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Development of UNO-Litera Card Integrated Wordwall for Elementary Paragraph Writing Skills

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ABSTRACT

Developing paragraph writing skills in elementary students requires innovative, interactive, and technology-integrated learning media. This study aimed to develop an UNO-Litera card integrated with Wordwall to facilitate paragraph writing skills in elementary school. The study employed a Research and Development (R&D) design using the 4D model, involving expert validation and limited field trials with grade 4 students and a classroom teacher. The developed media consists of printed word cards combined with a digital Wordwall unjumble game. The validity test results indicated that the product was very valid, while practicality tests showed that the media was very practical based on teacher and student responses. These findings suggest that the UNO-Litera card integrated with Wordwall is feasible for paragraph writing instruction and offers potential contributions to interactive literacy learning in elementary education.

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Introduction

Indonesian Language learning at the primary school level plays a crucial foundational role in developing students' thinking skills, communication abilities, and fostering an appreciation for the national language and culture. Essentially, Indonesian language instruction focuses on the four language skills: listening, speaking, reading, and writing, which are prerequisites for effective communication [1]. In the Indonesian context, the importance of developing language skills is mandated by the National Education Law, which states that

"education is conducted by developing a culture of reading, writing, and arithmetic for all citizens."

However, among the four language skills, writing often proves to be the most complex and challenging aspect. Writing is categorized as a higher-order language skill because it is productive and can only be mastered after the acquisition of listening, speaking, and reading skills [2–3]. This skill does not develop automatically, but requires a systematic and continuous learning process starting from the elementary school level [4].

Based on the PISA (Programme for International Student Assessment) 2023 data, Indonesia ranked 69th out of 81 countries, with a literacy score of 359, which is significantly below the global [5]. Given that reading and writing are two closely related skills, this low literacy score indicates that students' writing skills, particularly in Grade 4 of elementary school, are also at a concerning level. Various difficulties exacerbate this situation students experience in writing, including low vocabulary mastery, difficulty developing ideas into written form, and challenges in adhering to language rules, which is further compounded by low learning interest. On the educators' side, the difficulty also lies in helping students bridge ideas into words or sentences, resulting in a lack of writing practice and development [6–7].

Ideally, writing instruction in elementary school should enable students to develop their ability to express ideas in writing with coherent language, adhere to rules, and be supported by adequate vocabulary mastery mastery [8–10]. Educators are also expected to create an engaging and interactive writing learning process by utilizing media appropriate to students' needs [11]. However, reality shows a significant learning practice gap. This gap is indicated by the suboptimal application of learning media that can facilitate the structured development of students' ideas, as well as a lack of exploratory and collaborative learning activities. This learning practice gap highlights the urgent need for learning media that can function as concrete idea triggers and guide students systematically from word selection to paragraph construction. Therefore, innovation in learning media is necessary to bridge the gap for students in channeling their ideas into good and correct writing. A practical alternative solution is the development of visual-based learning media, such as card media, as it can serve as a concrete and engaging idea trigger [12–13].

Several previous studies have focused on media development by utilizing physical media such as UNO cards as well as digital media based on the Wordwall application. This includes the design of UNO card media as a tool for teaching narrative writing skills [14] and the topic of weight units [15]. Meanwhile, the digital media Wordwall has been utilized by integrating it into the Project-Based Learning Model for writing descriptive texts [16] and in the form of interactive cards for the topic of force in science learning [17]. However, prior research often focused on only one type of media, either card media with a limited activity

scope or unoptimized Wordwall template features, without combining the two in an interactive and exploratory game mechanism. Consequently, there remains a lack of learning media that simultaneously combine the concreteness of card-based learning with the interactivity of digital platforms to address students' writing difficulties comprehensively.

The identified research gap underscores the urgency of this development study. Therefore, this research focuses on developing the UNO-Litera card integrated with Wordwall as a learning medium designed to directly address students' difficulties in generating ideas, constructing sentences, and developing coherent paragraphs. The UNO-Litera card serves as a problem-solving learning medium that bridges the gap between students' writing challenges and the expected learning outcomes by providing structured, game-based, and interactive writing experiences. This study aims to answer the following research questions: First, how is the needs analysis and product development process for the UNO-Litera card media and Wordwall conducted to facilitate the development of writing skills in elementary school? Second, what are the characteristics of the resulting product? Third, what are the results of the validity and practicality tests of the developed product?

