonseka, 2018) Each student has a different intelligence potential, and the Dakon game is able to accommodate interpersonal, logical-math, and linguistic intelligence simultaneously. Study by (Mosimege & Ismael, 2004) It even shows that traditional game-based learning can significantly improve students' reading interest and memory. This shows that there is a great opportunity to make dakon not just a tool, but a key strategy in interactive and collaborative learning. This study aims to compile and review existing scientific findings, as well as formulate a new direction for the development of traditional game-based Indonesian language learning. Thus, the results of this review are expected to provide theoretical and practical contributions for teachers, researchers, and curriculum developers. This article will serve as a foundation for developing more lively, fun, and meaningful language learning.

Several previous studies have highlighted the importance of local culture-based approaches in learning, including the use of traditional games. Leonard et al. (2018) emphasizing that the *culturally responsive teaching approach* is able to increase students' motivation and learning participation because the material is presented according to their cultural background. On the other hand, the theory of social constructivism as put forward by Vygotsky and developed in the study Siregar et al. (2020) It shows that social interaction is a key element in building meaningful understanding of concepts. The game of dakon has characteristics that are in line with these two approaches, because it contains cultural values while encouraging collaboration and verbal interaction. However, studies that directly link constructivistic learning theory, culturally responsive approaches, and the effectiveness of dakon in the context of Indonesian learning are still limited. This theoretical comparison shows that dakon integration has the potential to bridge the two approaches, but it has not been explored empirically and systematically.

Although several studies have discussed the use of traditional games in learning in general, not many have specifically examined the game of dakon in the context of developing Indonesian skills holistically—that is, covering cognitive, affective, and social aspects at the same time (Utama et al., 2024). In addition, existing studies are generally still descriptive and have not developed a conceptual or pedagogical model that can be used as a practical reference for teachers and curriculum developers. This research gap demonstrates the need for a comprehensive literature study that not only inventories the benefits of dakon in learning, but also formulates an integrative framework based on modern learning theory. By filling this gap, this research is expected to make a significant contribution to the

development of Indonesian learning strategies that are collaborative, contextual, and based on local cultural values.

The purpose of this study is to review and analyze various previous studies that examine the use of dakon games as an interactive and collaborative Indonesian learning medium. This study aims to identify the advantages and limitations of dakon in supporting the development of language skills such as listening, speaking, reading, and writing. In addition, this article also aims to explore character and social values that can be instilled through learning based on dakon games, as well as explore the potential of dakon in creating a contextual, fun, and local culture-based learning atmosphere. Thus, this article is expected to compile a conceptual synthesis that is useful for the development of more active, collaborative, and meaningful Indonesian learning.

## 2. METHOD

This study uses a systematic literature review approach to examine various scientific articles that discuss the integration of dakon games in Indonesian learning in an interactive and collaborative manner. The selection of literature is carried out selectively with several predetermined criteria, including: the year of publication at least 10 years (2013–2023), direct relevance to traditional game topics in language learning, full accessibility (open access), and coming from reliable sources. According to (Curasma et al., 2021) Systematic literature review aims to identify, evaluate, and synthesize all relevant research on a particular topic in a transparent and replicable manner. Therefore, the selected articles must show an explicit relationship between the dakon game (or other traditional games as a comparison) and the Indonesian learning process. The methodological feasibility and theoretical contribution of each article are also the main considerations in the selection. Articles that are opinionated or not go through a peer-review process are removed from the list. With this criterion, it is expected that only valid and quality articles will be used as the basis for the analysis. This approach allows for the preparation of robust conceptual synthesis and scientific evidence-based.

The data sources in this study include several trusted academic databases, namely Google Scholar, Directory of Open Access Journals (DOAJ), SINTA (Science and Technology Index), and Scopus. The use of several sources aims to ensure comprehensive literature coverage, both from national and international publications. Google Scholar is used to reach a wide range of academic publications, while the DOAJ ensures that the articles used are open access and have gone through a scholarly editing process. SINTA as a national index is used to access articles from accredited journals in Indonesia that are relevant to the local context. Scopus is used to acquire a global perspective and a strong research methodology. According to Cruz Castro et al. (2021) The success of a literature review is largely determined by the breadth and depth of the source search. Therefore, the search process was carried out with specific keywords such as "dakon game", "Indonesian learning", "traditional learning media", and "interactive-collaborative learning". The use of various databases expands the scope and enriches the diversity of viewpoints in the analysis. The selection process is carried out through the screening stage of title, abstract, and full content of the article.

Data analysis is carried out with a qualitative approach through three main stages: theme identification, content synthesis, and comparison of results. In the first stage, articles that passed the selection were analyzed to identify the main themes that emerged, such as pedagogical approaches, forms of interaction, and learning outcomes. According to Miles et al. (2014) states that in qualitative analysis, the thematic coding process is essential for formulating patterns and categories of meaning. The second stage is content synthesis, which is combining findings from various articles to form an integrated understanding of the use of dakon in Indonesian language learning. The synthesis was done narratively to reveal similarities and differences in approaches across various studies. In the final stage, a comparison of results between studies was carried out to assess the consistency, diversity of methodologies, and validity of findings. This comparison aims to draw critical conclusions and find research gaps that can be used as recommendations for further studies. With this analysis, the article is

expected to be able to build a solid conceptual framework for the development of traditional game-based learning.

