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GREEN EMOTIONAL CLASS AS A LEARNING ENVIRONMENT THAT SUPPORTS LEARNERS' CREATIVITY

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Abstract
Creativity is involved whenever we try something new, so it is an inherent part of learning. Scholars and educators have acknowledged the importance of the learning environment, especially the creative learning environment, on student creativity. Promoting positive emotions as a teaching strategy is increasingly gaining recognition as one of the most effective techniques for imparting knowledge and enhancing creativity in learners. In this paper, an attempt was made to unravel the strength of this technique by examining the green emotional class environment as a creative learning environment. The green emotional class was designed to foster creativity while promoting positive emotions and nature awareness in a fun learning environment for young learners. Previous studies focused on general aspects of learning but only a few concentrated on the creativity fostered through green emotions in the class environment. Rhode's framework for teaching creativity provided theoretical explanations for the study. The learning environment was assessed using observation and survey methods based on the physical environment, learning climate, and learners' engagement. Quantitative data collected during and after the education intervention from students and observers were analyzed. Results showed that the teacher's cheerful disposition and guidance made learners comfortable expressing creativity and exploring nature, so students are more likely to develop creative skills and professional knowledge in a green emotion learning environment. It was also found that a green emotions class environment fosters creative ideas, motivation, interest, collaboration, mutual respect, and knowledge sharing among learners. Recommendations were made for the institutionalization of the effective use of emotion-based teaching inside and outside the classrooms by educators, policymakers, and other relevant stakeholders in the education sector.

Keywords: creative education, green emotion, Indonesian classroom, learning environment, teaching

Introduction
Creativity refers to the entire process of generating and developing valuable ideas. Perceived as the capacity to produce ideas and products that are both novel and useful or appropriate, it is considered a crucial competence in the 21st century

and vital for a nation's social and economic innovation, development, and individual well-being (Glăveanu, 2018; Lian et al., 2018; Lin, 2011). Recently, researchers and educators have been striving to identify predictors that facilitate student creativity (Fan & Cai, 2020), and one such predictor is the learning environment. Many scholars have suggested that student creativity can be nurtured by educators who focus more significant effort on building a learning environment that highlights the value of creativity, which can be achieved by designing creative learning spaces and pedagogy (Davies et al., 2013; Lin, 2011; Richardson & Mishra, 2018). Another strategy to boost creativity in the classroom is using emotions to influence students' class atmosphere and learning experiences of students (Nael, 2019; Robina-Ramírez et al., 2020).

Emotions are contagious as they can be passed on among people; this is true, especially in a classroom, where both teacher and learner share not just knowledge, skills, and memories but also share and experience different emotions (Pekrun, 2014). In their research on the role emotions play in transforming students' environmental behavior, Robina-Ramirez et al. (2020) noted the importance of teaching sustainable practices through positive emotional education. The authors opined that knowledge and emotional experiences can lead individuals to be more respectful and generous with nature beyond their self-interest and transform society. Since interaction between teacher and students is a vital part of the learning activity (Jonathan & Recard, 2021), a teacher with positive emotions can promote students' joy of learning within the classroom and leave long-lasting effects on students' perceived value. Therefore, the green emotion class environment was designed to provide a conducive environment where students engage in creative thinking challenges while boosting green emotions in the class and improving awareness of their natural environment.

In this paper, the researchers introduced and presented a learning environment that emphasizes the emotional experiences of learners to foster creativity. The environment was assessed based on three critical parts of a creative learning environment: physical environment, learning climate, and learners' engagement. Subsequently, the paper presented a theoretical background on nurturing a creative learning environment, the green emotion learning environment, study methods, results, and a conclusion.

Theoretical Review

Considering today's rapidly changing society, educators are expected to prepare learners for the workforce and prepare them to respond to the fast-paced development in their society. Learners must have the required knowledge and capacity crucial to the survival and transformation of their community (Khakzad et al., 2018). Promoting Creative education could increase people's entrepreneurship rate, technological and industry advances, and socioeconomic progress, leading to improved living conditions (Amponsah et al., 2019). As noted by Lin (2011), creativity is amenable to teaching since all individuals have the potential to be creative. Creative learning in schools represents a specific form of learning involving creative expression in academic learning (Beghetto, 2021). Fostering creativity in elementary education becomes more critical because, even though children are naturally creative, this can only be recovered with a favorable environment. So, questions such as how to foster creativity in our classroom dwell

in the minds of educators. Teaching creativity involves recognizing students' creative talents, nurturing their creativity, and guiding the learners to apply their abilities to solve real problems (Khakzad et al., 2018).

One of the oldest frameworks for teaching creativity was postulated by Rhodes in 1971, offering a way of focusing on different aspects of creativity to reveal how creativity happens, to whom, with which environmental influences, and to what end (Rhodes, 1961). The four areas identified by Rhodes, namely, the creative person, the creative process, the creative product, and the creative environment or press, interact with each other because a creative person uses a creative process to develop a new product in an environment that supports creativity. As opposed to the other parts of Rhodes' framework, the press is the aspect in which the teacher has control of variables that affect learners. So, this study focused more on the press (learning environment), which includes the social, psychological, pedagogical, and physical factors of any place where learning occurs (Kember & Leung, 2009). Research shows that the press, which refers to the environment and climate where the person works, can be conducive to or inhibit creativity (Blackburn & Hewitt, 2020; Rhodes, 1961). So, various scholars have emphasized the importance of establishing a creative learning environment as a significant part of the concept of creative education.

Creative learning environment

From a conducive physical environment to a fun learning climate where learners are engaged actively and empowered to express creativity, ensuring a conducive learning environment can foster creativity in the classroom (Fan & Cai, 2020; Richardson & Mishra, 2018). Environment refers to the set-up and design of the physical space, the relationships one has, and the available resources and supports (Kaufman & Beghetto, 2009). Evidence from research indicates that creative learning environments have an impact on the academic progress of learners, increased confidence and resilience, enhanced motivation and involvement; development of social, emotional, and thinking skills as well as improved school attendance (Davies et al., 2013; Kaplan, 2019; Katre, 2020; Kiswanto, 2017).

In their review of creative learning environments, Davies et al. (2013) identified several critical characteristics of the environment and conditions best suited to support children's and young people's creativity. These include the physical environment, availability of resources/materials, use of the outdoor environment, pedagogical environment, use of other learning spaces beyond the school, play-based learning, practical and flexible use of time, and relationships between teachers and learners, which the authors classified into three themes namely the physical environment, the pedagogical environment and the role of partnerships beyond the school. Additionally, Richardson and Mishra (2018) posited that the physical environment, learning climate, and learners' engagement must be considered in any learning environment that supports creativity. So, the three-dimensional structure of a creative learning environment adopted for this study focuses on the physical environment, learning climate, and learners' engagement.

Items related to the physical space of the learning environment, like the furniture, working tools, and materials, are included in the physical environment.

Solid evidence suggests that a classroom or space's setting should be adaptable enough to foster students' creativity (Davies et al., 2013; Lian et al., 2018; Richardson & Mishra, 2018). Open areas with adaptable furniture that enable small groups of students to work together in various settings, with access to a wide range of appropriate materials and other resources, can stimulate creativity.

The learning climate includes the classroom atmosphere, learner interactions, and teacher-student relationships. The ideal atmosphere for encouraging creativity is one where students can freely interact, accept, and discuss new ideas, have respect for each other, and are comfortable taking risks (Davies et al., 2013). The nature of the interaction between instructors and students is a crucial enabling element of the creative learning environment for which there is much research backing (Khoiriyah & Husamah, 2018; Kiswanto, 2017; Nael, 2019; Robina-Ramírez et al., 2020). The teacher's role is critical in creating a healthy atmosphere in which a child feels free to express their creativity, explore it, and comprehend its significance. Collaboration and good communication between students and facilitators are considered a necessary pre-condition for creativity and innovation because if the classroom climate is hostile, the learner's motivation for learning and interest in expressing ideas may dwindle (Katre, 2020; Lian et al., 2018). Students learn new knowledge better if they trust the person offering new knowledge or if they believe that their recent experiences will not harm them (Nael, 2019). To improve the climate in the classroom, Pekrun (2014) emphasized the importance of promoting positive emotions in the classroom. Emotions affect personality development and are part of a student's identity, attention, and motivation; hence, they can enhance the creative person. The author recommended that teachers share positive emotions and enthusiasm with their students, which can ripple down to the students because emotions are contagious. Therefore, promoting green emotions in class can foster a creative environment since social and emotional aspects are crucial for enhancing a person's sense of ability, self-esteem, self-expression, and creative thinking. Students who feel comfortable with their teachers and peers are more willing to engage with challenging materials and persist in complex learning tasks (Beghetto, 2021).

Learner engagement refers to the pedagogic environment, which includes tasks and activities that students complete and the creative learning process. It refers to the willingness of students to actively participate in the learning process and demonstrate sustained involvement and a positive emotional tone toward learning experiences (Jonathan & Recard, 2021). Students can learn better in an engaging environment, so activities that foster creativity entailing active learning and discovery where everyone in the setting is viewed as a co-learner and co-teacher and where the process rather than the outcome is stressed (Richardson & Mishra, 2018). When given the opportunity, children are well-versed in exploring new concepts and creatively finding ways to share what was learned. When teachers combine creativity and pedagogy, an innovative approach to teaching is formed to give room for creativity in students, and this is called creative pedagogy. Creative pedagogy then describes a practice that enhances the development of creativity through three main elements, namely, creative teaching, creative learning, and teaching for creativity (Khoiriyah & Husamah, 2018; Kiswanto, 2017; Lin, 2011). Creative pedagogy involves the teaching practices, environment, and strategies that facilitate creative learning and actively engage learners. From Lin's framework, it

can be deduced that the teacher is the central actor in fostering students' creativity in the classroom. A teacher takes on the role of a facilitator, stands back and guides learners in the creative process, recognizes and profiles learners' agency, as well as provides the space for developing the potential since every child possesses the ability to be creative, which can manifest itself in a variety of ways. The teacher has to incorporate creativity in teaching practices, from using innovative approaches to make learning enjoyable to identifying and nurturing students' creative ability while providing space for learners to express and develop their creativity (Amponsah et al., 2019). In a study by Kaplan (2019), participating teachers applied creative theories in lesson design and project designs to boost students' creative skills. For example, the teachers employed strategies like open assignments, building upon past knowledge in developing new experiences, encouraging dynamic thinking through varying scenarios, showcasing multiple solutions, and considering mind-expansive concepts. Furthermore, Pekrun (2014) noted that task-related activities could be employed to activate green emotions, such as the enjoyment of learning in learners.

Research indicates that creative learning environments impact learners' academic progress, increased confidence and resilience, enhanced motivation and involvement, and the development of social, emotional, and thinking skills, as well as improved school attendance (Blackburn & Hewitt, 2020; Davies et al., 2013; Richardson & Mishra, 2018). Hence, this study aims to add to the knowledge body by leveraging green emotions to cultivate and ensure a creative learning environment.

Creative learning environments in Indonesia

Recognizing the need to develop creative and critical thinking skills, the Indonesian government has made efforts to support the development of creativity in education. Government regulation of the Republic of Indonesia, number 57 of 2021, regarding national standards of education Article 12, paragraph 1 emphasizes the importance of creating an interactive, fun, and active learning atmosphere that supports creativity and innovation for the physical and psychological development of learners (Indonesian government, 2021, p.9).

Aside from the government, school administrators and teachers are also trying to incorporate creativity in the classroom in Indonesia, as evidenced by the study on the friendly school program in SD Negeri 109 Palembang (Lian et al., 2018). The friendly school program is an open school concept where a safe, fun, and conducive environment is provided for students to stimulate creativity. It is similar to the green emotional program, requiring teachers to have a pleasant teaching ambiance. In addition to the school's physical environment, a good communication pattern was built between teachers, students, and other employees. Student Active Learning (SAL) and Contextual Teaching and Learning (CTL) were common teaching methods used in the school. Another example of creativity in education is seen in Malang, where teachers implemented problem-based learning (PBL) to improve seventh-grade students' creative thinking skills, problem-solving skills, and learning outcomes (Khoiriyah & Husamah, 2018).

The following section discussed the GEC learning environment in Indonesia, covering the structure and strategies employed to support creativity and achieve the class's learning objectives.

Green emotional class environment

The Green Emotional Class (GEC) is a class for elementary Schoolers designed to create a fun, secure space where learners can feel at home, collaborate, and explore their natural environment. The aim is to promote a sustainable community through the collaborative effort of members and the awareness and appreciation of their natural environment while promoting the pleasant exchange of positive (green) emotions like excitement, happiness, gratitude, and confidence. It focuses on the teacher's green emotional disposition expressed in the teaching process to foster creativity, self-development, sustainability, awareness of nature, and sustainable living in learners.

Guzmán (2020) stated that teaching tools do not matter as much as how teachers use them to keep students engaged and motivated. In achieving green emotions in the classroom, it can be said that a happy teacher can make learners more comfortable since emotions are contagious and said to be directly related to the learning process (Pekrun, 2014). Glăveanu (2018) argues that creativity is disruptive and may not be likable to most people; hence, where a creative teacher is denied room for flexibility, the efforts may not yield good results. In the GEC, the teacher is the leading actor and agent for fostering creativity in the classroom; the focus is on how the teacher manages the available resources and tools. Promoting creativity in the classroom is an essential aspect of the teacher-student relationship, encompassing factors such as varying expectations, mutual respect, creative behavior, flexibility, and discussion (Apak et al., 2021). It is essential to mention that the extent to which a teacher can foster creativity in students also depends on the support and conditions of the environment, especially as it relates to other members of the educational setting- colleagues, students, and administrators, as well as the vision of the school (Richardson & Mishra, 2018). When designing learning experiences, teachers can plan and frame curriculum and provide tools that give students options, voice, and choice to enable them to be creative. As such, the GEC allows for flexibility and innovation in the curricular and pedagogical structuring, thereby giving the teacher space for creativity and support in the classroom. The GEC environment is discussed in relation to the three critical aspects of a creative learning environment from previous research.

Class environment

The global pandemic has made the adoption of technology in education more rapid as digital environments have been adopted by many educational settings (Park & Ibrahim, 2022; Tanjung & Utomo, 2021). Due to the Covid-19 situation and geographical distance, a hybrid learning environment was adopted. The class was blended with the leading teacher being online, and students (elementary grade) were in a class viewing from a large screen in the company of their homeroom teachers. The digital educational environment used in this program consists of a giant projected screen alongside computers, printers, and mics, among other devices. Learners gather in a classroom and connect via a single Zoom device. Zhu and Bergom (2010) defined lecture capture as recording class activities for later use and stated that it benefited the students due to its convenience, flexibility, and accessibility. The GEC class sessions were recorded and made available electronically. Regarding the physical environment, simple changes were made, such as movable desks allowing students to work in small groups and creating

ample space for game time. Also, flexible open spaces like the school compound were used for learning in addition to the classroom.