Methods

This study is a type of Research and Development (R&D). Generally, the main objective of R&D research is to refine or create new products that are proven to be more efficient and effective [18]. In line with this, this specific research aims to develop a learning media product that is specific and tested to meet the criteria of validity and practicality as a supporting tool in the learning process.

The research was conducted at SDN 65 Parepare, South Sulawesi, Indonesia, involving fourth-grade students and the homeroom teacher who acted as trial subjects. The development research stages comprised three main phases of the 4D Model. the development of teaching materials and media follows the Four-D model, which includes the phases of define, design, develop, and disseminate [19]. Phase one included problem identification and needs analysis through a preliminary survey, observation, and interviews with the teacher, as well as a needs analysis questionnaire distributed to the students. Phase two: The results of the needs analysis were used to design the initial product prototype of the learning media. Phase three covered validation by experts and a small-scale trial to test the product's practicality. The detailed research flow is presented visually in Fig. 1.

The research instruments used included observation and interview guidelines to collect data on classroom conditions and media needs, as well as a needs analysis questionnaire aimed at students. Additionally, an expert validation sheet (media, language, and material) was used to assess product validity, as well as a practicality test questionnaire

administered to teachers and students. An instrument validator validated all quantitative instruments before they were used.

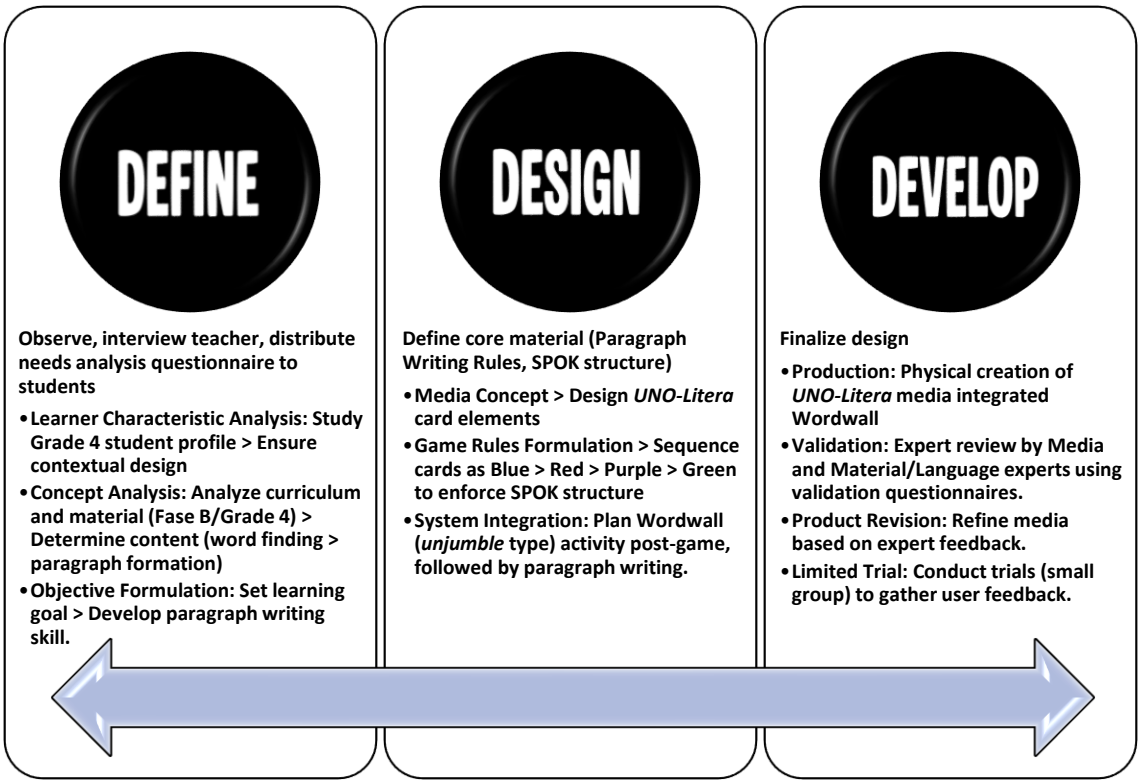


Fig. 1. Research Stages

The collected data were analyzed using both quantitative and qualitative approaches. Quantitative data derived from the questionnaire validation and user response questionnaires were processed by calculating average scores and percentages to determine validity and practicality. Qualitative data, on the other hand, were obtained from observations, interviews, and suggestions provided by validators. The determination of feasibility and practicality criteria was based on converting quantitative scores into quality categories, the complete criteria of which are presented in Table 1.