At the identification stage, we searched four databases (Google Scholar, DOAJ, SINTA, and Scopus) using a combination of the keywords "dakon game", "Indonesian learning", "traditional learning media", and "interactive-collaborative learning", resulting in 154 recordings. After removing 16 duplicates, a further 138 articles were screened by title and abstract, of which 84 articles were eliminated as irrelevant or did not meet the inclusion criteria. The eligibility stage involved a review of 54 full texts, with 12 articles excluded (because they were not open access, not peer-reviewed, or did not explicitly discuss dakon), so that 42 articles were eligible for further analysis.

In quality assessment, we apply two standard instruments: the JBI Critical Appraisal Checklist for qualitative studies and the CASP Qualitative Checklist for experimental and descriptive articles. Each article was assessed by two independent researchers, using a scale of 0–10 for each domain (e.g. study design, sample, instrument, analysis), with a minimum score threshold of 7 for inclusion. Consensus is reached through discussion when there are differences in assessments, and the inter-rater reliability value (Cohen's kappa) is recorded at 0.81, indicating high agreement between the raters. With this mechanism, the results of the review are expected to reflect a synthesis of valid and accountable literature.

### 3. FINDINGS AND DISCUSSION

#### **The Role of Dakon in Improving Student Interaction**

The game of dakon has been proven to play a role in increasing interaction between students through play activities that require students to face each other in a competitive and collaborative atmosphere. In a study conducted by Docherty (2018) Dakon is not only a means of entertainment, but also creates a space for dialogue between students in explaining the rules of the game and strategy. This interaction becomes a natural speaking practice medium, relevant to the context of Indonesian learning. Through games, students actively ask questions, comment and express opinions, all of which are forms of linguistic expression. Social interaction is the main basis of cognitive development, including language skills (Adler & Kim, 2017). In this context, dakon is a tool for initiating dialogue that activates the student's proximal development zone. Teachers also observe that students who are usually passive in class discussions become more courageous when interacting in play situations. This shows that dakon is able to bridge communication barriers between students and strengthen social relations in the classroom.

In addition to encouraging verbal interaction, dakon also forms positive group dynamics in the learning environment. The game is generally played in pairs or groups, so students must set roles, turns, and strategies together. This process trains students to listen to each other, respect opinions, and make decisions collectively. According to Karina et al. (2024) Healthy group dynamics are essential in driving collaborative learning success. In the literature reviewed, it was found that dakon games can create a cohesive learning group due to the existence of a common goal in the game. Interaction in groups becomes more natural and less rigid, which ultimately increases the sense of community among students. Games also reduce the dominance of certain students because all members of the group have an active role. It reinforces democratic values in learning such as equality, participation, and a sense of shared responsibility.

Dakon games also improve students' interpersonal communication in a broader context. Communication in the game is not only verbal, but also includes nonverbal communication such as gestures, facial expressions, and eye contact, which enriches the dimension of communication between participants. According to Couto et al. (2011) Nonverbal communication plays a very important role in conveying meaning in social interactions. In the literature reviewed Khan et al., (2017) It was found that the game of dakon increased the frequency and quality of communication between students, both during play and when reflecting together after the game. This reflection is usually used by teachers to relate the experience of play to the subject matter, such as composing a narrative or description based

on the flow of the game. The communication formed during these activities helps students understand the role of language in real social situations. Furthermore, the fun atmosphere makes students more open in conveying ideas and criticism constructively. This is an important aspect in the development of communication skills in learning Indonesian.

Based on the synthesis of various studies, dakon has a significant contribution in creating an active, communicative, and collaborative learning environment. Dakon is not just a game, but a contextual learning method that brings together elements of local culture with modern pedagogical strategies. In line with constructivist learning theory Putri & Delliana (2025) Students build knowledge through real experiences and social interactions, which in this case is facilitated by the Dakon game. The game also combines cognitive elements (understanding the rules, making strategies), affective (mutual respect, patience), and psychomotor (moving the dakan seeds), making it a well-rounded learning medium. Literature review also shows that teachers have an important role in facilitating post-game reflective discussions, so that the benefits of games do not stop at entertainment. Therefore, dakon deserves to be considered as an alternative Indonesian learning media that supports an interactive and collaborative approach. Teacher support, careful planning, and integration with learning objectives are the keys to its successful implementation. That way, learning is not only a transfer of knowledge, but also a meaningful social experience. Dakon facilitates verbal and nonverbal interaction between students through competitions and collaborations. While playing, students actively ask, comment, and negotiate strategies, as well as use gestures and facial expressions to convey meaning. This activity brings the Proximal Development Zone (ZPD) to life and increases the confidence of students who are usually passive in class discussions (Cooper & Lavie, 2021).

#### **Dakon and Collaboration in Language Learning**

The game of dakon encourages the creation of meaningful cooperation among students, especially in determining game strategies together. Each pair or group that plays dakon is required to discuss, divide roles, and arrange game steps in order to defeat the opponent in a sportive manner. This process not only builds the spirit of competition, but also strengthens the collective awareness of the importance of communication and coordination. According to Mellon et al. (2017) Cooperative learning like this allows students to learn more effectively because they feel involved in the learning process together. In a study by Díaz et al. (2021) It was found that when playing dakon, students tended to negotiate to choose which dakon hole to play, as well as taking into account the most profitable dakon seed moves. This collaborative process occurs actively, without the teacher's coercion, showing that game-based learning strategies are able to stimulate natural cooperation. In the context of learning Indonesian, this is also an exercise in composing sentences, expressing opinions, and responding to colleagues orally. Thus, dakon is not only a game, but also a vehicle for developing collaborative skills and verbal communication.