Learning climate

Creativity can thrive in a community, care, and cooperation climate, emphasizing positive student and teacher relationships. In the GEC, teacher emotions matter a lot because emotions are contagious, whether positive (e.g., enjoyment, excitement, and pride during teaching) or negative (e.g., anger, anxiety, or frustration). Teachers are urged to show positive emotions about teaching and passion for the topic and ensure they share positive emotions (e.g., admiration, gratitude, compassion, connectedness, sympathy, and enthusiasm) with their students to achieve a green emotional atmosphere. This call is because positive teacher emotions can foster students' enjoyment of the learning process within the classroom and can have long-lasting effects on students' perceived value (Pekrun, 2014). Creative classrooms are student-centered, and as expressed by the popular maxim, teachers take on the role of a guide or facilitator, allowing learners to acquire knowledge and be the source of knowledge (Lin, 2011). Since creative education should be student-centered, success is not defined by the extent to which the teacher has covered a lesson; rather, it should be the extent to which the students are engaged in the learning process (Lian et al., 2018). That is to say, teachers should be flexible enough to recognize the many forms students are creative and must factor in their characteristics when assessing them. Every product of the creative process is appreciated, and further discussion is encouraged by the teacher through questions after the presentation. In the GEC class, students were not evaluated based on the final product but rather on their involvement in carrying out given tasks and cooperation with others. Take, for instance, when students were tasked with visiting the lake in the area and drawing their memory; distinctions were seen in the submissions. Although they visited the same place, their depiction and representations of the lake were quite different, and students could learn from each other while presenting and discussing in class (Beghetto, 2021).

Learners' engagement

Learning is more than just knowledge and skill acquisition; learners must also understand and actively participate in the creative process. Khakzad et al. (2018) used the cooperative learning method to improve creative thinking in sixth graders, as children need to learn creative thinking to solve daily life challenges or even improve their daily routines. Since it is an active learning method where learners work together in groups, adopting this method in the green emotion class was suitable and in line with the principle of collaboration. Working together to complete tasks, solve a problem, or create something can boost creativity, maintain motivation, encourage learners to share and express themselves, and allow students to work on their emotional and social skills. Students were also given home tasks requiring visits to strategic locations to explore their natural environments. Since they have to make presentations, groups also meet outside school to complete given assignments, encouraging communal bonds among the students and their guardians.

Helping students to value learning is as essential as promoting students' interest in learning. One way to promote interest in learning and encourage real-life application is by using tasks relating to students' everyday lives. Since creativity

can stimulate imaginative thinking capability in students, the CTL method, where the curriculum is designed to reflect daily life, was employed during the curriculum design. Students were engaged using many strategies like open assignments to allow students to express their ideas and be a new source of information; creative team-building activities like a group project to encourage collaboration among students; brainstorming to promote critical thinking; presentations to build soft skills; drawing and painting to support and nurture the artistic talent and idea representation; crafting using natural materials; singing to develop vocabulary, dancing to promote physical activities through actions, and games to ensure a friendly fun climate that is as relaxing as nature. Each class session lasted for 50 minutes, and the class was held once a week as an extracurricular activity.
Figure 1 describes the teaching procedure:

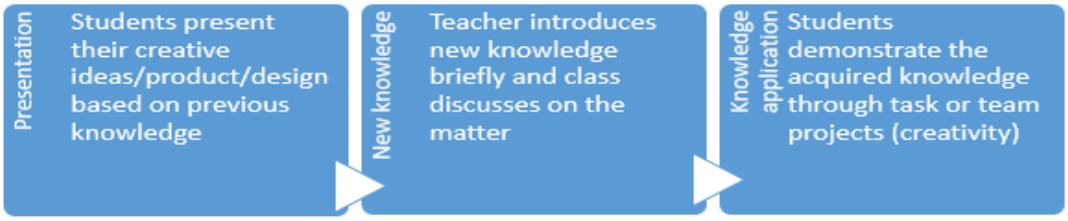

Figure 1. Teaching procedure

Method

This study aimed to present the GEC as a creative learning environment and add to the existing research on promoting emotions to improve creative skills in the classroom. As this study is a pioneer study, primary quantitative data were collected using observation and survey methods to present the GEC class as a creative learning environment. The observation method was used during the educational activity, and the survey method was used after applying the designed strategy. Using the observation method enables a researcher to gather data on the physical, human, and interactional settings (Kawulich, 2005). It could be designed in various forms such as structured or unstructured, participant or non-participant, qualitative or quantitative. Structured observation is used to test some casual hypotheses where the focus is on certain aspects, and there are observational categories. In non-participant observation, the observer takes a vantage point with the slightest disturbance to the study group. Mercatoris and Craighead (1974) used the non-participant observation method to assess the interaction between a teacher and students. The non-participant observation design was chosen since this study centered on these interactions. Five (5) non-participating teachers were given a rubric to fill out for each class session.

In order to obtain reliable information from the study participants, existing measures with established validity and reliability from previous literature were selected. Furthermore, to ensure the validity and reliability of the instruments, all the tools used for this study were reviewed by two education experts and professors of Pusan National University's Department of Education for relevance, appropriateness, and ethical compliance. The rubric used the scale tool that Richardson and Mishra (2018) designed to examine creative learning environments to get the observers' perceptions of the GEC learning environment. The scale tool measured the creative environment using 14 items and had a reliability score of

0.91. Observers were expected to mark each item using a 4-point Likert scale (0-3; 0 denoting poor and 3 denoting excellent) as suggested by tool developers. The same items were given to the students in a survey questionnaire. The survey items were to get their perceptions of the GEC environment as users of the environment, as Fan and Cai (2020) did.

The data collected from 15 participants were analyzed using simple descriptive statistics, a method chosen due to the small sample size. This approach, which included calculating descriptive statistics such as means, medians, modes, and standard deviations, provided a comprehensive overview of the participants' responses (Cooksey, 2020). The analysis not only summarized the main features of the data but also highlighted key trends and patterns within the data, providing a deeper understanding of the study's findings. The following section delved into the insights gained from this comprehensive analysis.

Findings and Discussion

The creative learning environment should ensure a spacious, open, and flexible physical environment that supports various class activities in cooperative learning. It should also have an atmosphere conducive to good relationships among members and packed with activities that keep learners engaged. The data collected from participants were analyzed using simple descriptive statistics to present the GEC environment as a creative one. Table 1 shows the statistics.

Table 1. Scale tool result

Component		Teachers (n=5)		Students (n=10)	
	Item	M	SD	M	SD
Physical environment	1	1.8	0.4	2.3	0.7
	2	2.4	0.5	2.8	0.4
	3	2.4	0.5	2.6	0.5
	4	3	0.0	3	0.0
Learning climate	5	3	0.0	2.6	0.5
	6	2.8	0.4	2.8	0.4
	7	3	0.0	3	0.0
	8	2.8	0.4	3	0.0
Learner's engagement	9	2.6	0.5	2.6	0.5
	10	2.6	0.5	2.9	0.3
	11	2.6	0.5	2.8	0.4
	12	2.4	0.5	2.5	0.5
	13	2.4	0.5	2.5	0.5
	14	2	0.7	1.9	0.6

The GEC class focused on building a fun, friendly, and creative learning environment by promoting positive emotions and nature awareness. For the physical environment, using flexible furniture and open spaces for learning provided an opportunity and support for learners to move and explore their ideas. With a minimum mean value of 1.8 for items 1-4, the physical environment of the GEC can support students' creativity, which, according to the scale rating, is an excellent creative learning environment. This result further confirms that the physical environment can be used to foster creativity, as reported earlier by (Davies et al., 2013; Lian et al., 2018). Additionally, displaying students' work around the

class boosted their green emotions and motivated them to express more creativity. This result follows the research of Pekrun (2014) and Richardson and Mishra (2018), which states that learning becomes enjoyable when students are adequately motivated.

The learning climate consists of the relationship between teacher and student, the relationship among students, and the overall atmosphere of a classroom. Items 5-8 showed that the GEC had a conducive learning climate, proving that the teacher's cheerful disposition and creative self can foster creativity by providing a conducive space for learners to express themselves without any restrictions or fear, in line with research conducted by Pekrun (2014). From mutual respect and emotional exchanges between members of the classroom to the green disposition of the teacher in managing class, the GEC can be concluded to have provided an atmosphere of friendliness and collaboration which can stimulate students' creativity, as stated by other researchers (Lian et al., 2018; Nael, 2019; Richardson & Mishra, 2018) and further validating the result reported by (Lian et al., 2018) on the friendly school program in Indonesia.

Learner-centered activities support intrinsic motivation and interest and, in turn, do much to support creativity; therefore, the learners' engagement is crucial in a creative environment. In the creative environment, class members are seen as co-learners and co-teachers, emphasizing the process and not just the product. Items 9-14 assessed the degree of students' engagement in class, and results showed that in the GEC environment, learners were engaged in the learning activities. This finding aligns with the literature on keeping students engaged through creative pedagogy (Amponsah et al., 2019; Kaplan, 2019; Khakzad et al., 2018; Khoiriyah & Husamah, 2018). This study proved the study by Jonathan and Recard (2021) that using fun activities like games leads to an increase in the engagement of students. When learners are engaged, they can express their creativity actively during learning. Additionally, by employing activities like presentations, learners share their ideas with others, which is a form of creative learning, as stated by Beghetto (2021) and Rhodes (1961).

Generally, the results of the assessment of the GEC showed that the class environment is conducive to fostering creativity. Moreover, promoting teachers' green emotions in the classroom and adopting creative pedagogies resulted in a fun learning atmosphere that allowed learners to express themselves creatively. This finding reinforced those of Apak et al. (2021) and Fan and Cai (2020) that trust and teachers' creative personalities influenced creativity cultivation in the classroom.

On the whole, the research has found that students are more likely to develop their skills and professional knowledge when studying in a creative learning environment at school. In a creative learning environment, ideas are valued, and students are encouraged to take sensible risks and make mistakes during the learning process. Specifically, teachers can encourage students to learn and think creatively (e.g., taking risks, building free and open communication channels, supporting creative ideas, and allowing more freedom and choice while students complete their assignments).

Conclusion

This study introduced the GEC learning environment in an Indonesian elementary class and assessed it based on three essential aspects of the creative

learning environment using observation and survey methods. Thus, the study has established that the GEC environment was a creative learning environment in which students' motivation and interest, collaboration, mutual respect, and knowledge sharing were enhanced through green emotions promotion by the teacher, which boosted their creative disposition as observed. The manifest implication of this study lies in the revelation that when educators consciously try to build a learning environment that is friendly, collaborative, and helpful by promoting green emotions, the learners can have an open space and opportunities to express and explore their ideas and foster their creative skills. It is recommended that policymakers formulate guidelines for the effective use of emotion-based teaching inside and outside the classrooms so that the use of emotion-based teaching and learning will become institutionalized. The teaching procedure designed and used by the GEC may benefit other educators interested in adopting creative emotional pedagogies in education.

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PROPOSAL TO DEVELOP AND VALIDATE A MOODLE-BASED FLIPPED LEARNING PLATFORM FOR ENHANCING ARABIC COMMUNICATION SKILLS

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Abstract
This research proposes the development and validation of a Moodle-based flipped learning strategy for enhancing basic communication in Arabic among undergraduates in Nigeria, using Al-Hikmah University as a case study. Flipped learning is a model that redefines traditional classroom activities, enhances engagement, and deepens understanding. Integration with Moodle, a widely used Learning Management System (MLS), creates a structured environment for content delivery. The study involves creating Arabic language modules on Moodle, including instructional videos, multimedia, and interactive exercises. These modules support self-paced learning, enabling students to review materials before class, with in-class time dedicated to collaborative activities. Effectiveness will be assessed through quantitative and qualitative measures, including pre- and post-assessment tests, surveys, and focus group discussions. Anticipated outcomes include improved language proficiency, increased participation, and enhanced communication skills. Validating the flipped learning platform using Moodle at Al-Hikmah University will provide valuable insights into language education, particularly for enhancing Arabic communication skills. The study's novelty lies in its innovative use of flipped learning, customized application of Moodle, focus on a unique demographic, and practical approach to language acquisition. This research offers a blueprint for future implementations in diverse educational settings, promoting the broader adoption of technology-enhanced learning methods.

Keywords: Arabic language, flipped learning, Moodle-based, pedagogy

Introduction
Qualitative and effective education can only be accomplished through adequate instructional approaches to learning. Engaging effective innovative technology in acquisition of knowledge in tertiary institutions can encourage effective outcome. Nigeria as an underdeveloped nation, hopes to achieve quality education as specified

in her National Policy on Education (FRN, 2014) that education should nurture its citizenry and society. A crucial approach employed for this purpose is Information and Communication Technology (ICT). Given the pivotal role of education in enhancing the quality of life, it is currently undergoing a technological revolution. In the contemporary educational landscape, technology has become an integral part, with most students possessing digital tools like laptops, palmtops, mobile devices, tablets, and more. Numerous tools and applications have been introduced to facilitate the teaching, learning, and evaluation processes. A recent trend in education involves utilizing technology to flip the classroom. MOODLE stands out as an effective tool for creating a flipped learning environment. Serving as a free and open-source Learning Management System (LMS), MOODLE aids educators in developing online resources and personalized learning environments for students. This platform enables teachers to share videos and textual content digitally with students, fostering increased participation and improved performance among students.

The majority of the digital resources found online are linked with the flipped classroom (FC) such as TED talks, YouTube, Khan Academy, and Coursera. These resources give access to instructional videos, recorded lectures, and sometimes other interactive materials for instructional delivery. Teachers implementing FC in most cases rely on these resources to give the lesson content (Bull et al., 2012). Makinde (2017) describes Flipped Classroom (FC) as an "inverted" classroom where school work is done at home and homework is done at school. The researcher outlines how the flipped classroom is used in Lagos State of Nigeria; observing that insufficient technical knowledge and internet connectivity made teachers burn their recorded video lesson into CD/DVD for learners to watch through a DVD player and television, desktop, or laptop at their comfort and convenient time at home. Assignments which usually are take-home problems can be done in the classroom where teachers offer assistance in difficult areas and monitor students' learning progress. In this situation, more time is available for the teacher to attend to individual learners where necessary and all students are motivated to learn at their pace.

According to the study by Estes et al. (2014), the FC model was proposed in three segments; (i) a pre-class where students' attention to the learning materials on the internet or off-the-net activities was encouraged; (ii) in-class segment, this involve cooperation and collaborations and also include students-student and students-teachers interaction in a classroom setting for effective learning; and (iii) the post-class segments that are controlled through the usage of technologies to assess the use, reproduction or transfer of knowledge through the use of flipped classroom approach (Figure 1).