Table 1. Categorization of Product Validity and Practicality Tests

Score	Validity Criteria	Practicality Criteria
85% < x	Very Valid	Very Practical
70% < x ≤ 85%	Valid	Practical
55% < x ≤ 70%	Fairly Valid	Fairly Practical
40% < x ≤ 55%	Less Valid	Less Practical
x < 40%	Not Valid	Not Practical

Results

This section presents the data from the development research, which aims to answer all research questions, and is outlined in three parts.

A. Needs Analysis, Product Design, and Development

Based on the data from interviews with the teacher, it was indicated that the media used is monotonous, less interactive, and ineffective in motivating students to write actively. Key obstacles include internet disturbances and the lack of media variety aligned with students' interests. The teacher emphasized the necessity of developing media that is motivating, enjoyable, and game-based to facilitate the development of students' paragraph writing abilities. Meanwhile, the observation findings verified that, despite the teacher delivering the material sequentially, the use of media was still limited. Most students appeared to struggle with sentence or paragraph construction and showed uneven enthusiasm. This condition points to the urgency of designing learning tools and media that are more diverse and appealing.

The needs analysis questionnaire administered to 16 students revealed significant difficulty in writing, particularly in expressing ideas and constructing interconnected paragraphs. Although students felt confident in choosing the right words, they still required guidance from the teacher. The results of this questionnaire specifically underscore the urgency of developing visual word card-based media that can facilitate idea generation for paragraph writing, given the students' high interest and need for interactive learning media, such as cards. In brief, the results of the needs analysis are presented in Fig. 2.

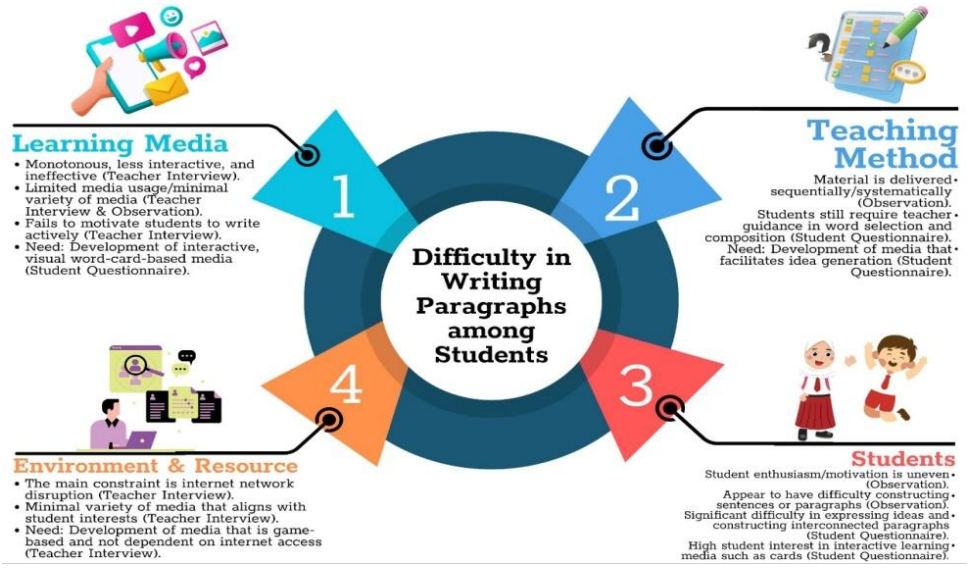


Fig. 2. Summary of Needs Analysis Results

Based on the findings of the needs analysis, the design stage was focused on developing UNO-Litera cards integrated with Wordwall to facilitate the development of paragraph writing skills. The design process included selecting words, designing the card visuals, determining the text format, and drafting the user guide sheet. This media was designed for learning while playing to create a collaborative and engaging environment that facilitates the development of paragraph writing ability. The cards function to trigger tides through word selection based on

UNO-like rules, while Wordwall is used as a complementary activity for unjumbling (rearranging) random words. The design also included the creation of a storage container (box art paper) as the product's identity and protection. See Fig. 3.