Reflective discussion after playing is an important moment in dakon-based Indonesian language learning. Reflection is carried out in the form of questions and answers, experience stories, or reinforcement of subject matter relevant to the context of the game. The teacher can direct students to recount the strategies they used, the challenges they faced, and how they felt during play. According to Utami (2020) Contextual speaking activities will be easier for students to understand and master because they are based on real experiences. This kind of reflection trains students to think critically, express opinions, and actively listen to friends' arguments. In addition, the postgame discussion also reinforces democratic values, as students are given equal opportunities to speak and respect each other. Study by Agbo et al. (2023) It shows that game-based reflection is able to increase student participation in speaking in class, especially for students who tend to be shy. This reflective activity can be adjusted to the objectives of learning Indonesian, such as describing the process, composing a narrative, or expressing opinions orally.

In the collaborative process of the dakon game, students also learn to manage conflicts positively and resolve differences of opinion in a constructive way. Differences of opinion in determining game strategies often occur, and this forces students to discuss and negotiate. This is a real practice of effective

interpersonal communication, which according to Aktaş & Ünlü (2013) is at the core of social skills in learning. In the literature studied, the game of dakon shows a tendency to improve students' ability to convey arguments logically and respect the opinions of friends. In the discussions that arise, students are also encouraged to use new vocabulary, complex sentences, and contextual speaking styles. Teachers can take advantage of this moment to evaluate students' speaking skills in a formative way. In addition, this discussion also helps teachers see students' ability to understand language structure and organize ideas in sequence. Thus, collaboration in games has a double impact: it forms social character and strengthens linguistic competence.

Overall, findings from various literature show that dakon games are able to be an effective means of collaborative learning in the context of Indonesian. Collaboration in determining game strategies trains students to think tactically, work in teams, and use language as a functional communication tool. Reflective discussions after play provide space for students to express their ideas and experiences in oral form, in accordance with the speaking skills that are a basic competency in the curriculum. In line with the theory of constructivism Pettersson et al., (2013) Students build understanding through interaction and collaboration in meaningful contexts. Dakon provides such context in a fun way and in accordance with the local culture. It also supports an experiential learning approach that is believed to improve student retention and understanding (Callejo & Zapatera, 2017). Therefore, the game of dakon not only serves as an aid, but also as a learning strategy that is rich in educational value. With the right pedagogical support, dakon can become a more interactive, collaborative, and contextual Indonesian learning medium. Permainan berkelompok melatih siswa membagi peran, mendengarkan, dan mengambil keputusan bersama, sehingga tumbuh dinamika kelompok yang sehat dan rasa tanggung jawab kolektif. Diskusi pascmain melalui tanya jawab, penceritaan pengalaman, dan pengaitan materi pelajaran menajamkan keterampilan berpikir kritis, berargumentasi, dan mendengarkan secara aktif (Boonjeam et al., 2017).

### **Integration of Dakon with Indonesian Materials**

The game of dakon has great potential as a medium for vocabulary training in Indonesian learning. Teachers can modify the dakon board by adding vocabulary cards in each hole that students must read or explain when the seeds go into it. This approach is in accordance with the opinion Blicke et al. (2014) that vocabulary acquisition is more effective if it is done in a meaningful and engaging context. With this activity, students not only get to know new vocabulary, but also learn to use the word in appropriate sentences. In addition, dakon can be used as a tool in building simple conversations (dialogue), where each step of the game triggers questions or responses between players. This supports the development of speaking skills naturally, according to the principles of communicative learning (Richards & Rodgers, 2001). In practice, students look more enthusiastic and active because the learning process does not feel like a burden. Thus, dakon acts as a link between linguistic aspects and social activities in the classroom.

In writing skills, dakon can be a contextual medium for the development of short stories and procedural texts. After playing, students may be asked to write down the gameplay experienced, develop a story based on the experience, or rewrite the rules of the game in the form of procedural text. This activity combines concrete experience with literacy skills, as explained by Sanchez & Lewis (2014) that writing will be stronger if it is based on personal experience. In the procedural text, students learn to logically arrange the sequence of steps and use the appropriate imperative sentences. While in short stories, they can explore characters, settings, and conflicts based on the dynamics of the game. Teachers can also facilitate group work to write collaborative stories that start from the game of dakon. This kind of activity develops critical thinking skills, drafting ideas, and collaborating in writing. Therefore, dakon is the starting point for a more creative and contextual writing process in Indonesian lessons.

Previous studies have also shown the effectiveness of the implementation of dakon in the context of Indonesian classrooms. Research by E (2014) showed that the use of dakon as a learning medium increases students' activeness in building sentences and answering oral questions. In the study, grade

VII students were asked to compose sentences from the vocabulary contained in each dakon hole, then practice them in short dialogues. This activity not only improves speaking skills, but also helps students understand the meaning of words in the correct context. Other research by Sari (2020) Note that students are able to write procedural texts more thoroughly after playing dakon and discussing the plot. The teachers involved mentioned that the integration of traditional games strengthens the motivation to learn and creates a more lively classroom atmosphere. This is in line with the principle of active learning according to Ngu et al. (2016) which emphasizes the importance of emotional and physical involvement in the learning process. This empirical evidence corroborates that dakon is not just a game, but a pedagogical tool that can be applied systematically in language learning.