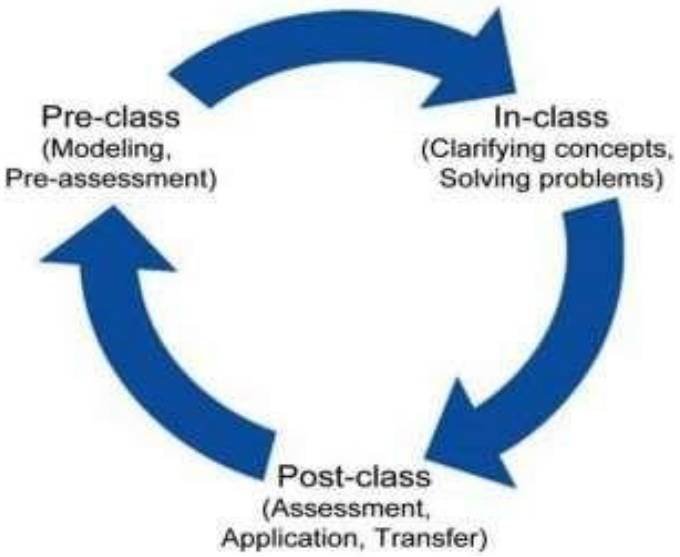

Figure 1. Flipping the classroom sample model (Estes et al., 2014).

In Al-Hikmah University being an Islamic faith-based university that was established in 2005, interested in inculcating adequate knowledge in her students, all students must offer two compulsory general studies (GNSs) in basic communication in Arabic among others. These courses are 1 unit course each in 100 and 200 levels (GNS103: Basic Communication in Arabic I and GNS203: Basic Communication in Arabic II). The two GNSs always pose serious problems for students to pass because Arabic is not the native or official language of communication in Nigeria. Hence, Arabic language is known to be a foreign language to all students.

Over the years, the Arabic language has been playing a vital role in the history of West Africa in general and in the history of Nigeria in Particular. Specifically, the 9th century marked the advent of Islam in Nigeria and Arabic language education accompanied it along. Therefore, most historians generally agree that the advent of Islam in Nigeria has had a great impact on the Arabic language since the 9th century C.E. purposely because of the regular contact of the Arab scholars from Sudan, Turkey, Morocco, etc. with the Nigerian ulama (Scholars), and with traders during that period. This made the influence of the Arabic language more effective in the intellectual and cultural heritage of the people in the Northern part of Nigeria like Bornu (Atotileto, 2011). Learning the Arabic language can promote the Interlingua relationship, job opportunities, and opportunities to move around the world specifically in, the United Arab Emirates (UAE) and other Arabic-speaking nations of the world with ease. The chat below illustrates a pilot survey of student's enrolment and performance in GNS103 and GNS203 for five consecutive years (2018/2019– 2022/2023 academic sessions)

Performance Pattern in GNS103 (2019 – 2023)

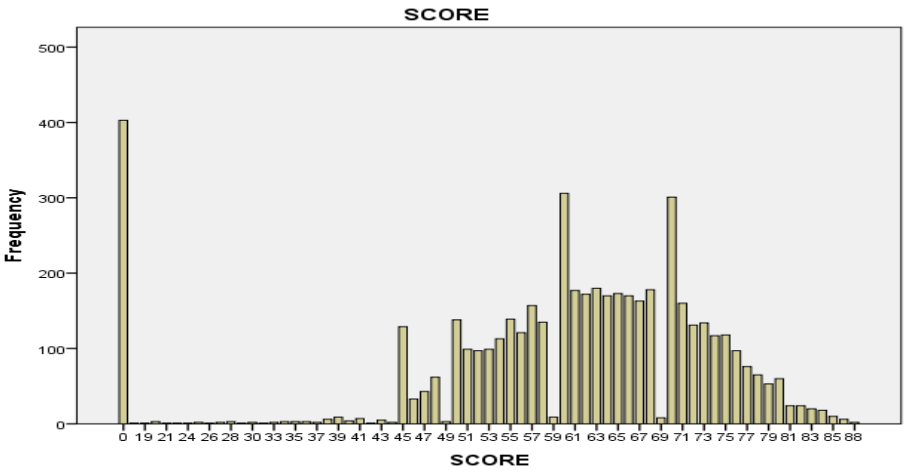

Figure 2**.** Frequency chart of student's performance trend in GNS103
(Researchers' preliminary fieldwork, 2023)

Performance Pattern in GNS203 (2019 – 2023)

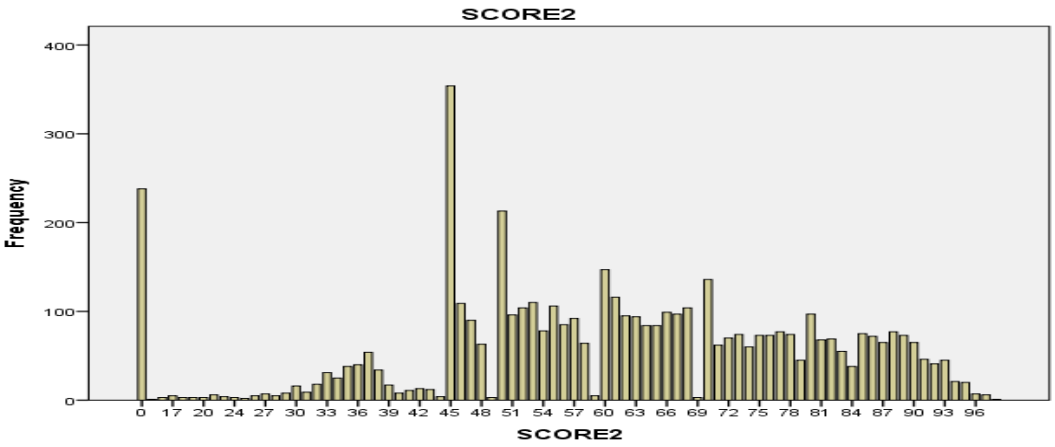

Figure 3. Frequency chart of student's performance trend in GNS203
(Researchers' preliminary fieldwork, 2023)

The Figure 2 and 3 above indicated that high number of students in Al-Hikmah University always score zero (0) in both Arabic language based general studies examinations for between the year 2019 to 2023. In GNS203, the majority of the students struggle to score 45% for them to be able to pass the course since it cannot be waived. Hence, the problem may be a result of a traditional teaching approach or lack of interest because innovative technology like flipped classrooms not introduced to the courses.

Conversely, in Al-Hikmah University, there are groups of students who showed excellence in their Arabic Language experience which is the medium of instruction in their studies. Majority of them already have the background knowledge before seeking admission into the university to study either Arabic language, Islamic studies, Arabic education, or Islamic studies education. However, this group of students is very small compared to the generality of the student population on the university campuses in Adeta, Atere, and Igbaja. Given this reality, this study aims to create and authenticate a learning resource designed to address the challenges faced by students in acquiring fundamental communication skills in Arabic as a foreign language. This resource would be specifically developed as a flipped learning model using Moodle.

The main objective of this research is to create and authenticate video lessons for Moodle-based flipped learning, focusing on the impact on achievement in Basic Communication in Arabic for undergraduate students at Al-Hikmah University, Ilorin, Nigeria. The specific objectives include:

1. Planning a video lesson for basic communication in Arabic.
2. Designing a video lesson for basic communication in Arabic.
3. Developing a video lesson for basic communication in Arabic.
4. Validating the video lesson for basic communication in Arabic.

Problem statement/justification

Flipped classroom (FC), an instructional approach has been majorly acclaimed to be an effective method of teaching and learning for better performance in any subject. It provides the teacher more opportunity to interact with students on brain tasking problems in class (Makinde & Yusuf, 2017; Makinde, 2020); Students who miss classes can watch the videos of the lessons at a later time at home to catch up with their mate in class (Purwanto, 2022). This approach encourages learning to take place at all times gives room for 24/7 thinking (Jacob & Mathew, 2013), and creates more time for one-on-one interaction between the teacher and students during learning activities in the class.

Though a lot of research has been conducted on the causes and remedies of poor performance in basic communication in Arabic in the educational sector in Nigeria, the problem remains unsolved. Basic communication in Arabic is a required course in Islamic faith-based universities in Nigeria which must be passed by all students before graduation. However, poor performance has always been recorded. According to Ablo and Yekple (2018); Agu et al. (2018); Doe et al. (2020); Ebekozien et al. (2023); Edet and Udida, (2023), lack of basic infrastructures like electricity, pipe-borne water, and technical resources, safe and secure facilities that are essential to successful educational programs also contributed to low in students' performance. This, therefore, necessitates Arabic teachers and educational technologists to increase research to remedy the situation.

Several authors such as Purwanto (2022) and Makinde (2017) found that FC increased student satisfaction, improved communication skills, enhanced learning experience, and consequently, improved students' performance in mathematics and the sciences. If this is possible in mathematics and science, then, it can also be replicated in humanities and arts courses like Arabic communication being a foreign language. Therefore, this study focuses on developing and validating a flipped learning platform using Moodle to improve basic Arabic communication skills for

undergraduates at Al-Hikmah University, Ilorin, Nigeria. The uniqueness of this research is highlighted by several key aspects:

1. *Innovative Flipped Learning Application:* Although flipped learning is becoming more popular, its specific use for teaching Arabic communication skills at the university level is distinctive. This method contrasts with the traditional lecture-based approach commonly seen in language education.
2. *Utilization of Moodle:* Leveraging Moodle, a widely-used learning management system, to create a customized and interactive flipped learning platform for Arabic language education is innovative. Moodle's features, such as personalized learning paths, quizzes, forums, and multimedia integration, bring a unique dimension to this educational approach.
3. *Specific Demographic Focus:* Concentrating on undergraduates at Al-Hikmah University in Ilorin, Nigeria, offers a unique demographic and cultural context. This approach addresses the specific educational challenges and needs of Nigerian tertiary students, which have not been widely explored in past research.
4. *Improving Arabic Communication Skills:* The focus on enhancing basic Arabic communication skills through this flipped learning approach is a novel educational objective. It aims to make language learning more practical, engaging, and effective for students.
5. *Model for Broader Application:* Successfully implementing and validating this platform could serve as a model for other educational institutions and languages, encouraging the broader adoption of technology-enhanced learning methods in similar educational settings.

Literature Review

Several studies on the flipped classroom consider it to be an effective method of teaching and learning for adequate engagement and performance of students in nearly all subjects because it acclaims to be a self-learning method and creates more time for teachers to be with individual students on their learning difficulties in the classroom (Makinde, 2020a; Toppo, 2011).

As noted by Morrison (2019), self-paced learning methods, also referred to as individualized learning or self-instruction, are a focal point in instructional design. According to established principles of learning, substantial evidence supports the notion that optimal learning occurs when students engage at their own pace, actively participate in specific learning tasks, and achieve success in the learning process. Morrison emphasizes the importance of key elements in a high-quality self-paced learning program, such as meticulously designed learning activities aligned with specific objectives and careful selection of activities and resources to meet instructional requirements. Long et al. (2020) opine that incorporating activities before lectures and allocating time for active learning can lead to a modest improvement in the examination performance of learners. Significantly, this change not only enhances student attitudes towards the course in general but also positively influences their perception of lectures.

Fisher (2017) underscores the pivotal significance of assessing students within the teaching and learning process. Evaluating student learning is essential because it provides valuable feedback to both educators and learners, offering

insights into the extent to which students are accomplishing the specified learning objectives.

The rapid advancements in ICT and related technologies over the past few decades have significantly transformed various aspects of education, particularly in higher education (Lubis et al., 2011). Its positive influence on global dynamics and the increasing cultural diversities in all realms of human knowledge, especially in language learning, cannot be underestimated. Thus, the utilization of Information and Communication Technology (ICT) in Arabic language learning in the 21st century can take various forms, including e-learning, blended learning, mobile learning, distance education, and online learning (Atotileto, 2011).

The current state of Arabic language teaching and learning in Nigeria is confronted with substantial challenges, primarily stemming from the prevalent pedagogical approach adopted by many Arabic language educators—predominantly reliant on traditional teaching methods. Research conducted by Olaniran (2018), and Gallagher (2023) highlights that some Arabic language teachers favor a teacher-centric method with limited student involvement. Eltahir et al. (2021) assert that certain teachers make minimal contributions to student achievement.

Simultaneously, the issues extend to the students themselves, who exhibit weaknesses in Arabic proficiency and tend to adhere to traditional learning methods. This is evident in studies by Akewula (2020), Omar (2019), Rohman (2022), and Zubair (2023). Al-Amery (2020) noted that many students prefer passive learning, merely listening to the teacher, and are hesitant to engage in Arabic language activities. Consequently, Rohman (2022) discovered that students encounter difficulties comprehending the Arabic Language subject and this attributes this weakness to students' passive attitudes, manifesting through limited application of effective learning strategies due to a lack of awareness. This observation is echoed by Arshad (2012), and Samah et al. (2014).

Al-Hikmah University contributions toward adequate innovative learning

Al-Hikmah University, located in Ilorin, Nigeria, was established in 2005 under the Abdur-Raheem Oladimeji Islamic Foundation (AROIF). Its initial setup included three faculties—Humanities, Management Sciences, and Natural Sciences—with an inaugural student body of 70 individuals distributed across these faculties. Over time, the university has evolved and currently comprises seven faculties: Humanities and Social Sciences, Management Sciences, Natural and Applied Sciences, Education, Law, Health Sciences, and Agricultural Sciences. The Institute of Education has also emerged from the Sandwich degree program. The current student population exceeds 6000, encompassing both undergraduates and postgraduates. All courses offered by the university are duly approved and accredited by the National Universities Commission (NUC). The university gives constant training for both lecturers and students in the area of soft skills regularly. Al-Hikmah University stands as one of Nigeria's pioneering conventional private universities, the first Islamic faith-based university in Nigeria, guided by a well-defined mission and vision encapsulated in its motto: "Learning for Wisdom and Morality" (Makinde, 2020). With all these trainings given to students on an annual basis, the adoption of any innovative technology for more effective learning may not likely face any stopping block from the students.

Method

Research design

This study is a design-based research that is based on the constructivist theory of learning. The first three stages of ADDIE model for Instructional learning production were adopted, namely the Analysis (Plan), Design, Development, and Implementation of the learning package. This package was validated by experts in the Language department (Arabic) and Science Education (Educational Technology).