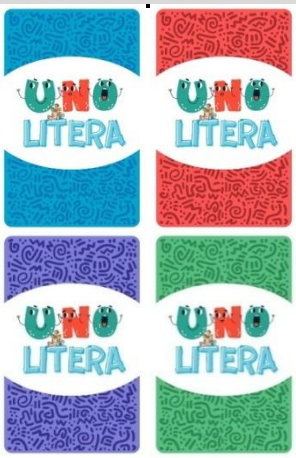


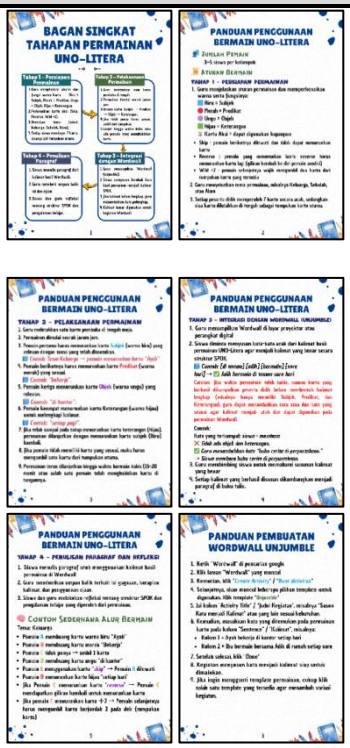
Fig. 3. The product development of UNO-Litera Card Integrated Wordwall

In the development stage, the UNO-Litera card design was realized into a product ready for implementation in learning. This product was developed specifically for Indonesian Language learning in Grade 4, with a focus on writing, aligning with the Learning Outcomes (CP), the Learning Objectives Flow (ATP), and the established learning goals. The product consists of one physical set of UNO-Litera cards and the digital Wordwall medium with the unjumble game type. The resulting physical product comprises one set of physical UNO-Litera cards containing SPOK (Subject, Predicate, Object, and Adverb/Complement) words with themes of school, family, and nature, as well as action cards, complete with a storage container and a user guide sheet, and the digital Wordwall media (unjumble). The learning activity is designed by combining card games (word selection according to the theme) and word arrangement in Wordwall into coherent sentences, creating a systematic flow that facilitates students' development of paragraph writing skills. Fig. 3 and Table 2 show the developed UNO-Litera card product integrated with Wordwall.

Table 2. UNO-Litera Integrated Wordwall Card Products

UNO-Litera Card Media and Wordwall	Product Description
	The front of the cards is grouped and designed as follows. • The subject card is designed in blue and is the first card to be played in a card game. The subject refers to the person doing the action, such as father, mother, student, and so on. • The predicate card is designed in red and is the second card to be played in a card game. The predicate refers to what the subject does. • The object card is designed in purple and is the third card to be played in a card game. The object refers to what or who receives the action/treatment. • The description card is designed in green and is the fourth and final card to be played in a card game. The description refers to where, when, or how the activity is performed.

UNO-Litera Card Media and Wordwall	Product Description
	The back of the card is designed in four colors, corresponding to the colors on the SPOK card, and features a UNO-Litera card symbol in the center.
	Action cards are designed with a combination of purple and pink for their action symbols. There are three types of action cards: • Skip cards, which eliminate (skip) the turn of the player next to the player who played the card. • Reverse cards give the player an additional turn to play two cards in a row. • Wild 2+ cards, which require the next player to draw two additional cards from the stockpile.
	The digital component in this media is integrated through a Wordwall, which serves as a reinforcement tool for the activity of arranging random sentences into coherent sentences. The chosen game is the unjumble type, specifically created using the Wordwall website template. The primary function of this game is to train students to arrange random words found on playing cards into logical and coherent sentences. The use of Wordwall not only provides variety in the learning process but also introduces technology positively and interactively. The background display in the Wordwall game offers a variety of aesthetic and colorful visual options, allowing flexible customization according to desired preferences before the game link is provided to students to play.
	The UNO-Litera card media comes with a crucial additional feature: a user guide printed in A5 size, resembling a book, specifically for teachers. This guide is designed to ensure the effective implementation of the process and provides clear technical steps for use. The guide provides detailed instructions on the mechanics of playing the card game in the classroom, as well as how to create a game using the Wordwall template. The comprehensive guide ensures that teachers can easily and accurately operate and adapt the media. • The cover contains the product's and functional identity. The center of the cover displays the media name and the tagline