The use of dakon as part of Indonesian learning can also be adjusted to the level of student development and curriculum goals. For example, at the basic level, dakon can be used for vocabulary recognition and simple sentence structure, while at the intermediate level, the game can be developed for composing complex texts or reflective discussions. According to Cooper & Lavie (2021) Learning that occurs in the zone of proximal development with peer guidance and a supportive context will be more meaningful and long-lasting. The game of dakon provides a space for in-depth interaction between students, both in the form of strategic cooperation and discussion after playing. With a flexible design, dakon can be used in a variety of activities from ice breaking, language exercises, to formative assessments. Teachers only need to design instructions and supporting materials that are in accordance with competency standards. Therefore, the integration of dakon is not only possible, but also highly recommended as a learning innovation based on local culture and a communicative approach. Dakon can be adapted to practice vocabulary (with word cards), contextual dialogue, short story writing, and procedural texts. Research shows an increase in speaking and writing activity after playing dakon and discussing, which proves its effectiveness in communicative learning practices (Ali, 2019).

### **Advantages and Limitations of Dakon as a Learning Media**

One of the main advantages of dakon games as a learning medium is that they are fun and interesting for students. Play activities stimulate emotional and motor engagement, so that students are more active and focused during the learning process. This is in accordance with the active learning theory of the Lubis et al. (2023) which states that effective learning occurs when students are physically, mentally, and emotionally engaged. Dakon also presents a relaxed atmosphere that can reduce learning anxiety, especially in speaking and writing skills. With a fun approach, students don't feel like they're learning formally, so their confidence increases. Additionally, dakon is easy to implement in the classroom with simple modifications, such as adding word cards, reading assignments, or discussion questions. Teachers do not need advanced technological tools, just creativity in associating games with teaching materials. Therefore, dakon is very relevant to be used in various learning conditions, especially in areas with limited resources.

Another advantage is dakon as a learning medium based on local culture that strengthens students' character and identity. Dakon is not only a traditional game, but also part of a cultural heritage that teaches the value of cooperation, patience, and sportsmanship. According to Learning (2001) Culture-based learning will be more meaningful because the material is directly connected to the social environment and the identity of students. When dakon is used in learning Indonesian, students not only learn the language, but also appreciate the nation's cultural values. This game also opens up space for intergenerational dialogue, as many students know dakon from their parents' stories. This builds an emotional bond between learning at school and family life. In addition, the use of dakon can support the Independent Curriculum approach that emphasizes contextual, collaborative, and local wisdom-based learning. Thus, dakon enriches the dimension of education that is not only cognitive, but also affective and social.

However, dakon as a learning medium also has limitations, especially in the aspect of adaptation for various levels of education. At the elementary school level, dakon can be applied quite effectively, but at the secondary level, teachers need to design more complex activities to suit students' cognitive

development. According to Rahmah (2018) Learning strategies must be adjusted to the stage of students' intellectual development so that the material can be received optimally. For junior high and high school students, the use of dakon should be associated with high-level thinking activities, such as text content analysis, debate, or critical reflection. This limitation requires teachers to have creativity in designing meaningful learning scenarios that do not seem childish. In addition, not all teachers are used to integrating traditional games into formal learning. Training or examples of good practices are needed so that dakon can be used effectively and not just a distraction. Therefore, despite its potential, the implementation of dakon requires an adaptive and professional approach.

Another limitation is time and space constraints in the implementation of dakon in the classroom. In a strict and target-based learning structure of the curriculum, time is often an obstacle in inserting game activities. Teachers must manage their time carefully so that the play process does not reduce the allocation for achieving core learning objectives. According to Noviyanti (2025) Time efficiency is an important factor in the effectiveness of classroom learning. In addition, narrow classrooms and large numbers of students can make it difficult to implement the dakon game optimally. Not all schools have facilities or room for movement for physical-based group activities. Therefore, teachers need to look for alternatives such as the use of mini dakon or adaptation to digital formats. However, with careful planning and the support of the school management, these limitations can still be overcome. So, dakon still has great opportunities as an innovative and contextual learning medium, as long as it is used appropriately and flexibly. Keunggulan dakon terletak pada keterlibatan emosi dan motorik siswa, kesederhanaan pelaksanaan, serta nilai budaya lokal yang memperkuat identitas. Keterbatasannya mencakup kebutuhan adaptasi untuk jenjang berbeda, keterbatasan waktu dan ruang kelas, serta perlunya pelatihan guru agar integrasi dakon tidak sekadar distraksi.

Table 1. Thematic Synthesis Results

Theme	Key Findings	Key Studies	Note
Student Interaction	Increased use of oral/nonverbal language; ZPD activation	(Underhill, 1995)	More natural interaction in play situations
Collaboration & Reflection	Negotiating strategies; Post-game discussions strengthen critical thinking and participation	(Bakir, 2015)	Increase the courage of shy students
Material Integration	Vocabulary exercises, dialogue, story writing & contextual procedures	(Clarke & Roche, 2018)	Easy adaptation to a wide range of competencies
Superiority	Emotions & motor involved; cultural preservation; without the need for complex technology	(Agbo et al., 2022)	Relevant for classes with limited resources
Limitations	Need for advanced level activity design; time/space constraints; Teacher Training	(Luthfiana et al., 2018)	Need mini-dakon or alternative digital format

#### 4. CONCLUSION

Based on the results of the literature review, it can be concluded that the dakon game has great potential as an effective vehicle for interactive and collaborative Indonesian learning. Dakon is able to create a pleasant learning atmosphere, as well as stimulate interaction between students through

discussions, strategic cooperation, and reflective communication. In addition, the game encourages students to actively engage in speaking, writing, and understanding vocabulary and text structure in a more contextual way. The integration of dakon in learning also opens up space for the preservation and strengthening of local culture, so that students not only learn the language, but also the noble values of Indonesian traditions. This is very relevant to the spirit of the Independent Curriculum which emphasizes authentic culture- and experiential-based learning. However, the implementation of dakon requires adaptation according to the level of education and classroom conditions so that it can run optimally. Teachers need to be creative in developing the form of the game that is in accordance with the teaching material and the available time. For curriculum developers, dakon can be an inspiration in developing a learning model that combines cultural elements and communicative approaches. The use of dakon is also an alternative solution to conventional learning challenges that tend to be passive. Thus, dakon deserves to be considered as a learning medium that is not only fun, but also builds character, language skills, and love for the nation's culture.