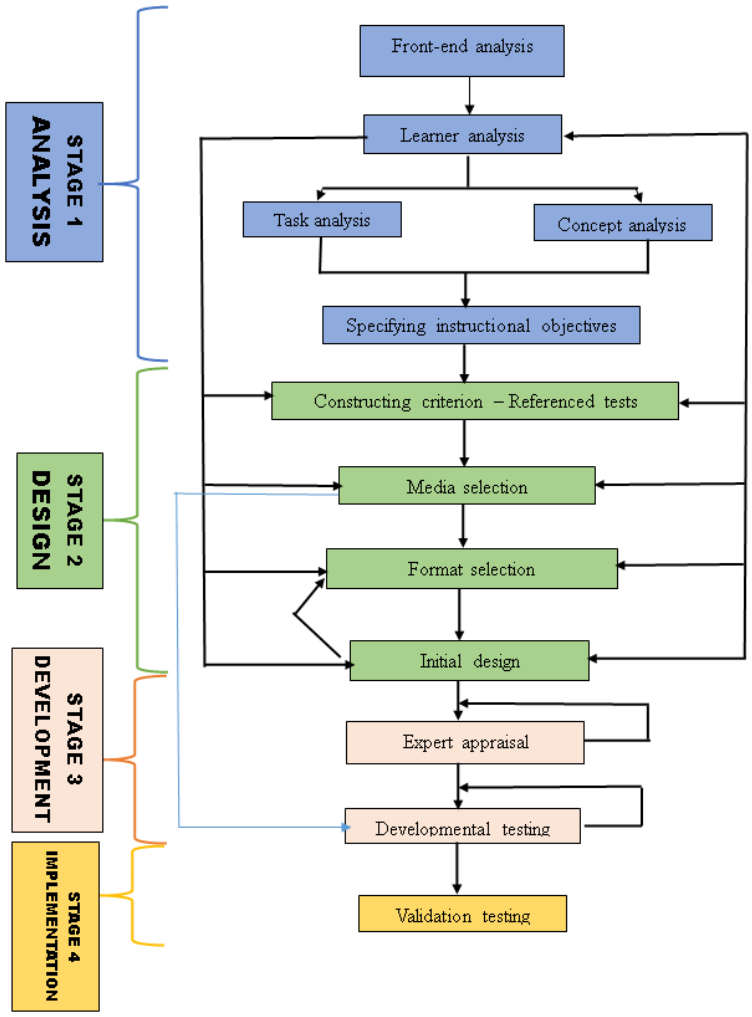

Figure 4. Development and validation stages of the ADDIE Model

Research procedure

Stage 1

The Analysis stage itself comprised five activities. First, there was front-end analysis that analyzes the fundamental problems encountered in the learning process of Arabic communication. The analysis of the problem was conducted by studying literature and conducting field studies. Second, student analysis activities identified the students' characteristics relevant to model design as well as its development. These student characteristics included the initial conditions of the student's speaking and listening. This was accomplished with the use of student analysis, followed by

task and concept analyses. Task analysis was then conducted to point out the main skills that students must acquire and then break these down into a set of necessary and sufficient sub-skills. The major skills that were developed in students are speaking and listening. These two things were analyzed to find indicators that must be developed in the students so that key skills would be achieved. The fourth was an analysis of the concept to find the main components that existed and would be designed into a model. According to Joyce et al. (2015), it is needed to determine the components that comprise a learning model. Fifth, the identification of learning objectives simply meant rephrasing the results one obtains from task analysis and concept analysis into formulated objectives expressed in the form of behaviors.

Stage 2

In this stage of the design, there were four activities involved: the first one was constructing criterion-referenced tests and carrying out the preparation of the research instruments, namely instruments to measure learning objectives, which were also the objectives of model development, and instruments for model validation. The second one was choosing appropriate media to deliver both the developed model and the learning material. The model delivery medium was specified in the form of a model book equipped with the necessary learning tools. The media for delivering the material were videos and student virtual workbooks. Third, the most appropriate format was chosen based on several factors: a combination of media, teaching strategies, and utilization of techniques going into the learning format. The format of learning in the FL Moodle-based could either be individual or group learning. Fourth was the actual activity to prepare the preliminary design for FLM. In general, the preliminary design product consisted of FLM and Learning tools that supported the implementation of the model including a syllabus, workbook, video, reflection book, and guidebook on the implementation of the model.

Stage 3

The Development stage had two activities. The first one was Expert Appraisal. Experts' review was carried out to get the evaluations and recommendations of experts for improving the initial product. The second one was Developmental Testing. Development testing is a trial of the product design activity that is revised in the light of expert advice, targeting students. Development testing tends to find out those areas that still need to be revised and test case the model's practicality. Revisions of the product were based on several students who were used as test subjects for response, reaction, and comment.

Stage 4

Testing consisted of three activities in the implementation stage of the process. Before this, we implemented the product and intended to do validation testing in the form of a summative evaluation to describe its effect. Mainly, the data collected in this phase comprised changes in speaking and listening by students. The second stage for packaging learning products in an acceptable form is the packaging. Face validity, completeness, flexibility, and ease of use are typical characteristics of widely adopted learning products.

This study was conducted at Al-Hikmah University, Ilorin, Nigeria. The university, renowned as the first prominent private Islamic faith-based institution in

Nigeria, accommodates a student population exceeding 6,000, distributed across seven faculties: Humanities and Social Sciences, Management Sciences, Natural and Applied Sciences, Education, Law, Health Sciences, and Agricultural Sciences. Additionally, the Institute of Education had evolved from the Sandwich degree program. As a faith-based university, all students are mandated to undertake and successfully pass GNS103: Basic Communication in Arabic I and GNS203: Basic Communication in Arabic II before graduating. Hence, a great challenge for students since Arabic is not the native or official language of learning. This study adopted Moodle as an open-source Learning Management System (LMS) platform that allows teachers to upload learning materials on the internet for learning to use at ease and can allow personalized learning. Therefore, the researchers aimed to plan, design, develop, and validate, a video lesson that could remedy the problems of students in learning, specifically, Arabic as seen as a foreign language. Hence certain steps and procedures needed to be followed as highlighted below in the development and validation of a learning video for GNS103 and GNS203 in Moodle based of flipped learning.

Development of script for video lesson

The researchers created the script for the Video Lesson following a thorough review by experts. This script encompassed all the content for the courses "Basic Communication in Arabic I & II." Subsequent to the script's preparation, the researchers produced the video content for both courses in alignment with the script. The finalized video lessons underwent scrutiny by experts to assess their accuracy and practicality. The development of the video scripts adhered to the outlined steps below.

1. The researchers gathered pertinent materials by consulting books in the library and utilizing online digital resources. These collected materials underwent a thorough review by experts.
2. The researchers logically organized the script's content, commencing with familiar topics and progressing toward unfamiliar ones. The script concluded with appropriate closure points, ensuring a coherent structure for the unit.
3. Subsequently, the researchers reworked the script, making essential modifications to achieve a final version characterized by proper continuity and proportion.
4. Ultimately, the researchers composed the script content and combined audio-visual elements and animations, incorporating visual illustrations.

Creating visual content

In the process of crafting visual content, the researchers gathered pertinent images, animations, video clips, as well as music and audio. These collected visual elements were seamlessly integrated with the script to enhance the overall presentation. In the final step, the researchers included a voice-over for the lesson script to create a compelling video lesson. Utilizing the latest video editing tools, the researchers employed the content, teaching points, and e-content to produce the video lesson.

Schematic presentation of the video lesson

Table 1. The schematic presentation of the video lesson is given below

Video Lesson	Purpose
Two Senior lecturers, Associate Professors, or Professors of Arabic language teaching Basic communication in Arabic in Universities	To get clear ideas about identifying subject matter in basic communication in Arabic
Two Senior lecturer or Professor of Educational technology	To get the technicality of the presentation and arrangement of the package of the lessons.
A sample of 5 students from all 6 faculties offering basic communication in Arabic	Demonstration for trying out the Video Lesson Package
Three experts (senior lecturers and above in Arabic language, Educational technology, learning package designer (technologist))	For validating the Video Lesson

To authenticate the video lesson package, two subject matter experts were invited to examine the video lesson, and their input will be utilized for any required adjustments. In accordance with the feedback received, the researchers made adjustments to the video lesson package. The revised video lesson package underwent additional evaluation by the experts. Subsequently, the final approved version of the Video Lesson Package was achieved (Table 1).

After trial testing and the package had been adjudged to be adequate for flipped classroom learning, the content was released to the students in modules of the MOODLE platform of LMS. Over 1,000 students could then be effectively handled at a go without much stress and more time would be available to attend to student's problems collectively or individually because the classwork was done in the hostel while assignments were done in the classroom in the present of lecturers to measure the learning progress. This is the principle behind the flipped-learning approach for effective instructional delivery in schools.

Findings and Discussion

Planning a video lesson for basic communication in Arabic

In this phase, the researchers intended to collaborate to outline the structure and content of the video lesson. This involved several key steps:

- ✓ *Identifying Key Topics:* The researchers determined the essential subjects needed to facilitate basic communication in Arabic, including greetings, common phrases, basic grammar, vocabulary, and conversational scenarios.
- ✓ *Setting Learning Objectives:* Clear and measurable learning objectives were established to guide the instructional process, such as being able to introduce oneself, ask and answer simple questions, and understand and use basic expressions in everyday situations.
- ✓ *Choosing the Instructional Approach:* The researchers decided on the teaching methodologies and strategies to be employed, which included a combination

of direct instruction, interactive activities, and practical exercises to ensure that students could apply what they learned in real-life contexts.

- ✓ *Collaborative Planning:* The researchers worked together to map out the sequence of the lesson, ensuring that it flowed logically and built progressively on the students' knowledge. They also allocated tasks among themselves, such as scriptwriting, creating visual aids, and sourcing multimedia resources.

Designing a video lesson for basic communication in Arabic

The design phase focused on translating the planned content into a visually engaging and pedagogically effective video format. Key considerations included:

- ✓ *Visual and Multimedia Elements:* The researchers incorporated various multimedia elements such as graphics, animations, and subtitles to enhance understanding and retention. Visual aids like flashcards, diagrams, and real-life footage helped illustrate concepts and provide context.
- ✓ *Instructional Aids:* The design included tools to support learning, such as on-screen text for key vocabulary, interactive quizzes, and example dialogues. These aids were designed to reinforce learning objectives and provide opportunities for practice and assessment.
- ✓ *Presentation and Engagement:* The overall presentation was crafted to capture and maintain student interest. This included using a friendly and approachable tone, varying the pace of instruction, and incorporating elements of storytelling to make the content relatable and memorable.
- ✓ *Technical Considerations:* The researchers ensured that the video was technically sound, with clear audio, high-quality visuals, and smooth transitions. Accessibility features such as closed captions and audio descriptions were included to cater to diverse learning needs.
- ✓ *Pedagogical Effectiveness:* The design focused on creating an interactive and student-centered learning experience, embedding questions and prompts within the video to encourage active participation and reflection.

Developing a video lesson for basic communication in Arabic

The development phase was dedicated to the actual creation of the video lesson, following the designed framework. This phase involved several key activities to ensure the video was engaging, clear, and aligned with learning objectives:

- *Content Creation*: The researchers produced the video content, including filming, recording voiceovers, and editing footage. This step ensured that all planned elements were seamlessly integrated, creating a cohesive and professional video.
- *Incorporation of Interactive Elements:* Interactive components such as quizzes, practice prompts, and clickable sections for additional information were added to the video. These elements were designed to engage learners actively and reinforce their understanding of the material.
- *Ensuring Clear Communication:* The video was crafted to deliver information clearly and understandably. This involved using simple language, appropriate pacing, and visual aids to enhance comprehension and ensure that learners could easily follow along.

- *Alignment with Learning Objectives:* Throughout the development process, the researchers ensured that the video content aligned with the predefined learning objectives. Each segment of the video was designed to contribute to achieving the intended educational outcomes, ensuring the lesson was effective and goal-oriented.

Validating the video lesson for basic communication in Arabic

The validation process was crucial for ensuring the video lesson's effectiveness, clarity, and relevance. This phase involved obtaining comprehensive feedback from various stakeholders to refine and improve the instructional content.

- *Gathering Expert Feedback:* Language education experts and faculty members reviewed the video to assess its instructional quality, accuracy, and pedagogical soundness. Their expert insights helped identify areas needing improvement and ensured the video met academic standards.
- *Student Feedback:* A representative sample group of students watched the video and provided feedback on their learning experience. This input was vital for understanding how well the video met the learners' needs and expectations, ensuring that it was engaging and informative.
- *Assessing Learning Outcomes:* The feedback process also involved evaluating whether the video achieved its intended learning objectives. This assessment determined if students could effectively demonstrate the basic communication skills in Arabic that the video aimed to teach.
- *Revisions and Improvements:* Based on the collected feedback from experts and students, the researchers made necessary revisions to the video. This iterative process ensured that the final product was clear, engaging, and effective in teaching basic Arabic communication skills.

Conclusion

This research successfully achieved its objectives by systematically planning, designing, developing, and validating a flipped learning platform utilizing Moodle to enhance basic communication in Arabic. The collaborative effort of the researchers ensured that the final product aligned with pedagogical principles and met the specific needs of undergraduate students at Al-Hikmah University. The validation process provided valuable insights and feedback for potential enhancements, contributing to the ongoing improvement of language education strategies.

Pedagogical assumptions, novelty, and implications

The flipped learning model suggests that students can learn more effectively by engaging with course material outside the classroom and applying their knowledge during in-class activities. It emphasizes students taking responsibility for their learning, with teachers serving as facilitators. This approach is rooted in the belief that students build knowledge through experiences and reflection. The platform caters to diverse learning needs by offering various instructional materials and activities. Integrating technology, particularly through Moodle, is believed to enhance the learning experience by providing accessible and interactive resources.

Introducing a flipped learning approach for basic Arabic communication skills was innovative, as traditional methods were typically lecture-based. Using Moodle to create and deliver this platform was unique due to its customization and interactive

capabilities. Focusing on undergraduates at Al-Hikmah University in Ilorin, Nigeria, added a distinct perspective, taking into account the local educational and cultural context.

The flipped learning model was expected to improve students' Arabic communication skills by offering more practice and application opportunities, leading to better retention and understanding. Moving passive learning activities outside the classroom and concentrating on interactive exercises during class likely boosted student engagement and motivation. Successfully implementing and validating this platform could serve as a model for other institutions and languages, promoting the use of technology-enhanced learning methods. Teachers would shift from traditional lecturers to facilitators, which could provide professional development opportunities and redefine teaching practices. The study's outcomes laid the groundwork for further advancements in integrating technology into language education, encouraging future research and adaptation of similar models in various educational settings.

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ADVANTAGES OF USING TRANSLATION, PARAPHRASING, AND PODCASTS TO IMPROVE NATURAL WRITING SKILLS

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Abstract
Most EFL students find it difficult to articulate themselves clearly in written assignments. To overcome those flaws, twenty-five college students enrolled in the program. The WhatsApp program was employed as a classroom tool because of online learning. The teacher modified the audio materials in an attempt to strengthen the pupils' inadequate writing abilities. The students observed the native speakers' use of grammar in their transcribing and used that to understand grammar usage. To help with vocabulary development, the students also translate it into their native tongue. The students recount the podcasts' material to improve their speaking flow. The information the students learned from the podcast materials was applied to the description of images. Students utilized paraphrasing applications to complete the proofreading assignments. It is a procedure to hone their writing abilities. It is discovered by qualitative data analysis that students can successfully produce natural writing by using paraphrasing tools, translation services, and podcasts. Instructors can teach pertinent subjects with the use of this kind of material. It is also causing other researchers to become aware of more pertinent discoveries.