UNO-Litera Card Media and Wordwall	Product Description
	"Find Words, Create Stories!", emphasizing the focus on developing writing skills. At the top, the logo of Makassar State University (UNM) and the identity of the Elementary School Teacher Education Study Program (PGSD) highlight the academic context of the product's development. Visually, the cover is enriched with illustrations of example word cards and action cards, and concludes with the names of the researchers and supervisors. • The table of contents presents the contents and pages of the UNO-Litera user guide, which consists of four sections: a game stage chart, game rules, an example of gameplay, and a technical guide for creating a Wordwall. • This brief outline of the game stages is divided into four main, sequential steps: Stage One (game preparation), Stage Two (game implementation), Stage Three (integration with Wordwall), and Stage Four (paragraph writing). • The UNO-Litera game stages page outlines the game steps to practice students' ability to find words using the SPOK (Subject, Predicate, Object, Adverb) structure. It serves as a trigger for developing ideas into coherent sentences and paragraphs. • The unjumble Wordwall creation stages page contains a series of steps for creating an unjumble (word arranging) activity using the Wordwall as a digital supporting component of UNO-Litera.

B. Product Characteristics

The UNO-Litera card, integrated with Wordwall, was designed as a solution to facilitate the development of paragraph writing skills, with a focus on strengthening sentence structure. Structurally, this media consists of two main components: the physical UNO-Litera cards and the digital Wordwall game, which is of the unjumble type. The physical cards serve as the primary medium for word discovery and explicitly teach the SPOK (Subject, Predicate, Object, Adverb) sentence sequence, where each grammatical function is represented by a different color (Blue, Red, Purple, Green), complemented by action cards to add variety to the game.

This characteristic ensures students visually and kinetically grasp the completeness and sequence of a sentence. The discovered words are then transferred to Wordwall, which serves as a sentence processing tool to ensure that the arrangement of words results in logical and coherent sentences. Through this phased flow, from word discovery and sentence construction in Wordwall to the development of sentences into a complete paragraph, this media bridges the students' difficulty in translating ideas into systematic writing. Simultaneously, it offers the advantage of collaborative learning and high engagement because it adopts the rules of a popular game like UNO. However, the implementation of this media has limitations, particularly a high dependency on the availability of technology and internet connection to

access Wordwall, as well as the potential limitation of word variation on the physical cards. Table 3 illustrates the variety of learning activities utilizing the UNO-Litera card media, integrated with Wordwall.

Table 3. A Variety of Integrated *UNO-Litera* Card Learning Activities with Wordwall

Activity Stages	Media Used	Media Function/ Mechanism	Focus of Skills Trained	Example Output/Results
Word Exploration and Discovery	*UNO-Litera* Cards	This card game requires players to lay down cards in sequence (Subject > Predicate > Object > Adverb), and action cards can be used as a variation.	Understanding of the SPOK structure and finding words according to themes (family, school, nature).	The resulting set of cards, for example: (Father) + (repair) + (bicycle) + (in the yard)
Sentence Processing and Composition	Wordwall (Digital, unjumble type)	The scrambled words found on the cards are collected and entered into the Wordwall unjumble game. Students are tasked with arranging the scrambled words.	Ability to construct logical and coherent sentences and ensure sentence integrity.	Correct sentence: "Father repaired the bicycle in the yard".
Paragraph Development	Notebooks /other writing media	The coherent sentences generated from the Wordwall are connected and developed by students.	Ability to organize sentences into paragraphs and develop ideas.	Complete paragraph: "This morning, Father repaired the bicycle in the yard. Meanwhile, Mother and my little brother cleaned the yard".

C. Product Validity and Practicality Test

After the product development was completed, a validity test was conducted to ensure that the product met the necessary standards before implementation in learning. The media validation stage involved two expert validators who provided an assessment using an instrument with a score scale of 1 to 3. The validity score was calculated based on the average of the experts' assessment results, referring to the established feasibility criteria. The aspects assessed in both the validity and practicality tests included the alignment of learning activities with objectives, variation in learning experiences, visual display and layout, image and font equality, ease of media use, structure of content presentation, language usage, and clarity of instructions for using the media. Table 4 presents a recapitulation of the products' validity and practicality test results.