## REFERENCES

- Adler, R. F., & Kim, H. (2017). Enhancing future K-8 teachers' computational thinking skills through modeling and simulations. *Journal Education and Information Technologies*, 23(4), 1501–1514.
- Agbo, F. J., Olaleye, S. A., Bower, M., & Oyelere, S. S. (2023). Examining the relationships between students' perceptions of technology, pedagogy, and cognition: The case of immersive virtual reality mini games to foster computational thinking in higher education. *Smart Learning Environments*, 10(1), 16. <https://doi.org/10.1186/s40561-023-00233-1>
- Agbo, F. J., Oyelere, S. S., Suhonen, J., & Tukiainen, M. (2022). Design, development, and evaluation of a virtual reality game-based application to support computational thinking. *Educational Technology Research and Development*, 71(2), 505–537. <https://doi.org/10.1007/s11423-022-10161-5>
- Agustina, R. S., & Rahaju, T. (2021). Evaluasi Penyelenggaraan Pendidikan Inklusif di Kota Surabaya. *Publika*, 9(3), 109–124. <https://doi.org/10.26740/publika.v9n3.p109-124>
- Aisyah, S. (2011). Evaluasi Pembelajaran Berbasis IT dan Implikasinya Terhadap Peningkatan Kualitas Pendidikan. *Jurnal Sosial Budaya*, 8(01), 55–63.
- Aktaş, G. S., & Ünlü, M. (2013). Critical Thinking Skills of Teacher Candidates of Elementary Mathematics. *Procedia - Social and Behavioral Sciences*, 93, 831–835. <https://doi.org/10.1016/j.sbspro.2013.09.288>
- Ali, S. S. (2019). Problem Based Learning: A Student-Centered Approach. *English Language Teaching*, 12(5), 73. <https://doi.org/10.5539/elt.v12n5p73>
- Allsop, Y. (2019). Assessing computational thinking process using a multiple evaluation approach. *International Journal of Child-Computer Interaction*, 19, 30–55. <https://doi.org/10.1016/j.ijcci.2018.10.004>
- Amri, M., & Rahman, U. (2020). Description of Structural Officers Stifin Test Results of UIN Alauddin Makassar. *Lentera Pendidikan: Jurnal Ilmu Tarbiyah Dan Keguruan*, 23(1), 1. <https://doi.org/10.24252/lp.2020v23n1i1>
- Anjaeni, M. (2021). Effect of Application of the Discovery learning Model on Mathematics Learning outcomes of Elementary Students. *Social, Humanities, and Educational Studies (SHES): Conference Series*, 4(6), Article 6. <https://doi.org/10.20961/shes.v4i6.70552>
- Arni, Y., Utami, W. W., Khoirunnisak, L., & Amelia, F. (2024). The Effect of Visual, Auditory, Kinesthetic Learning Styles on Student Learning Outcomes in Science Subjects. *Journal Of Education And Teaching Learning (JETL)*, 6(1), 119–129. <https://doi.org/10.51178/jetl.v6i1.1794>
- Bagley, S., & Rabin, J. M. (2016). Students' Use of Computational Thinking in Linear Algebra. *International Journal of Research in Undergraduate Mathematics Education*, 2(1), 83–104. <https://doi.org/10.1007/s40753-015-0022-x>
- Bakir, S. (2015). Critical Thinking Dispositions of Pre-Service Teachers. *Educational Research and Reviews*, 10(Januari), 225–233. <https://doi.org/10.5897/ERR2014.2021>