Keywords: communication, paraphrase, sentence construction, translation, writing

Introduction
Writing can change attitudes in addition to presenting thoughts and feelings. We can affect others' opinions and perceptions of particular issues by making well-researched arguments and offering supporting data. This is especially true for opinion articles and journalism, where authors have the power to influence readers' beliefs and effect social change (Zeb & Ali, 2024). Writers can refute preconceived notions, start discussions, and motivate people to take action with their words. Writing has the rare capacity to exist outside of space and time. Words, once written, have the power to impact future generations and reach a worldwide readership (Suseno, 2020). Consider the classic literary works that have impacted our culture and way of thinking. Shakespeare's plays and George Orwell's dystopian books are among the works of literature that have endured and still influence our viewpoints today. We too may leave a lasting legacy and add to humankind's

collective knowledge by utilizing the power of writing. Writing is an effective instrument that helps us shape perspectives, communicate ideas, and express our thoughts. It gives us the ability to influence people, speak clearly, and delve into our deepest ideas. Writing correctly is more crucial than ever in this digital age of information abundance (Woloshyn et al., 2024).

A person's ability to write better depends on their vocabulary growing. It is fundamental to the building blocks of effective communication (Sari et al., 2024). We can convey our ideas and opinions more effectively and powerfully when we have a big vocabulary in addition to helping us communicate more successfully. Vocabulary development and expansion are ongoing processes that call for work and repetition. One of the best methods to introduce ourselves to new words and phrases is to read a lot. Through engaging with a diverse range of genres and styles, we can come across new terms and acquire their meanings contextually (Suseno, 2021). Additionally, we can actively engage with new terms and reinforce our learning by using vocabulary-building resources like word games or flashcards. Vocabulary is an effective instrument that can greatly improve our writing abilities. It enables us to communicate more clearly, explain difficult concepts, and modify our writing style for various situations. We may fascinate readers and write at a higher level by consistently growing and improving our vocabulary. Therefore, we suggest embracing the power of words and realizing the greatest writing potential we possess (Momo et al., 2024).

Using proper grammar is essential to writing effectively. It acts as the cornerstone around which cohesive and transparent communication is constructed. Grammar is much more than just a series of rules to be obeyed, despite what some people may claim. Grammar is essential for effectively communicating our ideas and making sure that people understand what we're saying (Telila et al., 2024). In the increasingly interconnected world of today, we frequently communicate with people who speak other languages. We may ensure that our message is comprehended by a larger audience and bridge the gap between different languages by following grammatical principles (Suseno, 2024b). Grammar acts as a universal language that facilitates cross-border communication. Grammar is the foundation of good writing, not just a series of rules to be obeyed (Suseno et al., 2023). It gives our communication credibility, clarity, and organization. We can make sure that our message is understood correctly and professionally by employing suitable language. In a world where good communication is crucial, being proficient in grammar can help us a lot in many different areas of our lives. To improve communication, let's acknowledge the significance of grammar and work to develop our writing abilities (Permatasari & Alvian, 2024).

Understanding syntax is fundamental to learning a language because it is necessary for comprehension and communication. It speaks about the principles and arrangements that control the way words are put together to create coherent sentences. For language learners, having a solid grasp of syntax is essential since it improves their capacity for both understanding and successful communication (Shahid et al., 2024). Developing syntaxes provides cognitive advantages in addition to enhancing communication and understanding abilities. Studies have indicated that mastering grammar improves cognitive skills like critical thinking and problem-solving by stimulating the brain. Logical reasoning and mental

flexibility are necessary for comprehending and applying syntax norms, and they can aid in the general development of cognitive abilities (Suseno et al., 2024b).

For language learners, learning syntax is essential because it improves their capacity for efficient communication, helps them understand spoken and written language, and promotes cognitive growth. Students who grasp syntax are better able to create grammatically accurate phrases, comprehend language structure, and express themselves creatively. The development of syntax should be given top priority in language learning by educators and students to support successful language acquisition and proficiency (Ismahani et al., 2024).

Writing can be difficult, but it's a necessary skill for students learning English as a foreign language (EFL). A major obstacle that EFL learners encounter while writing is a deficiency in vocabulary. Their inability to properly communicate and express themselves is hampered by their limited vocabulary. Their writing may come across as shallow and unsophisticated as a result. Sentence structure and grammar are issues that EFL learners also face. The intricate and perplexing nature of English grammatical rules might result in mistakes while constructing sentences. This may hinder the overall cohesion of their work and make their writing more difficult to read. Furthermore, EFL students frequently have trouble structuring their work and organizing their thoughts. It could be difficult for them to organize their thoughts coherently and logically throughout their writings or articles. (Omonova, 2024).

The idea listing technique, or ILT approach, is a way to generate a list of important subjects to address by breaking down a broad issue into a few smaller ones. Students must master this prewriting exercise to improve their writing abilities. Additionally, students who use modified ILT using flash cards are better able to compose essays. A large number of word, phrase, and sentence flashcards were provided by the teacher. The pupils were asked to select a few that connected to their overall subject. It aided them in stating their list of subtopics. Students' writing skills improved as a result of the amended ILT's writing components (Asrofi, 2024).

It seems promising to use podcast content to help students become better writers. With such materials, they may improve visual description, translation, and observation. By using this strategy, the students gain an understanding of grammar through reading the podcast transcript. Translating the screenplay helps them improve their vocabulary as well. However, students' capacity to communicate developed concepts is enhanced when they retell the podcast's content. Through the process of such learning, pupils' writing abilities are developed through the description of visuals. To get the best outcomes, this type of learning can be modified for the earlier study.

The study's goal is to determine the best ways to use podcasts and paraphrasing tools to improve students' writing abilities. These are the items that are necessary to support students in becoming more proficient writers. Maintaining a research question is necessary to achieve this kind of goal. It serves as advice for steering the study in the proper direction. "How does the teacher apply podcasts and paraphrasing tools to improve the student's writing skill development?" is the question posed. The response to such a query is analyzed qualitatively to reach the study goal.

Literature Review

The important of writing

Writing is a basic ability that has been necessary for human communication ever since written language was created. We can permanently and broadly disseminate our thoughts, ideas, and information to others through writing. It makes it possible for us to communicate ideas, experiences, and tales to those who might not be able to hear or comprehend us vocally. For the benefit of future generations, writing helps us preserve knowledge and concepts. We can learn about the history, cultures, and accomplishments of past civilizations through written writings. Writing promotes examination and critical thinking. Writing requires us to arrange our ideas, weigh many viewpoints, and make our points clearly and logically. We can improve our analytical abilities and think more thoroughly about a subject thanks to this procedure. Writing is an effective means of expressing oneself (Kacena et al., 2024). It enables us to investigate our feelings, ideas, and experiences in a way that is both enduring and private. We can communicate with people through writing about our original ideas, inventiveness, and points of view. Writing is a crucial learning and teaching skill. Students can use it to interact with peers and lecturers, present research findings, and articulate their comprehension of various disciplines. Since pupils come into contact with a variety of written materials during their academic careers, writing also aids in the development of students' reading skills (Awosanya et al., 2024).

Developing vocabulary

Increasing one's vocabulary is crucial for both learning a language and growing as a person. It entails increasing our vocabulary in words, phrases, and expressions within a certain language, which improves our capacity to comprehend a variety of written and spoken information and to communicate efficiently. Reading is one of the best methods for expanding vocabulary. Make a note of new terms and phrases that students come across in their reading materials and research their definitions. Students will gain a better knowledge of new terms in context and how they are used in various contexts as a result of this. Writing aids with vocabulary development as well (Anggraeni et al., 2024). Students will inevitably add new words and phrases to their language as they write. In addition to teaching pupils new vocabulary, this enhances their writing abilities and increases their capacity for self-expression. Using flashcards or vocabulary lists is an additional method of vocabulary development. Usually, these lists include definitions of words as well as examples of how to use them in phrases. Regularly going over these lists can aid in helping pupils learn new terms and enhance their capacity to identify and employ them in their writing and speech. Students can also improve their vocabulary by chatting with native speakers or taking part in language exchange programs. Through these exchanges, students get the chance to hear and practice new words and phrases in natural settings, which can aid in their understanding and retention. Students can expand their vocabulary by using any of the many language-learning apps, websites, or other tools that are available. These resources frequently feature interactive games, quizzes, and exercises that make picking up new vocabulary entertaining and interesting (Purba et al., 2024).

Benefit of translation

The process of translating spoken or written language from one language to another is called translation. Communication between speakers of different languages is made possible through translation. It promotes understanding, cooperation, and collaboration by allowing people, companies, and organizations to engage with others across linguistic and cultural barriers. By enabling individuals to access and comprehend literature, music, art, and other forms of expression from various cultures, translation promotes cross-cultural understanding. By bridging cultural divides, it fosters respect and understanding among people. For companies and organizations that operate in a worldwide setting, translation is essential (Xiang et al., 2024). It facilitates multilingual communication between businesses and their partners, clients, and customers, all of which can boost sales, raise customer happiness, and advance overall corporate success. Because it enables academics and students to access and comprehend academic materials, research papers, and other resources published in multiple languages, translation is crucial for education and research. This aids in knowledge expansion, encourages cross-cultural cooperation, and makes it easier for concepts and discoveries to be shared (Kennedy et al., 2024).

Noticing grammar content in transcript

It is important to pay attention to the grammatical structure, syntax, and word and phrase usage in a transcript to identify the grammar content. This can strengthen students' speaking and writing abilities as well as their comprehension of the language by pointing out any mistakes or contradictions. Students should read a transcript slowly and attentively, paying close attention to each sentence. Take note of the sentence structure, word choice, and general grammatical construction. Many different sentence forms, including declarative, interrogative, imperative, and exclamatory sentences, are frequently seen in transcripts. Students can learn how sentences are put together and used in various contexts by observing these patterns (Al-Amri, 2024). One of the most important rules of English grammar is a subject-verb agreement, which says that the verb in a phrase has to match the subject in person and number. By examining the subject-verb agreement in a transcript, students can enhance their writing and speaking abilities while avoiding typical mistakes. Sentence structure depends on verbs, and knowing the many tenses of verbs can help students write and talk more effectively. Students can pick up accurate verb tenses in their native tongue by observing how they are employed in transcripts. New words and phrases that students may not be familiar with are frequently included on transcripts. Students can improve their language comprehension and increase their vocabulary by paying attention to these words and phrases (Song & Licoppe, 2024).

Benefit of retelling

The act of rewriting a narrative, event, or fact in students' own words is known as retelling. By allowing students to paraphrase and reinterpret the original knowledge in a way that is more familiar or understandable, storytelling helps to increase understanding and comprehension. This can be especially useful when discussing difficult or specialized subjects. By using a distinct kind of mental stimulation, storytelling can enhance memory retention in pupils. Retelling a tale

or a fact helps pupils retain the original material better since it requires them to actively remember and analyze it (Rifiyanti, & Hidayat, 2024). Students must thoroughly examine and assess the original material while retelling it. Students' analytical and critical thinking abilities can be enhanced by this since it forces them to take into account many viewpoints, interpretations, and meanings. By adding their perspective to the source material, students can use storytelling as a means of expressing their creativity and personality. It can be an enjoyable and interesting way to investigate and comprehend many subjects and concepts. Because it enables more dynamic and direct interaction between teachers and students, storytelling can be a useful teaching and learning method. Teachers and students can examine many viewpoints, examine, and analyze the material, and enhance their learning by having a narrative or piece of information retold (Altun, 2024).

Benefit of paraphrasing application

Applications for paraphrasing allow users to reword or restate material in their own words. Applications for paraphrasing allow users to reword and paraphrase the original material in a way that is more recognizable or understandable, which can aid in improving knowledge and comprehension. This can be especially useful when discussing difficult or specialized subjects (Chanpradit et al., 2024). Applications that paraphrase text can enhance memory retention by using the user's brain in a novel way. Students' memories of the original content can be strengthened because they are actively digesting and remembering it while they paraphrase. Users using paraphrasing apps must assess and critically study the original information. Because users are compelled to take into account many viewpoints, interpretations, and meanings, this can aid in the improvement of analytical and critical thinking abilities. With paraphrasing apps, users can add their unique perspective to the original information, expressing their creativity and personality. It can be an enjoyable and interesting way to investigate and comprehend many subjects and concepts. Applications for paraphrasing can be a useful teaching and learning aid since they let students and teachers interact more actively and dynamically with the content (Qamariah, & Yuliani, 2024).

Method

EFL students find writing to be a difficult task. This kind of problem was encountered by a freshman class at a college in Surabaya, Indonesia. Twenty-five pupils agreed to receive the treatment to address this problem. Their objective was to improve as writers. Students must prepare for the advancement of their scholarly writing abilities. They are the ones taking writing classes. To meet their academic requirements, they must all improve their writing abilities. It is imperative that they participate in this research.

The teacher created a WhatsApp group where students could post files to facilitate teaching and learning. The screen displayed the URL of a podcast to get things going. After clicking it, the pupils simultaneously read the script and listened to the audio recording. After finishing it, the pupils concentrated on the grammatical elements of every sentence. They examined solitary and plural nouns, subject-verb agreement, and other grammatical elements. By examining the framework employed, the students were also able to identify the sentences' syntax at the same time. The students examined the link between the subject and object pronouns to

determine the coherence of the text. However, students gain by modifying the audio transcript as they expand their vocabulary. They use a translation tool to convert the script into their mother tongue in order to accomplish this. They can better understand the material if they practice it. Enhancing their cultural comprehension of the second language is crucial. Subsequently, they recounted the podcast's content again to ensure a smooth delivery. Additionally, the viewpoint and understanding of sentence construction, word choice, and grammar usage must be put into practice. The students describe visuals to fulfil it. They used the paraphrase tool to make the piece sound more natural. They might compare the paraphrase with their own writing after practicing. It is imperative that they cultivate an awareness of naturally occurring composition.

The most crucial thing to watch out for during the teaching-learning process is the evidence. The information was listed as the original data. Meeting the research questions and the analytic procedure's requirements is crucial. The results of the teaching-learning process were subjected to a qualitative analysis to conclude.