Table 4. Summary of Product Validity and Practicality Test Results

	Validity Test		Practicality Test	
	Language and Material Experts	Media Experts	Teacher	Students
Average Score (%)	88%	92%	100%	91%
Category	Very Valid	Very Valid	Very Practical	Very Practical

Discussion

A. Needs Analysis, Product Design, and Development

The results of the needs analysis indicated an urgency to develop card media integrated with digital media at the elementary school level. This development focused on providing innovative and interactive products to facilitate paragraph writing instruction and align with students' needs. Interviews revealed that the use of media (pictures, YouTube videos) for paragraph writing instruction has been non-interactive and less motivating for students. Significant obstacles included internet disturbances, limited media variety, and difficulty in aligning media with students' interests. This is consistent with the view that learning media must be relevant to students' characteristics to minimize the gap between the material presented and students' learning outcomes [20].

From a writing skills perspective, the integration of the Uno Literacy game with Wordwall is closely aligned with the Project-Based Learning (PjBL) model in enhancing students' writing skills, as writing is positioned as a meaningful process embedded within authentic projects rather than as an isolated activity. The Uno Literacy game supports the planning stage of writing by helping students generate ideas, identify key concepts, and organize supporting details through collaborative and game-based interaction, which is essential for constructing coherent paragraphs. This process encourages discussion and negotiation of meaning, enabling students to clarify ideas before translating them into written form. Wordwall then provides interactive and structured scaffolding during the drafting and revising stages, allowing students to practice arranging topic sentences, sequencing ideas logically, and refining sentence coherence within the context of a project task. The iterative use of feedback and revision supported by Wordwall reflects the recursive nature of writing emphasized in PjBL. Together, the Uno Literacy game and Wordwall reduce cognitive load, increase motivation, and promote sustained engagement, thereby strengthening paragraph unity, coherence, and clarity as students develop writing skills through meaningful project outcomes.

Observation findings indicated that the use of motivating media is minimal, despite the teacher's systematic teaching and explanation of the material. The student showed low enthusiasm, and some struggled with sentence/paragraph construction. These findings align with the view of those who state that through media utilization, students are expected to grasp the material more easily [21]. Therefore, a teacher's precision in choosing appropriate media plays a crucial role in determining the effectiveness and efficiency of learning activities. Failure to choose appropriate media can fatally impact students' progress in understanding, as it can cause confusion, impede material comprehension, and hinder the achievement of predetermined learning objectives.

The questionnaire data revealed that students struggled with expressing ideas and constructing paragraphs due to a lack of coherence between sentences. On the other hand, students expressed a high interest in interactive media, especially those based on word cards, as a tool for structuring ideas. These findings align with the view that visual media is one of the most effective types of media in supporting writing skills [13]. Visual media functions as a memory and comprehension enhancer because it has the capacity to convey information in a concrete and engaging manner. In the context of writing instruction, visual media such as illustrative pictures, animations, or other visual forms act as an idea stimulus that can help students initiate and develop their writing [22–23].

The findings of the needs analysis, which included observations, interviews, and questionnaires, consistently revealed that students experienced substantial difficulties in constructing paragraphs. This finding served as the primary foundation for the development of the UNO-Litera card, which is integrated with Wordwall. The selection of this media was based on the rationale that card media is effective for triggering ideas and enriching vocabulary, which will ultimately facilitate students' writing of paragraphs. This aligns with the view that cards containing words, phrases, or pictures can effectively function as idea triggers, making it easier for students to construct sentences [24]. The use of cards will help students become accustomed to using the appropriate language structure.

In response to these needs, the design and development stages were completed, resulting in the UNO-Litera card product being used to facilitate the development of paragraph writing skills for Grade 4 elementary students. The functional design of the media aims to facilitate paragraph writing by integrating three activities: playing word selection cards, arranging jumbled sentences (unjumbling) on Wordwall, and developing the sentences into a paragraph. To ensure ease of use and practicality, the product is equipped with a media user guide sheet and a special card storage container. This design aims to foster a dynamic and collaborative learning setting that promotes the improvement of elementary students' paragraph writing abilities. This is consistent with the view that media designed using educational games can transform students' learning methods, allowing them to learn in a more varied and creative way [25]. The use of interactive media, such as simulations and educational games, aims to trigger the students' creativity and innovation [26–28]. Educational games are designed to encourage students' creativity and innovation in understanding and developing learning concepts, while also expanding their comprehension of the subject matter.