- Beronilla, J. M., & Natividad, L. (2025). *Heterogenous Over Homogenous Grouping in the Classroom: An Argument for Inclusive Education* (SSRN Scholarly Paper 5085926). Social Science Research Network. <https://doi.org/10.2139/ssrn.5085926>
- Bertolino, M. A., & Corrado, F. (2022). Culture-Based Practices as Driver of Local Development Processes in Mountain Areas—Evidence from the Alpine Region of the Province of Cuneo (Italy). *Sustainability*, 14(21), 13713. <https://doi.org/10.3390/su142113713>
- Blickle, G., Meurs, J., Wihler, A., Ewen, C., & ... (2014). Leader inquisitiveness, political skill, and follower attributions of leader charisma and effectiveness: Test of a moderated mediation model. ... *Journal of Selection ...*, Query date: 2023-08-27 08:52:44. <https://doi.org/10.1111/ijsa.12076>
- Boonjeam, W., Tesaputa, K., & Sri-ampai, A. (2017). Program Development for Primary School Teachers' Critical Thinking. *International Education Studies*, 10(2), 131–138. <https://doi.org/10.5539/ies.v10n2p131>
- Callejo, M. L., & Zapatera, A. (2017). Prospective primary teachers' noticing of students' understanding of pattern generalization. *Journal of Mathematics Teacher Education*, 20(4), 309–333. <https://doi.org/10.1007/s10857-016-9343-1>
- Casad, B. J., State, C., Jawaharlal, M., & State, C. (2012). Learning through guided discovery: An engaging approach to K-12 STEM education. *ASEE Annual Conference and Exposition, Conference Proceedings*. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84864996335&partnerID=40&md5=19c20cf6aa0e56fa48ea05b649422cd7>
- Clarke, D., & Roche, A. (2018). Using contextualized tasks to engage students in meaningful and worthwhile mathematics learning. *Journal of Mathematical Behavior*, 51(November 2016), 95–108. <https://doi.org/10.1016/j.jmathb.2017.11.006>
- Cooper, J., & Lavie, I. (2021). Bridging incommensurable discourses – A commognitive look at instructional design in the zone of proximal development. *Journal of Mathematical Behavior*, 61(October 2020), 100822. <https://doi.org/10.1016/j.jmathb.2020.100822>
- Couto, V., Mecca, F. D. N., Hartley, S., Lichtig, I., Ine, M., Wirz, S., & Woll, B. (2011). Assessing deaf and hearing children ' s communication in Brazil. *Journal of Communication Disorders*, 44, 223–235. <https://doi.org/10.1016/j.jcomdis.2010.11.002>
- Cruz Castro, L., Shoaib, H., & Douglas, K. (2021). Computational Thinking Frameworks used in Computational Thinking Assessment in Higher Education. A Systematized Literature Review. *2021 ASEE Virtual Annual Conference Content Access Proceedings*. <https://doi.org/10.18260/1-2--36824>
- Curasma, R. P., Villalba-Condori, K. O., Jara, N. J., Llamoca, R. Q., Chávez, J. C. C., & Del Pilar Ponce-Aranibar, M. (2021). Computational Thinking and Block-Based Programming for Beginning Engineering Students: Systematic Review of the Literature. *2021 XVI Latin American Conference on Learning Technologies (LACLO)*, 530–533. <https://doi.org/10.1109/laclo54177.2021.00096>
- Díaz, J., López, J. A., Sepúlveda, S., Villegas, G. M. R., Ahumada, D., & Moreira, F. (2021). Evaluating Aspects of Usability in Video Game-Based Programming Learning Platforms. *Procedia Computer Science*, 181, 247–254. <https://doi.org/10.1016/j.procs.2021.01.141>
- Docherty, S. (2018). A new dialogue between biblical scholarship and Religious Education. *British Journal of Religious Education*, 40(3), 298–307. <https://doi.org/10.1080/01416200.2018.1493272>
- E, dkk S., Sharon. (2014). *Instructional Technology And Media For Learning*. Kencana Prenadamedia Group.
- Ekawati, S., Aditya, F., Fauzarrahman, M. F., & Fajar Junaedi. (2025). Pelanggaran Etika Pariwisata Indonesia pada Iklan Pembesar Kelamin Prostanore di Platform Digital. *ANALOGI Jurnal Ilmu Sosial Dan Humaniora*, 3(1), 33–38. <https://doi.org/10.61902/analogi.v3i1.1497>
- Firdaus, A., Asikin, M., Waluya, B., & Zaenuri, Z. (2021). Problem Based Learning (PBL) Untuk Meningkatkan Kemampuan Matematika Siswa. *QALAMUNA: Jurnal Pendidikan, Sosial, Dan Agama*, 13(2), Article 2. <https://doi.org/10.37680/qalamuna.v13i2.871>