Findings and Discussion

The power of WhatsApp in modern learning

The use of technology in education has grown in importance in the current digital era. WhatsApp is one such app that has completely changed the way we learn. This messaging app was created primarily for conversation, but it has now developed into an effective tool for teamwork and education. Students have an easy and accessible way to interact with educational content using WhatsApp. Students can ask questions in real-time, share resources, and discuss homework in group chats. Because of this instantaneous connectedness, students feel more connected to one another and the educational process becomes more dynamic and interesting. Additionally, WhatsApp's multi-media features improve the educational process. To support their studies, students can share audio recordings, photos, and videos with ease. To accommodate various learning styles, this visual and aural stimulus aids in improved comprehension and retention of information. Moreover, customized learning experiences are made possible by WhatsApp's flexibility. Pupils can participate in online study groups, get personalized feedback from teachers, and access learning resources from any location at any time. Learning is more individualized to meet the needs and speed of each learner because of this flexibility.

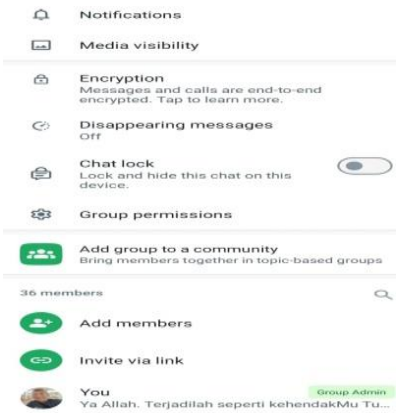

Figure 1. Whatsapp page

A list of participants was provided on the application page, as seen in Figure 1. The students in his class were visible to the teacher. He can engage in private conversation to improve the teaching and learning process. The teacher and students communicate with one another through this application, which improves the teaching-learning process. The intended materials can be uploaded by the teacher in a variety of formats and displayed on the screen. It can be used to give lessons via audio, video, and voice notes. It makes it easier for students to access these resources anywhere, at any time. Students can also upload their work on the screen at any time and from any location to complete the project. It is the advantage of utilizing the WhatsApp app to improve the process of teaching and learning. We are grateful for WhatsApp's flexibility, which is crucial.

Enhancing grammar skills through podcast transcripts

Podcasts are becoming a popular informational, educational, and entertainment medium in the current digital era. An original method for honing grammar is to use transcripts of podcasts. Through the examination of podcast transcripts, people can improve their language skills in a useful and entertaining way. One can immerse oneself in natural discussions and a variety of language styles by listening to podcasts. However, the real learning begins when one reads through the transcripts. Through a rigorous examination of sentence structure, vocabulary use, and overall conversation coherence, people can recognize grammatical patterns and learn how to use them in their writing and speaking. Furthermore, studying podcast transcripts enables a more profound comprehension of grammar principles in relation to context. People can observe grammar in action by seeing it used in everyday discussions, as opposed to learning it in isolation. This real-world application aids in improving rule retention and practical application in day-to-day communication. Practice using podcast transcripts daily also allows people to monitor their improvement and pinpoint areas that need work. The transcripts are an invaluable tool for polishing grammatical abilities, whether they are related to verb tenses, comprehending intricate sentence patterns, or punctuation.

A student examined the script's grammatical content, as seen in Figure 2. He divided the material into three categories: words, sentences, and tenses. The category was used to divide each statement. The simple present tense was used in the majority of the sentences. One is in the present tense of the modal verbs. Words that fall under the categories of subject pronoun, auxiliary, verb, adjective, noun, modal, comparative degree, and question words are all present in each sentence. Additionally, phrases were used in 8 sentences and not in 2. The phrases are modifiers, quantifiers, and singular and plural noun phrases. It appears that by analyzing the script's grammatical substance, students get a stronger grasp of how language is used in everyday situations. It facilitates their application of grammatical knowledge to the communication of ideas. They could see how to put plural nouns in the right places and apply subject-verb agreement. They also learned the proper usage of modifiers, adjectives, object pronouns, modal verbs, qualifiers, and comparative degree terms. With experience, they grow skilled at changing their grammar usage correctly. Students' knowledge of grammar usage and critical thinking skills were enhanced by this type of instruction. It is necessary for them to produce speech that has meaning.

She is a teacher. She teaches third graders. She says "good morning" every day. She asks her students how they are doing. The students love her. She is good at her job. She does not get a lot of money. Teachers should get more money. They work so hard.

No	Sentences	Tenses	Words	Phrases
1	She is a teacher.	Simple present	She (subject pronoun) Is (auxiliary)	A teacher (singular noun phrase)
2	She teaches third grade.	Simple present	She (subject pronoun) Teaches (verb)	Third grade (singular noun phrase)
3	She says "good morning" every day.	Simple present	She (subject pronoun) Says (verb)	Good morning (modifier of time) Every day (modifier of time)
4	She asks her students how they are doing.	Simple present and present progressive	She (subject pronoun) Asks (verb) How (question word) They (subject pronoun) Are (auxiliary) Doing (verb)	Her students (plural noun phrase)
5	The students love her.	Simple present	The students (subject) Love (verb) Her (object pronoun)	
6	She is good at her job.	Simple present	She (subject pronoun) Is (auxiliary) Good (adjective)	At her job (modifier of place)
7	She does not get a lot of money.	Simple present	She (subject pronoun) Does (auxiliary) Not (negation) Get (verb) Money (noun)	A lot of (quantifier)
8	Teachers should get more money.	Present tense of the modals	Teachers (plural subject) Should (modal) Get (verb) More (comparative degree) Money (noun)	
9	They work so hard	Simple present	They (subject pronoun) Work (verb)	So hard (modifier of manner)

Figure 2. Grammatical notice

Understanding the importance of syntax structure in transcripts

Transcripts' syntax structure has a significant impact on the readability and efficiency of the content. Transcripts' content makes it clear that how information is arranged and presented has a big impact on the overall message that is being communicated. The arrangement of words and phrases is one important component of transcript syntactic structure. The logical and cohesive flow of ideas is ensured by proper grammar, which facilitates reader comprehension. Transcripts can efficiently express complicated information clearly and succinctly by adhering to sentence structure and grammar norms. Furthermore, punctuation is crucial for conveying pauses, emphasis, and the general tone of the text in transcripts. Punctuation marks such as commas and periods facilitate the organization of text into easily readable sections, hence enhancing readers' comprehension and productivity. Furthermore, the general syntax structure of transcripts is influenced by the language used. The message's impact and clarity are increased when exact and proper language is used. Writers can communicate concepts more clearly and captivate readers more deeply by carefully choosing their words.

The four areas in which a student examined each sentence were subject, verb, complement, and modifier, as shown in Table 1. There was no modifying substance in the first sentence, according to him. Subject, verb, and complement are all that are present. In the sentences containing the numbers 2, 5, 7, and 8, this type of composition also occurs. Sentences, both nominal and verbal, were then taught to

him. First and sixth-number phrases contain it. Those are the nominal sentences. The complement-putting phrases are made possible by the linking verb of is. "A teacher" and "good" are the compliments that are given. As an adjective and a noun phrase, they belong to different categories. Additionally, the following numerical statements are verbal: 2, 3, 4, 5, 7, and 8. Verbs are used following topics. By dissecting these sentences, students get an understanding of subject-verb agreement. As can be observed in sentences including the numbers 2, 3, and 4, verb+s/es comes after the subject "she." In contrast, a simple verb comes after the subject "the students" in sentence number five. By analyzing it, students are better able to comprehend the subject-verb agreement formula. The third single and plural subjects have distinct verb tenses. It focuses on the role that subject-verb agreement plays in creating coherent sentences. The students furthermore learned other kinds of the ones that came before. The negative form of the verbal sentence is seen in the sentence with the number 7. It is "does not" applicable. Before the verb "get," it occurs. The usage of "does" prevents the suffix "s" from ending "get." An example of a modal verb in use is the eighth sentence below. The word is "should get." The learner learns different sentence structures from these two sentences. Moreover, modifiers are present in sentences three, four, and six. "Every day, how they are doing, and at her job" is how the modifiers are formatted. They stand for modifiers of time, manner, and location. Students can improve their perspective on sentence construction by analyzing sentences to identify syntax. They must improve their meaningful oral and written language delivery.

Table 1. Syntax notice

No	Sentences	Subject	Verbs	Complement	Modifier
1	She is a teacher.	She	is	a teacher	-
2	She teaches third grade.	She	teaches	third grade	-
3	She says “good morning” every day.	She	says	“Good morning”	Every day
4	She asks her students how they are doing.	She	asks	Her students	How they are doing
5	The students love her.	The students	Love	her	-
6	She is good at her job.	She	is	good	At her job
7	She does not get a lot of money.	She	Does not get	A lot of money	-
8	Teachers should get more money.	Teachers	Should get	More money	-

Enhancing sentence cohesion in academic writing

The coherence of sentences is an essential component of academic writing efficiency. It guarantees that concepts are presented logically and coherently so that readers may easily follow the author's argument. It is crucial to take into account several elements that contribute to the overall clarity and coherence of the text when examining the cohesiveness of sentences in a transcript. The usage of transitional words and phrases is an important area to pay attention to. The reader is guided through the text's logical progression by these linguistic strategies, which serve to connect concepts both within and across sentences. Words like "however,"

"therefore," and "in addition" indicate changes in direction or provide fresh information, which improves the transcript's overall coherence. Furthermore, sentence coherence depends on consistent pronoun usage and referring. Pronoun agreement and explicit antecedents guarantee that the ties between ideas are established and help prevent confusion. This regularity keeps the text's flow uninterrupted and promotes a comfortable reading experience. Moreover, coherent writing relies heavily on the arrangement of ideas within phrases. Readability and comprehension are improved by using a logical sentence structure where the primary concept is provided first and is followed by supporting details. Writers can increase the overall coherence of their sentences by minimizing superfluous complexity and adhering to a clear subject-verb-object pattern.

Students were advised to examine how a paragraph's sentences flowed to improve their ability to communicate information in a suitable flow. The students examined how the sentences related to one another in sequence, as shown in Table 2. Sentences 1 through 7 all have the same topic, "She." The relationship is demonstrated by the phrases' complements, object pronouns, and verbs. The complement "a teacher" is mentioned in the first sentence. The word "teaches" in the second phrase then improves the first. Says good morning is how the expression is used in the next text. It draws attention to the preceding two sentences. "Asked her students" is the next line of the statement. The object pronoun "her" in the fourth sentence is closely related to the subject "she" in the preceding sentences. The phrase "the students love her" demonstrates this. Additionally, the subject "she" in phrases six and seven has a connection to the sentences that came before it. The associated nuance is demonstrated by the phrases "does not get a lot of money" and "good at her job." The final statement, "teachers should get more money," strengthens all of the previous seven sentences. Through this type of study, students learn how to arrange paragraphs correctly. Possessing this skill aids pupils in crafting simple paragraphs for readers to follow.

Table 2. Cohesion notice

No	Sentences	Coherence Analysis
1	She is a teacher.	“She” is the subject of the sentence
2	She teaches third grade.	The subject of the second sentence remains the same as the subject of the first. The connection between the terms "a teacher" and "teaches" demonstrates this.
3	She says “good morning” every day.	The third sentence's "She" is the same as the second sentence's "She." The link between the phrases "teaches" and "says good morning" demonstrates this.
4	She asks her students how they are doing.	The fourth sentence's "She" is still the same "She" as the third. The connection between the terms "says good morning" and "the students" demonstrates this.
5	The students love her.	The students mentioned in the fourth sentence remain the same in the fifth sentence. The relationship between the words "the students" in the two phrases makes this clear.
6	She is good at her job.	"Her" in the fifth sentence and "she" in the sixth have a close relationship.
7	She does not get a lot of money.	There is no difference between "She" in the sixth and seventh sentences. The correlation between the terms "her job" and "get a lot of money" demonstrates this.

No	Sentences	Coherence Analysis
8	Teachers should get more money.	In the sixth sentence, "she" is closely related to the teachers. The link between the terms "should get more money" and "does not get a lot of money" demonstrates this.

The power of translating transcripts for vocabulary building

Using a translation tool to translate transcripts can greatly improve vocabulary development. Although others contend that merely depending on translation tools impedes language acquisition, when employed wisely, they can serve as an invaluable tool for increasing one's vocabulary. Students can learn new terms in context by interpreting transcripts, which facilitates their understanding of meanings and usage. By seeing words in phrases, this approach helps learners see nuances that may not be clear from straightforward word-to-word translations. Furthermore, identifying linguistic patterns and structures can be facilitated by employing translation software to decode transcripts. As learners begin to absorb the rules and conventions of the language, this process can enhance comprehension and vocabulary retention. To guarantee a well-rounded skill set, it is crucial to combine the use of translation tools with other language learning activities. Together with translation, speaking, writing, and listening exercises can support vocabulary growth and advance language competency in general.

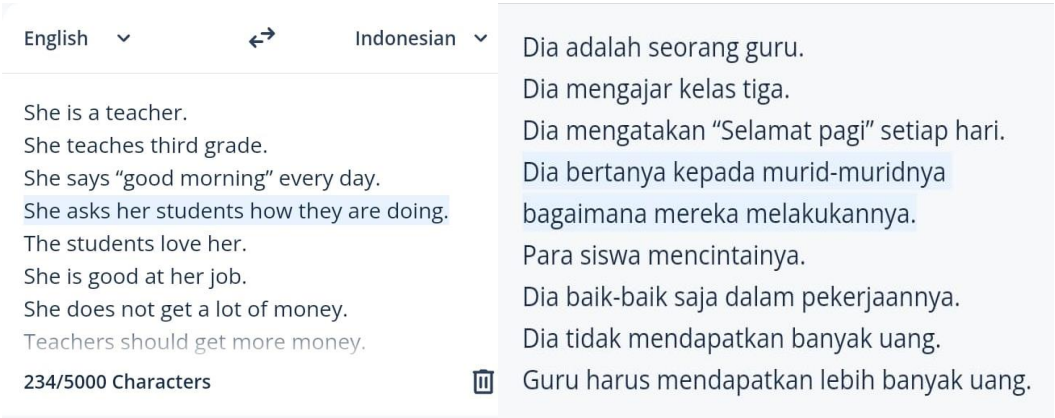

Figure 3. Translation tool

It is important to acknowledge the output of Internet translation. Usually, it is translation word for word and translation expression for expression. The items are frequently difficult. The translation of "how they are doing" in the fourth line of Figure 3 is "bagaimana mereka melakukannya" rather than "bagaimana kabarnya." In addition, the word "should" in the final sentence is rendered as "harus" rather than "seharusnya." These shortcomings should worry us. It is the teacher's responsibility to help the students notice the translation product line by line. Students can improve their vocabulary by practicing it. It is advantageous for them to improve their comprehension of the information that language users exchange. Additionally, adopting such a vocabulary teaches children to choose words carefully. Their spoken and written communication will yield better results. The students used internet translation to complete the translation procedure. Students can download the application by visiting this URL: https://quillbot.com/translate

The power of podcasts in language learning

Podcasts are becoming a useful resource for improving language acquisition abilities. Listening to podcasts again can help language learners become far more fluent speakers. Podcasts in the target language expose learners to real-world vocabulary, accents, and speech patterns. Both general language fluency and listening comprehension are enhanced by this immersion. Through active engagement with the information and recounting it in their own words, students strengthen their comprehension of language usage and structure. Retelling podcast information can also improve speech abilities. It gives students a chance to practice expressing ideas, creating cohesive phrases, and honing their pronunciation. Learners can integrate new vocabulary and grammatical structures through repetition and practice, which results in more confident and natural speaking. Podcasts not only help with language proficiency but also provide cultural insights and real-world context, which makes learning more interesting and applicable. Retelling tales, conducting interviews, or participating in podcast conversations helps language learners not only become more fluent speakers but also better comprehend the cultural quirks that are woven throughout the language.