B. Product Characteristic

The development process of the UNO-Litera card, integrated with Wordwall, resulted in both physical and digital products. The physical product consists of a set of UNO-Litera cards, measuring 8.6 x 5.5 cm, comprising a total of 200 cards classified into five categories: Subject,

Predicate, Object, Adverb, and Action cards, for variety. The cards are stored in a protective container to ensure product safety and practicality. In addition, a guide sheet measuring 14.8 cm x 21 cm is also included. Meanwhile, the digital Wordwall media is used as a digital tool to facilitate students' follow-up activity, which is arranging jumbled words into coherent sentences. This aligns with the view that development should consider students' current growth, making the integration of media with technology-based educational games essential to ensure non-monotonous learning [29, 30]. This integration also specifically aims to help students solve problems more creatively.

The digital Wordwall media functions as a reinforcement tool, enabling students to arrange jumbled words into coherent sentences. This activity supports the inquiry and reflection stages of PBL, where students test hypotheses, receive immediate feedback, and refine their understanding. Integrating technology-based educational games is essential to prevent monotonous learning and promote creative problem-solving. Educational games such as UNO-Litera and Wordwall encourage students to actively participate, make decisions, and collaborate with peers. These characteristics align with PBL, which prioritizes active learning and student autonomy. Through word games, learners experience a low-pressure learning environment that increases language exposure and enhances writing skills [31, 32]. Teacher facilitation remains essential to guide reflection and ensure meaningful learning outcomes.

Educational games are intended to foster students' creativity and innovation in grasping and developing learning concepts, while simultaneously deepening their understanding of the subject matter. First, card exploration, where students play cards sequentially, drawing down SPOK cards with a variety of action cards. Second, a digital Wordwall game, where words are found and then processed through unjumble on the Wordwall to form coherent sentences. Third, paragraph development, where the main sentence is developed into a complete paragraph, aims to practice paragraph writing skills systematically. Through word games, learners can experience a pleasant and low-pressure learning environment that increases exposure to the target language while improving their abilities [32, 33]. Through this game, students are actively involved in providing responses and making decisions. If students experience difficulties, teacher intervention and assistance are needed to ensure continued enjoyment and success in learning.

This card media offers a series of advantages, including reinforcement of the color of the SPOK cards and transitions from sentences to paragraphs, which train students to develop sentences into coherent paragraphs. The integration of the card media and Wordwall ensures student engagement and motivation through a popular game format while accommodating different learning styles. This media is easy to create, relatively low-cost, and flexible for use in various learning situations. Cards increase learning motivation because they are designed as a

fun game, directly facilitate the mastery of correct language patterns by helping students construct sentences, and are proven to be economical, easy to produce, and highly flexible [34, 35].

In addition to these cards, Wordwall, which serves as a reinforcement activity, also helps ensure student motivation by arranging random words into sentences during the learning process. This aligns with the view that Wordwall is an educational game medium featuring a variety of game features [36]. Therefore, Wordwall is ideal for integration and use as engaging and interactive game-based learning media [36–38].

C. Product Validity and Practicality Test

The Wordwall-integrated UNO-Litera card has undergone validation by media experts, language and material experts, as well as practicality testing involving users. The expert validation results showed very high criteria; the media expert provided an average percentage of 92%, and the language and material expert provided 88%. Both results are classified as very valid criteria and were declared feasible for trial. Subsequently, the practicality test results from the student response questionnaire yielded an average of 91% (efficient), which aligns with the teacher response questionnaire's average of 100% (also very practical). This is consistent with the view that the validation stage is a crucial process for assessing the effectiveness of the developed product design [39]. The high validity and practicality results demonstrate that the developed card media has been quality-tested and is effective for use.

The developed card media has good characteristics because the media has been designed to be engaging, interactive, and aligned with students' needs. This aligns with the view that card media enable students to better understand the material and assist them in forming sentences that can be further developed into paragraphs [40]. The other, the UNO-Litera card, which is media-integrated with Wordwall, can transition from traditional learning to edutainment learning. Selecting and using the appropriate edutainment media has proven to make students happy, not bored, and not reluctant during the learning process [39–41]. The integration of card media with digital media, Wordwall, has a positive impact because students enjoy game-based learning while also addressing the challenges of the 21st century. This aligns with the view that the use of technology is essential in enabling students to interact with interactive learning content and collaborate with peers and teachers [42-44]. In addition, the use of technology can reshape teaching practices by encouraging educators to become more innovative and creative in developing meaningful learning activities.