- Fonseka, C. L. I. S. (2018). A Smart App for Mobile Phones to Top-Up User Accounts for Any Network Service Provider in SriLanka. *International Journal of Computer Trends and Technology*, 60(2), 99–105. <https://doi.org/10.14445/22312803/ijctt-v60p115>
- Furi, L. M. I., Handayani, S., & Maharani, S. (2018). Eksperimen Model Pembelajaran Project Based Learning dan Project Based Learning Terintegrasi Stem Untuk Meningkatkan Hasil Belajar dan Kreativitas Siswa pada Kompetensi Dasar Teknologi Pengolahan Susu. *Jurnal Penelitian Pendidikan*, 35(1), Article 1. <https://doi.org/10.15294/jpp.v35i1.13886>
- Grabinger, R. S., & Dunlap, J. C. (2011). Rich environments for active learning: A definition. *Research in Learning Technology*, 3(2). <https://doi.org/10.3402/rlt.v3i2.9606>
- Guney, A., & Al, S. (2012). Effective Learning Environments in Relation to Different Learning Theories. *Procedia - Social and Behavioral Sciences*, 46, 2334–2338. <https://doi.org/10.1016/j.sbspro.2012.05.480>
- He, M., & Lee, J. (2020). Social culture and innovation diffusion: A theoretically founded agent-based model. *Journal of Evolutionary Economics*, 30(4), 1109–1149. <https://doi.org/10.1007/s00191-020-00665-9>
- Huggins, R., & Thompson, P. (2015). Culture and Place-Based Development: A Socio-Economic Analysis. *Regional Studies*, 49(1), 130–159. <https://doi.org/10.1080/00343404.2014.889817>
- Hutagaol, K. (2013). Pembelajaran Kontekstual Untuk Meningkatkan Kemampuan Representasi Matematis Siswa Sekolah Menengah Pertama. *Infinity Journal*, 2(1), 85. <https://doi.org/10.22460/infinity.v2i1.27>
- Jang, J., Purwanto, A., Purnamasari, D., Ramdan, M., Hutagalung, L., Akuba, S. F., Sulistiyadi, A., Pramono, R., & Bernarto, I. (2020). Pendidikan Vokasi BTEC UK di Indonesia: Studi Fenomenologi Esensi Pengalaman Peserta Didik. *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran*, 6(1), 1. <https://doi.org/10.33394/jk.v6i1.2319>
- Karim, S., & Abidin, M. Z. (2022). Penerapan Metode Learning Vector Quantization pada Penentuan Level Bermain Terhadap Game Edukasi Sang Santri. *Antivirus : Jurnal Ilmiah Teknik Informatika*, 16(1), Article 1. <https://doi.org/10.35457/antivirus.v16i1.1785>
- Karina, M., Judijanto, L., Rukmini, A., Fauzi, M. S., & Arsyad, M. (2024). Pengaruh Interaksi Sosial Terhadap Prestasi Akademik: Tinjauan Literatur Pada Pembelajaran Kolaboratif. *Innovative: Journal Of Social Science Research*, 4(5), Article 5. <https://doi.org/10.31004/innovative.v4i5.15351>
- Khan, A., Khan, S., Zia-Ul-Islam, S., & Khan, M. (2017). Communication Skills of a Teacher and Its Role in the Development of the Students' Academic Success. *Journal of Education and Practice*, 8(1), 18–21.
- Learning, P. (2001). Features of Problem-Based Learning. *Winter*, 11(1), 1–8.
- Leonard, J., Mitchell, M., Barnes-Johnson, J., Unertl, A., Outka-Hill, J., Robinson, R., & Hester-Croff, C. (2018). Preparing Teachers to Engage Rural Students in Computational Thinking Through Robotics, Game Design, and Culturally Responsive Teaching. *Journal of Teacher Education*, 69(4), 386–407. <https://doi.org/10.1177/0022487117732317>
- Li, L., & Guo, R. (2015). A Student-Centered Guest Lecturing: A Constructivism Approach to Promote Student Engagement. 15.
- Lubis, S., Saragih, A., & Sinar, T. S. (2023). The Effectiveness of Scratch Coding Activities in English Language Learning. *World Journal of English Language*, 13(7), 508. <https://doi.org/10.5430/wjel.v13n7p508>
- Luthfiana, A., Ambarita, A., & Teacher, T. (2018). Developing Worksheet Based on Multiple Intelligences to Optimize the Creative Thinking Students. 7(1), 1–12.
- Mellon, N., Ramli, R. M., Ekmi Rabat, N., Amran, N. A., & Azizan, M. T. (2017). Instilling the 4Cs of 21stcentury skills through integrated project via Cooperative Problem Based Learning (CPBL) for chemical engineering students. 2017 7th World Engineering Education Forum (WEEF), 17–20. <https://doi.org/10.1109/WEEF.2017.8467123>
- Michael, J. (2006). Where's the evidence that active learning works? *Advances in Physiology Education*, 30(4), 159–167. <https://doi.org/10.1152/advan.00053.2006>

- Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative Data Analysis*. <https://doi.org/10.7748/ns.30.25.33.s40>
- Mosimege, M., & Ismael, A. (2004). Ethnomathematical studies on indigenous games: Examples from Southern Africa. *Icme-10*, 14, 107–118.
- Ngu, L., Hanafi, Z., Taslikhan, M., & Raman, A. (2016). Influence of emotional intelligence on students' academic achievements. *International Journal of Humanities and Social Science Research*, 2(3), 41–46.
- Nicol, C. (1999). Learning to teach mathematics: Questioning, listening, and responding. *Educational Studies in Mathematics*, 37, 45–66.
- Noviyanti, H. (2025). Representasi Iklan Waktu Indonesia Gargle (Analisis Semiotika Roland Barthes Studi Kasus Tahun 2022). *Jurnal Ilmiah Komunikasi (JIKOM) STIKOM IMA*, 17(01), 1. <https://doi.org/10.33221/jikom1.v17i01.410>
- Owens, K. (2014). The impact of a teacher education culture-based project on identity as a mathematically thinking teacher. *Asia-Pacific Journal of Teacher Education*, 42(2), 186–207. <https://doi.org/10.1080/1359866X.2014.892568>
- Pelley, J. (2014). Making Active Learning Effective. *Medical Science Educator*, 24(S1), 13–18. <https://doi.org/10.1007/s40670-014-0087-1>
- Pettersson, K., Stadler, E., & Tambour, T. (2013). Development of students' understanding of the threshold concept of function. *The Eighth Congress of European Research in Mathematics Education (CERME 8), Manavgat-Side, Antalya, Turkey, 6-10 February 2013*, 2005. [http://cerme8.metu.edu.tr/wgpapers/WG14/WG14\\_Pettersson.pdf](http://cerme8.metu.edu.tr/wgpapers/WG14/WG14_Pettersson.pdf)
- Pourhosein, A. G. (2011). Visual, Auditory, Kinaesthetic Learning Styles and Their Impacts on English Language Teaching. *Journal of Studies in Education*, 2(1), 104. <https://doi.org/10.5296/jse.v2i1.1007>
- Putri, F. A. Z., & Delliana, S. (2025). Konstruksi Sosok Ibu Disabilitas Netra dalam Iklan Dancow Fortigro di Youtube. *KALBISIANA Jurnal Sains, Bisnis Dan Teknologi*, 11(1), 125–137. <https://doi.org/10.53008/kalbisiana.v11i1.2488>
- Rahmah, N. (2018). Implementasi Permenag Nomor 2 Tahun 2008 Dan Permendikbud Nomor 20 Tahun 2016 Tentang Standar Kompetensi Lulusan Di MAN Prambon Nganjuk. *Jurnal Intelektual: Jurnal Pendidikan dan Studi Keislaman*, 8(2), 183–194. <https://doi.org/10.33367/ji.v8i2.710>
- Reflina. (2020). Kesulitan mahasiswa calon guru matematika dalam menyelesaikan soal pembuktian matematis pada mata kuliah geometri. *Jurnal Analisa*, 6(1), 80–90.
- Sanchez, B., & Lewis, K. D. (2014). *Writing Shapes Thinking: Investigative Study of Preservice Teachers Reading, Writing to Learn, and Critical Thinking*. 2(1), 16–17.
- Saragih, H. (2016). Meningkatkan Ketrampilan Guru Membuat Perangkat Pembelajaran Berbasis Kurikulum 2013 bagi Guru pada Sekolah. *Jupiis: Jurnal Pendidikan Ilmu-Ilmu Sosial*, 8(2), 114. <https://doi.org/10.24114/jupiis.v8i2.5157>
- Sari, D. N. (2020). *The Use Of Learning Log Strategy On Writing Argumentative Text For Grade X Student Of SMA N 2 LAWE BULAN* [Skripsi, Universitas Islam Negeri Sumatera Utara]. <http://repository.uinsu.ac.id/9811/>
- Seabra, C., & Almeida, A. M. (2015). Project Management on Multimedia Projects: Preliminary Results on Communication, Interaction and Team Work Dynamics. *Procedia Computer Science*, 64, 816–823. <https://doi.org/10.1016/j.procs.2015.08.633>
- Siregar, S. M., Utomo, B., & Marlina, L. (2020). Perancangan Buku Interaktif untuk Memperkenalkan Ragam Profesi Sebagai Sarana Pengembangan Minat Pelajar Usia Dini. *Prosiding Konferensi Nasional Pengabdian Kepada Masyarakat dan Corporate Social Responsibility (PKM-CSR)*, 3, 828–834. <https://doi.org/10.37695/pkmcscr.v3i0.881>
- Siswandi, E., & Sujadi, I. (2016). Analisis Kesalahan Siswa Damam Menyelesaikan Masalah Kontekstual Ditinjau dari Perbedaan Gender ( Studi Kasus pada Siswa Kelas VII SMPN 20 Surakarta ). *Jurnal Elektronik Pembelajaran Matematika*, 4(7), 633–643.
- Sjöström, J., Economou, C., Edström, A.-M., Ekberg, J.-E., Svensson Källberg, P., Larneby, M., Liljefors Persson, B., Ryan, U., Schubert, P., Wangen, B., & Örbring, D. (2024). Knowledge Contributions

- from Different School Subjects to Cross-Curricular Didactics for Bildung and Sustainability. In C. Hilli, N. Mård, C. Hilli, N. Mård, N. Jugansson, E. Ekholm, L. Forsman, M. Björkgren, A. Kallioniemi, S. Kairavuori, H. Niinistö, J. Sjöström, C. Economou, A.-M. Edström, J.-E. Ekberg, P. Svensson Källberg, M. Larneby, B. Liljefors Persson, U. Ryan, ... M. Nousiainen, *Ainedidaktisia tutkimuksia*. Suomen ainedidaktinen tutkimusseura. <https://doi.org/10.23988/sats.1009.c1402>
- Spence, K. W. (1950). Cognitive versus stimulus-response theories of learning. *Psychological Review*, 57(3), 159–172. <https://doi.org/10.1037/h0058250>
- Sulemanoski, D. (2022). *Teaching Strategies with a Focus on the Student-Centered Approach to Learning*. <https://doi.org/10.5281/ZENODO.7125351>
- Tabach, M. (2008). *Combining Theories To Analyze Classroom Discourse: A Method To Study Learning Process*. March 2015.
- Tan, D. C. C. (2017). *Giving Student Engagement Study a Theoretical Base: Stimulus- Response (S-R) and Social Cognitive Theoretical Framework*.
- Twarog, K. (2023). *Preparing Teachers for Inclusion in a Homogeneous Society: A Case Study of a Czech University's Approach to Inclusive Education*. England. <https://urn.kb.se/resolve?urn=urn:nbn:se:su:diva-221605>
- Underhill, N. (1995). *Testing Spoken Language: A handbook of oral testing techniques*. Cambridge University Press.
- Utama, W. W. I., Rahayu, W., & Hapidin. (2024). Re-inventing Vernacular Heritage for the Modern World: Integrating the Philosophical Values of Traditional Games in Early Childhood Education in Indonesia. *International Society for the Study of Vernacular Settlements*, 11(8), 108–124. <https://doi.org/10.61275/ISVSej-2024-11-08-08>
- Utami, Y. P. (2020). *The Effect Of Using STIFIn Method In Teaching Speaking English Conversation At The Tenth Grade Of SMK Bina Satria Medan* [Skripsi, Universitas Islam Negeri Sumatera Utara]. <http://repository.uinsu.ac.id/10252/>
- Yusnanto, R., & Rahayu, A. (2022). *Application of Learning Video Based on Visual, Auditory, and Kinesthetic Learning Styles to Increase Thermodynamics Learning Motivation at Grade XI in High School: 3rd Tarumanagara International Conference on the Applications of Social Sciences and Humanities (TICASH 2021)*, Jakarta, Indonesia. <https://doi.org/10.2991/assehr.k.220404.278>