Figure 4. Retelling

Imitating native speakers' speech is the process of learning a language. The way language should be used to communicate ideas to others is taught to the students. It is necessary to expand the pupils' vocabulary, intonation, tone, and understanding skills. By studying how native speakers present their thoughts, students can acquire these competencies. Figure 4 illustrates how the students attempted to describe an image in the same way as a native speaker. This generous content is available as a podcast in video format. The URL to click was posted by the teacher. The students then clicked it to view the podcast's page. They observed the story as it was told by the native speaker. The students had learned the topic. Students were able to identify the speaker's tone and intonation practice. They also made an effort to comprehend the information. After going through this process, they recorded their story for the teacher to assess. Students who practice this strategy become more fluent in explaining concepts to others in an understandable manner. The teacher provided this URL for students to access the material: https://www.youtube.com/watch?v=MkixrD4ZQeM on the display. The pupils then clicked it to view the story.

The power of describing pictures in essay writing

When it comes to writing essays, the act of describing pictures can greatly improve the caliber and impact of the work. Students may write essays to new heights and develop their creativity, critical thinking, and communication abilities by adding visual descriptions. The improvement of descriptive skills is one of the main advantages of describing images in essays. When pupils interact with visual stimuli, they are encouraged to examine the intricacies, hues, forms, and feelings that are shown in the picture. Through this process, they improve their vocabulary and strengthen their observational skills, which help students to write essays with vivid and captivating tales. Moreover, by encouraging pupils to evaluate and comprehend visual data, describing visuals fosters critical thinking abilities. Through expressing their observations and understandings, students have the ability to build cohesive arguments and bolster their viewpoints with evidence from the image. Their ability to reason is strengthened by this analytical approach, which also develops their aptitude for critical thought and well-informed decision-making. Moreover, writing essays with visual descriptions improves communication abilities. Students must be able to clearly and succinctly express their thoughts and feelings while describing pictures. By honing their articulation skills, evoking imagery, and engaging readers, this practice eventually improves their general communication proficiency.

There are some people in the park. They are playing music. The man with blue t-shirt plays a banjo. He is an old man. He is about 50 years old. The other two men are sitting on the bench. One of them is wearing a shirt and shorts. He plays a guitar. He faces the man who plays banjo. Another one is playing a violin. He wears a long sleeve shirt and blue jeans. He is about 55 years old. There is another man who sits on another bench. He is alone. He wears red t-shirt and blue jeans. He enjoys the people playing music.

Figure 5. Describing a picture

The knowledge that the students have acquired during the teaching-learning process must be applied in real-world situations. Putting a picture into words is one method to fulfill it. The students used their understanding of voice, grammar, vocabulary, and sentence construction to achieve this. Figure 5 illustrates how the student describes a photograph of individuals in a park. He goes into great length on every aspect of the image. Every person's appearance as it appeared in the photo was described. The description shifted its focus to the things they do and the clothes

they wear. Students who practice it will become more adept at expressing information clearly and in the right flow. The outcome of the description shows how the pupils have changed during the teaching-learning process. It's critical that the instructor monitors how each student is participating in the classroom. The instructor could provide his assessment of the study's findings.

The power of paraphrasing tools in enhancing natural expression

In the digital era of today, paraphrasing tools have become essential, providing a quick and easy way to reword text while preserving its original meaning. These tools, which offer different wordings and structures to improve written content's flow and clarity, are essential for boosting natural expression. The ability to paraphrase well is highly prized in academic and professional settings since it shows a thorough comprehension of the subject. The capacity of paraphrasing tools to prevent plagiarism is one of their main advantages. Writers can make sure their work is original and does not violate copyright restrictions by rewording sentences and chapters. This is especially crucial for academic writing since originality and honesty are valued highly. With the use of paraphrasing tools, authors can properly credit their sources while presenting material in their own words, achieving a balance between acknowledging prior work and coming up with original ideas. Additionally, paraphrase tools aid in the improvement of language proficiency. People can improve their sentence structure, increase their vocabulary, and write more effectively overall by using these tools. Rephrasing texts requires authors to consider the topic critically and come up with original ways to effectively convey ideas. This exercise has the potential to develop a writing style that is more fluid and elegant over time. A useful skill in today's environment of more digital communication is the ability to paraphrase well. Whether producing creative material, corporate reports, or academic papers, using paraphrase tools can improve writing quality and increase reader engagement. People can sharpen their communication abilities, express themselves clearly, and eventually use words to make an impact by making use of these tools.

The pupils must synchronize the perspective of their mother tongue with L2s when communicating the ideas. Mutual understanding between writers and readers as well as speakers and listeners is crucial. The pupils used the paraphrase tool service to achieve this purpose. This kind of tool may be found at https://quillbot.com/. The student's narrative was entered into the tool, as shown in Figure 6. The lowest portion of the tool displays the output of the paraphrase machine. The phrase "they have music playing" is a paraphrasing of the sentence "they are playing music." In presenting ideas, it offers an alternative viewpoint. When a pupil hears someone say, "They have music playing," he will comprehend. Word-for-word translation is uncommon. If everything is translated word for word, the translation will be unclear. The phrase "mereka memiliki musik bermain" will be translated. Word for word, the true statement "they are playing music" will be translated as "mereka sedang bermain musik." The pupils understand the similarities between the words "they have music playing" and "they are playing music" by comparing the two delivery styles: authentic and tool. The custom of communicating ideas in both L2 and mother tongue was recognized by the students. Students can improve their proofreading storytelling skills by practicing it.

It is crucial to use such a program to improve writing abilities. The right way to articulate thoughts will be taught to the students. Students who regularly practice using paraphrasing tools to improve their writing skills are able to develop their capacity to express ideas correctly. It facilitates readers' comprehension of their written work.

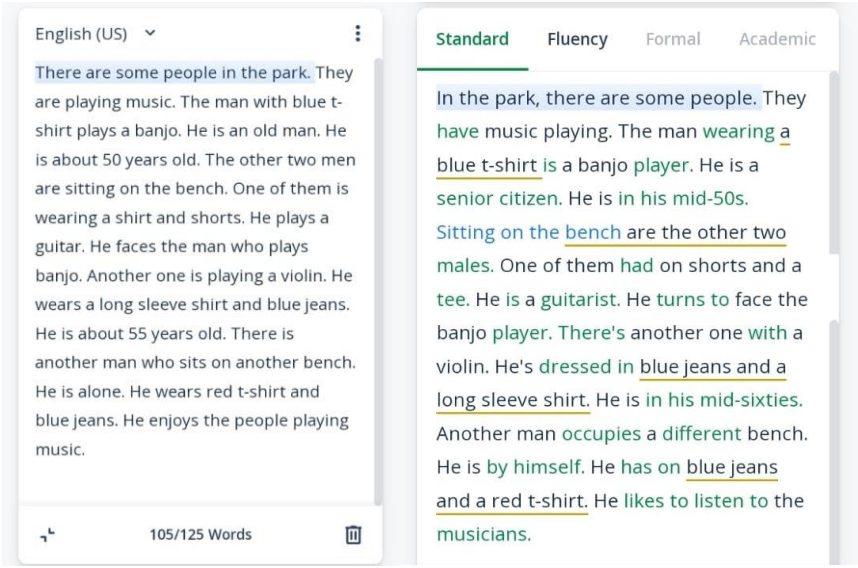

Figure 6. Paraphrasing tool

The procedure for putting writing into practice while utilizing translation and paraphrase tools

Proficiency in writing is crucial for individuals in diverse areas, professionals, and students alike. But putting ideas into words can be difficult, particularly when dealing with language hurdles or finding it difficult to communicate ideas clearly. In these situations, writing can be greatly aided by the use of translation and paraphrasing tools. Selecting trustworthy platforms that provide accurate translations is crucial when using translation software. These technologies can help people express themselves in a language that they feel comfortable with by translating ideas between different languages. It's important to keep in mind, too, that even though these tools are a great help, they might not always represent the subtleties and cultural allusions that are there in the original language. To ensure accuracy and coherence, it is crucial to go over and edit the translated information. Conversely, methods for paraphrasing can help with clearer and more concise expression of ideas. People can improve the general quality of their writing by rephrasing sentences or paragraphs with the help of these tools. But, it's important to use caution if you only use paraphrasing tools because occasionally they can change the original text's intended meaning. To preserve authenticity and clarity, it is therefore advised to utilize these tools as a starting point and then manually edit the content. In reality, using translation and paraphrasing tools effectively requires a balanced strategy. It's critical to see these resources as supplements to real language abilities rather than as a substitute for them. Through the integration of these resources with one's own knowledge and comprehension, people can improve their writing skills and surmount language-related challenges.

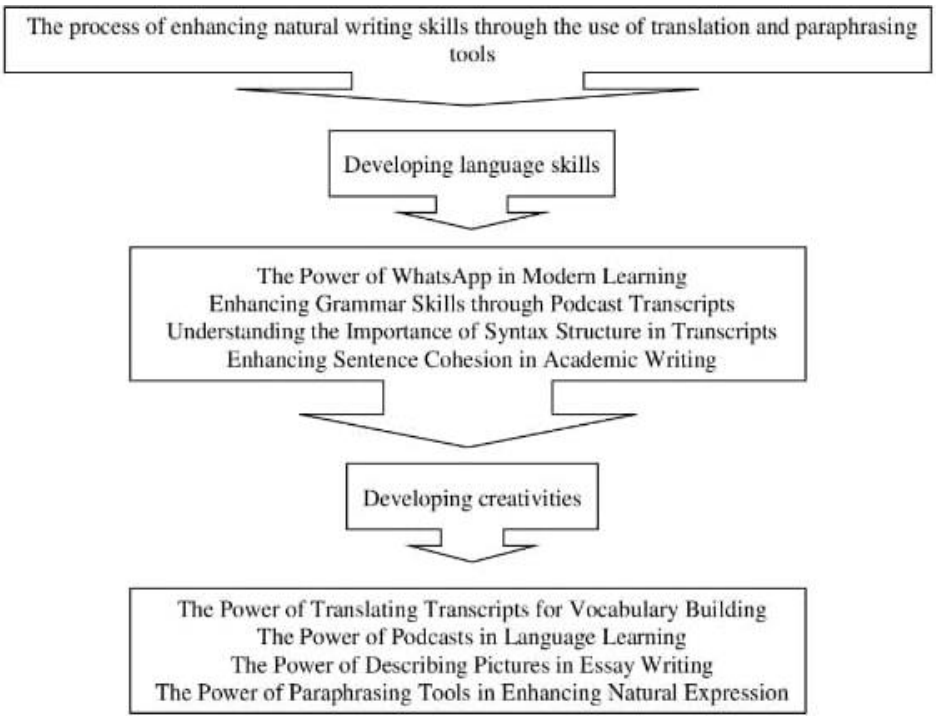

Figure 7. The flow of practice

As can be seen in Figure 7, the teacher created a WhatsApp application as the teaching-learning medium in order to begin the process of teaching writing through translation and paraphrasing tools. It facilitates information sharing between the instructor and the students to improve the application of translation and paraphrasing technologies. The language abilities of the students must be improved in order to produce a proofreader. The teacher asked the students to evaluate the podcast's audio and text material in order to achieve the goal of using podcasts to improve grammar, syntax, and sentence coherence. Moreover, there is a need to strengthen the ability of translation to foster vocabulary development. The podcast transcript is a trustworthy source for expanding vocabulary. However, the teacher invited the pupils to describe the photographs in order to help them with their writing. This method allows for the tracking of students' writing learning progress. Students might practice repeating the stories of native speakers in order to improve this kind of skill. However, when imparting concepts and L2s, pupils must align with the culture of their mother tongue. Students are using the paraphrasing tool in order to please it. They contrasted the computer paraphrasing technology with their own sentences. Students who practice it are better able to create written work that has been proofread.

Discussion

The impact of WhatsApp on modern learning

The popular messaging software WhatsApp has become essential to contemporary communication. Regarding its function in education, there are benefits and drawbacks to take into account. Positively, WhatsApp provides a practical way for teachers and students to connect outside of the classroom. It

enables the speedy transmission of data, including study materials, assignment specifics, and significant notifications. Instantaneous communication has the potential to improve student participation and enable educators to provide immediate feedback (Al Algaithi et al., 2024). Additionally, WhatsApp can be used as an additional learning tool. Pupils are able to organize study groups, share ideas, and have conversations on a range of academic subjects. Deeper comprehension of the material and active engagement are encouraged in this casual learning atmosphere. But there are disadvantages to utilizing WhatsApp in the classroom as well (Mokoagow et al., 2024). The potential for diversions is one of the primary issues. Students may find it difficult to concentrate on their academics when faced with continual notifications and the urge to talk with friends. Academic performance and productivity may suffer as a result. Furthermore, using WhatsApp for educational reasons could lead to security and privacy concerns. Confidentiality and data protection are issues when sharing private or sensitive information on a third-party website. Teachers must make sure that privacy laws are followed and exercise caution while sharing information.

The impact of podcast transcripts on enhancing grammar skills

Podcasts have gained popularity as a learning and entertainment medium, and many people are using them to get better at grammar. The accessibility that podcast transcripts offer is one of the key benefits of using them to improve grammar. Learners can follow along more readily and go back to certain areas for clarification if the spoken content is provided in writing. Transcripts of podcasts also provide a useful method for acquiring grammar in context. Learners can observe how grammar rules are used in talks or discussions rather than just in isolated grammar tasks (Suseno et al., 2024a). This practical application might aid in strengthening their comprehension and memory of grammar principles. However, others could counter that there are disadvantages to using podcast transcripts just for grammar correction. The absence of interactive practice is one possible drawback. Grammar proficiency involves both comprehending and using rules whether writing or speaking. Without actively utilizing the language, students could find it difficult to internalize and correctly apply grammatical principles (Suseno, 2023a).