The contribution strength of this study to the field of writing instruction lies in its theoretical and pedagogical integration of cognitive writing processes with concrete scaffolding for elementary learners. By demonstrating how UNO-Litera cards integrated with Wordwall support idea generation, organization, and paragraph coherence, this study

contributes empirical insight into how abstract writing skills can be operationalized through structured, game-based scaffolds. It strengthens the field by extending process writing and sociocultural theory into practical classroom applications that address persistent challenges in early writing instruction, such as limited idea development, weak paragraph organization, and low learner motivation. Moreover, the focus on paragraph-level writing fills an important gap between sentence-level drills and full-text composition, offering a developmentally appropriate intervention that supports the gradual progression of writing competence in elementary education.

The contribution to the field of instructional media and educational technology is reflected in the model of hybrid media integration that combines physical game-based materials with digital interactive platforms. This study advances instructional media theory by providing evidence that learning effectiveness is enhanced when tangible manipulatives and digital media are deliberately aligned to support higher-order literacy skills, rather than being used in isolation. The integration of UNO-Litera cards and Wordwall exemplifies how interactivity, multimedia principles, and game-based learning can be designed to support complex cognitive tasks such as writing, not merely factual recall or drill-based practice. Consequently, the study contributes a transferable design framework for interactive literacy media that can inform future development of technology-enhanced writing instruction in elementary education.

The concept of learning and developing students' writing skills in elementary schools and the concept of writing learning media highlight the importance of concrete support, interactivity, and methodological guidance in teaching writing in elementary schools. This confirms and provides scientific justification for the products developed in this research to fill this gap in learning practices. The cognitive demands of writing, which include generating ideas, choosing appropriate words, constructing sentences, and organizing them into coherent paragraphs, are not met by the learning support offered in the classroom, as evidenced by the suboptimal use of learning media found in many previous studies. In particular, there is insufficient media that serves as a trigger for concrete ideas and encourages exploratory and collaborative learning. Previous research has largely focused on a single type of media, either Wordwall templates without fully exploiting their interactive and exploratory features, or card-based media with a narrow range of activities. By combining the interactive and feedback-rich features of digital platforms with the tangible and idea-generating power of card-based learning in a game-based mechanism, the development of UNO-Litera cards integrated with Wordwall is a promising approach. Methodically guiding students from word choice to sentence structure and paragraph development, this integrated medium aims to address students' writing challenges holistically.

Conclusion

The creation of UNO-Litera cards, integrated with Wordwall, proves to be a workable and practical learning medium for enhancing students' paragraph writing skills. Co-op Sentence building is encouraged while enhancing student engagement through interactive card-based activities and digital integration of games. This learning medium, created based on the 4D model involving needs analysis, design, validation, and practicality testing, obtained a 'very valid' rating from material, language, and media experts, while teachers and students perceived it as an efficient approach. UNO-Litera cards demonstrate outstanding potential for enhancing students' writing skills in paragraphs and enriching literacy learning through innovative, technology-supported methods.

This study contributes to writing instruction and the integration of educational technology along several key dimensions. It demonstrates that UNO-Litera cards, combined with a digital platform such as Wordwall, can transform conventional paragraph writing instruction into an interactive, student-centered, and engaging learning activity. These findings add to the literature on innovative literacy media by demonstrating that hybrid materials can help address students' low motivation to complete writing assignments. The study confirms the appropriateness of the 4D Model as a systematic guideline for producing writing instructional media, ensuring that the final product meets high standards in terms of pedagogy, language, and technology aspects. Strong support for the development of gamified instructional tools is reflected in the high validity and practicality results, which contribute to greater student participation and cognitive engagement in writing coherent paragraphs. This innovation contributes to broader literacy development by providing a model of how interactive learning media can support students' writing skills in elementary language learning contexts.

Several recommendations are based on these findings: UNO-Litera cards and Wordwall activities should be incorporated into regular writing lessons to enhance student motivation, introduce diversity in teaching techniques, and support paragraph development. Teachers can adapt the card content for themes related to syllabus goals. Hybrid gamification media, such as UNO-Litera cards, are recommended by curriculum designers for literacy modules to broaden teaching resources in literacy and provide activity-based learning procedures for developing writing competency. Future studies may conduct experimental investigations to compare the efficacy of UNO-Litera with other methods of writing instructions, focusing on the quality of writing, motivation, and retention over a longer period. Further research may be conducted on how UNO-Litera cards can be adapted to support other literacy skills, such as vocabulary development, grammar mastery, or reading comprehension.

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