The significance of syntax structure in transcripts

Transcripts' syntax structure has a significant impact on how information is communicated and understood. Recognizing the significance of syntactic organization in transcripts can yield benefits and drawbacks. Positively, readability and understanding are improved by a grammar structure that is orderly and unambiguous (Sidabutar & Sahlan, 2024). Transcripts that follow a logical structure and use good syntax and sentence building make the message easier to understand and more cohesive. This may result in enhanced communication between the parties and better knowledge retention (Suseno, 2024c). Furthermore, efficient communication of complicated ideas can be facilitated by a solid understanding of transcript syntactic structure. Writers can highlight important points and produce a more compelling narrative by utilizing suitable punctuation, varying sentence lengths, and developing a clear paragraph structure (Suseno, 2024a). This can be especially helpful in professional or academic contexts where clarity and precision are crucial. But there are disadvantages to concentrating too much on transcript

syntactic structure. An overemphasis on syntax and grammar can result in writing that is restrictive and stifles originality and innovation. Writers may lose their individuality and distinctive voice in the process of worrying too much about following the rules. Moreover, it can take a lot of effort to focus too much on grammatical structure, particularly when editing and amending transcripts. Aiming for grammatical correctness could impede spontaneity and slow down the writing process, which could have an impact on the content's flow and naturalness (Giering et al., 2024).

The importance of enhancing sentence cohesion in academic writing

Improving the coherence of sentences in scholarly writing is an essential component that greatly influences the final product's quality. This essay will examine the benefits and drawbacks of emphasizing sentence coherence in academic writing, giving readers an important context for understanding the topic's importance to students. Benefits of Improving Sentence Cohesion: 1. Clarity and Coherence: Enhancing sentence cohesion guarantees that the concepts in the academic paper make sense and are simple for the readers to understand. This clarity improves the writing's overall quality and aids in successfully expressing the intended message. 2. Professionalism: Academic writing that exhibits a high degree of professionalism is characterized by improved sentence coherence. It exhibits the writer's capacity for cohesive thinking organization, which is necessary to make a good impression on peers and instructors. 3. Reader Engagement: Academic papers with well-connected phrases grab the reader's interest and make them more fascinating. As a result, there may be a greater chance that the concepts put out will be understood and the paper will be accepted (Araujo et al., 2024). Drawbacks of Improving Sentence Coherence: 1. Time-consuming: Paying close attention to sentence coherence necessitates thorough preparation and editing, which might take time. Students may find themselves having to invest a lot of time making sure that one sentence flows into the next. 2. Overemphasis on Structure: An excessive focus on sentence coherence might result in a stiff writing style that might restrict the writer's ability to express themselves creatively. It might inhibit the free exchange of ideas and make it more difficult to experiment with different writing styles (Mustafa, 2024).

The importance of developing natural writing skills beyond translation and paraphrasing tools

These days, with technology permeating every aspect of our life, translation and paraphrasing software is used more and more frequently. These tools are effective and convenient, but they have drawbacks as well, particularly when it comes to improving natural writing abilities. The absence of context and nuance provided by translation and paraphrase programs is one of the main disadvantages of using them exclusively. Language is more than simply words; it also involves culture, feelings, and minute details that are best comprehended via practice and experience (Al-Raimi et al., 2024). People who rely too much on these tools lose out on the chance to gain a better comprehension of language and its complexity. Furthermore, employing tools for paraphrase and translation can induce complacency. People may lose interest in developing their own writing abilities if they are dependent on these tools all the time for article creation. Writing is a skill

that needs to be developed via practice, imagination, and critical thinking—all of which are vital for both professional and personal development. It is crucial to take part in activities that encourage creativity and language learning if you want to genuinely improve your natural writing abilities. Writing frequently, reading widely, and asking mentors or peers for comments are all good, natural strategies to get better at writing. Individuals can enhance their vocabulary and grammar skills through these exercises, which also encourage authentic and unique self-expression (Guerberof & Asimakoulas, 2024).

Enhancing Natural Writing Skills: Leveraging Translation and Paraphrasing Tools

Writing well and naturally comes in handy in the digital age we live in, where communication is limitless. Using translation and paraphrase tools can be a game-changer when it comes to improving one's writing skills. These resources improve writing fluency and originality in addition to helping with language understanding (Suseno, 2024e). A notable advantage of utilizing translation programs is being exposed to a variety of language phrases and styles. Writers can increase their vocabulary and comprehension of sentence patterns by translating texts between languages and learning the subtle differences between them (Suseno, 2024d). This exposure can encourage authors to try out novel approaches to expressing their ideas, resulting in writing that is more organic and captivating (Mirvaxidovna, 2024). In a similar vein, paraphrasing techniques are essential for improving writing's uniqueness and clarity. With the use of these tools, authors can reword paragraphs or sentences without changing their original meaning. Through the use of paraphrase tools, authors can steer clear of cliché and repetitious language patterns, producing writing that is more lively and genuine (Suseno, 2023b). Additionally, using paraphrase tools pushes authors to consider their work critically and come up with fresh approaches to convey their views. But it's important to keep in mind that, even while translation and paraphrasing tools are useful tools, the writer's voice and style should always come first. It is essential to use these resources as tools, not as crutches, to improve writing abilities. While utilizing these tools to their advantage, writers should endeavour to preserve their uniqueness and authenticity (Salam et al., 2024).

In the prior study conducted by Asrofi (2024), the emphasis was on segmenting the primary subject to facilitate the development of students' writing skills. It does not go into how to help students become better essay writers. However, via the process of seeing, recounting, and translating podcast contents, students might enhance their writing abilities. It is the items that were left out of the earlier investigation. By applying these findings to earlier research, the study's outcome might be maximized.

Conclusion

The pursuit of perfecting natural writing abilities has gotten more complicated in the current digital era due to the availability of cutting-edge tools and resources. The combination of paraphrase tools, translation services, and podcasts offers a compelling way to improve one's writing skills. Because of their audio format, podcasts present a special chance to become immersed in a variety of language expressions and styles. Through active listening to podcasts in several languages, people can absorb the rhythm and subtleties of each language, expanding their

vocabulary and improving their comprehension of sentence structures. This experience stimulates the development of an intrinsic feeling of natural expression in writing in addition to deepening one's respect for language diversity. Moreover, wise use of translation software can be of immeasurable assistance in learning the nuances of a foreign language. Although it is important to use translation as a guide rather than a crutch, these resources can help interpret terms or phrases that are foreign to you, making the move towards creating cohesive and genuine writing easier. Translation technologies can support the absorption of linguistic patterns when used in conjunction with podcasts, allowing people to express their ideas more clearly and fluently. However, by promoting the investigation of different wordings and idioms, paraphrasing tools provide a way to improve one's writing. Through the use of these resources, people can move beyond literal translations and explore the world of idiomatic and contextually relevant language use. Through this technique, writers can get a greater awareness of linguistic nuances and gain the ability to authentically and naturally flow their compositions.

Limitation

Although podcasts have limitations in terms of depth, visual aids, interaction, feedback, personalization, and breadth, they can nevertheless be a useful medium for improving writing skills. To make a significant increase in their writing skills, students must combine their podcast listening with other learning activities including reading, writing assignments, and communicating with teachers and peers.

Suggestion

An excellent place to start when researching a topic or subject is with a podcast. To obtain a deeper comprehension of the subject matter, writers can study books, scholarly articles, or other materials in addition to podcasts to enhance their learning. Writers should actively seek out opinions by listening to podcasts created by other individuals or groups to prevent potential bias in their work. This can assist writers in gaining a more comprehensive grasp of a subject. Writers can practice active listening by concentrating on the topic and taking notes while listening to podcasts, which will reduce distractions. By doing this, authors may stay focused and stay away from distractions. Writers can participate in online chats with others to discuss issues and share ideas, which might help them overcome the limited interaction of podcasts. Writing requires the development of critical thinking and communication abilities, both of which can be aided by this.

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DEVELOPMENT OF A MOBILE APPLICATION FOR LEARNING BASIC TECHNOLOGY CONCEPTS IN UPPER-BASIC SCHOOLS

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Abstract
Despite the quick advancements in technology, students still have to attend demanding in-person classes. However, students can get curriculum-based instruction remotely via mobile devices. As a result, a mobile application was developed for usage in Nigerian upper basic schools using the ASSDURE (Analysis, Statement of Objectives, Design, Development, Utilization, Response, and Evaluation) paradigm. This study's model-type design and development research included a single-group pre-test-post-test design. The population consisted of students from upper-basic schools in Nigeria, specifically from upper-basic school two. Findings indicated that the developed application improved students' academic performance, as evidenced by their respective pre- and post-test performance percentage scores of 53.0% and 66.4%. The mobile app received positive evaluations from experts in instructional design, basic technology, and educational technology, with scores of 85%, 79.7%, and 88.3%, respectively. The study's conclusions indicate that the developed application is appropriate for educational purposes. It is inferred that pupils will perform better academically. Thus, among other things, it was proposed that mobile applications be included in basic technology instruction.

Keywords: basic technology concept, development, learning, mobile application, upper basic school

Introduction
Modern technological advancements and inventions are founded on the foundations of science and technology. As a result, every country works to advance its scientific and technological standing in the globe. To meet the objectives for 21st-century education, the paradigm shift has created a multitude of benefits and opportunities, particularly concerning Information and Communication Technologies (ICTs). In these, students are supposed to be able to communicate, think critically, become competent, and work with others. Thus, access to

curriculum materials at any time and from any place is crucial, as is teaching mobility.

According to Rouse (2019), information and communication technology (ICT) is the infrastructure and constituents that enable modern computing. ICT encompasses both the internet-enabled and wirelessly networked mobile worlds. Along with more antiquated ICT elements like landlines, radios, and televisions that are still in common usage today, it also includes more contemporary ones like robotics and artificial intelligence. The environment in which students engage in academic activities needs to be evaluated to make sure that their learning is not jeopardized (Onojah, Onojah & Jayeosimi, 2023).

In the twenty-first century, instruction mobility is critical to facilitating the shift from a teacher-centered to a learner-centered model of education. As a result, a paradigm change toward mobile learning is required, one that takes into account the creation and design of instructional materials for learning objectives. By using Smart Learning, educational institutions can create inclusive, equitable, and sustainable learning environments (Makinde, Ajani, & Abdulrahman, 2023). Educational technology, a component of the education industry that concentrates on efficient communication and instruction through technological instruments, is vitally needed to do this. The thoughtful application and integration of diverse media in educational technology emphasizes communication skills and methods of instruction (Dey, 2020). Though positive attitudes of students toward the use of these technologies will influence their utilization of such technologies for learning, it was advised that schools hire educational technologists who can help with the appropriate use of assistive technology tools to enhance classroom instruction (Soetan, Onojah, Alaka, & Onojah, 2021).

The Association for Educational Communications and Technology (AECT) defines educational technology as the science and practice of developing, applying, and overseeing suitable technological procedures and resources to improve learning and performance. In order to improve performance and foster learning, it also addressed the ethics and research around the creation, use, and management of appropriate technological policies and tools (AECT, 2023). Technology use in education has increased across the board, but educators now have to decide which of the many tools at their disposal is best suited for their pedagogical approaches (Akpeji et al., 2022). Educational technology is a methodical technique to conceive the complete learning process in terms of separate objectives and communication, utilizing a combination of human and non-human resources to provide more effective instruction (Alam, 2018).

Prevocational subjects including metalworking, woodworking, basic electrical and electronic work, technical drawing, car maintenance, building and food technology, and computer studies are all included in the category of basic technology. The National Education Research and Development Council (NERDC) in Nigeria established the objectives for teaching the subject at the upper basic school level in 2007. In order to link students' interests and talents with a career path of their choice, some of these include promoting technology literacy, exposing students to the workforce, and cultivating a positive mindset toward work as a source of identity, power, and livelihood while integrating technical resources (NERDC, 2022). Instructors can encourage and assist their students' learning activities by using instructional tools. By methodically merging human and material

resources, these resources effectively solve educational challenges (Soetan, et al., 2021).

Mobile applications designed for educational purposes can include a lesson plan, assessment, course, and other pedagogical elements. The end product is a user-supplied URL that shows up in the browser as read-only HTML or as a hyperlink (Glaser, 2019). Smartphones typically run one of two operating systems: Android, which is produced by Google, or the iPhone Operating System (iOS), which is used by Apple for its mobile devices (though there are a few others, including Windows and Blackberry) (Rouse, 2019). One of the modern resources that may be used in the classroom is mobile technology (Chukwuemeka et al., 2021).

Overcrowding, a lack of learning resources, and frequent closures due to pandemics and civic crises characterize modern education. These factors need the development of more efficient learning models that make use of technology to motivate students to actively participate in their education (Falode et al., 2022). A mobile community emerges in the classroom when mobile technology is employed in teaching. Therefore, learning through mobile technologies is widely recognized to encompass more than merely using portable devices; rather, it involves learning across curriculum-based resources with enhanced learner cooperation and communication—a vision that is crucial for the twenty-first century. A classroom that reaches its full educational potential, according to Acevedo-Borrega et al. (2022), will strive to promote not just increased academic accomplishment but also motivation, autonomy, the development of 21st-century skills, logical thinking, innovation, and, of course, learning for the future.

Evaluation is the process of figuring out how valuable and effective the programs designed to help students with the teaching and learning process are. At this point, the effectiveness of the interactive mobile application was evaluated by the researchers using the sum of each participant's pre-and post-test scores (Falode et al., 2022). A curriculum or program is evaluated by critically examining it to ascertain its significance, worth, and effectiveness in reaching predefined objectives. To put it briefly, assessment in an educational context is the procedure designed to discover proof that the lessons designed for pupils are effective, according to Ferriman (2013).

Kirkpatrick's notion, which holds that training effectiveness can only be attained in connection to level and learners' reactions, supports this. In support of this, Clark (2022) added that critical components that influence the development of desired behaviors are learners' attitudes, knowledge, and abilities. Due to its openness and ability to support learning through mobile apps, the model has four stages that recognize the training field's significance (Rouse, 2019). While several assessment models are pertinent to education, the current study is focused on the first two levels of the Kirkpatrick model, which include learning and reaction. In order to assess the creation of the mobile app on workshop accidents as well as materials and processing in basic technology in Nigerian upper basic schools, the Kirkpatrick evaluation model will be used. Also, the Kirkpatrick model evaluation, created by Donald L. Kirkpatrick in 1954, must be used to evaluate the efficacy of training programs. Even if there are barriers to effective study, students' learning rates can be raised by employing certain strategies and instruments. The AMOS

study technology model graphically illustrates these challenges, their psychological impacts, and the remedies (Onojah, Onojah, Olumorin, & Abimbola, 2020).

According to several studies, including Kolb (2019), Gezgin (2019), and Wan Daud et al., (2021), there are distinctions between the ways that men and women use and engage with these technologies, particularly with regard to competency, attitude, and utilization. Women are underrepresented in computer science-related fields, computer clubs, and academic courses, according to Gezgin (2019). In addition, women use computers at home less often than males do. This is corroborated by Chukwuemeka et al. (2020), who note that female students are less skilled at utilizing the Internet as an ICT tool for instruction and learning. The author also pointed out that women see computers as means for completing tasks like texting, conversing, emailing, and Internet browsing, whereas men see them as recreational tools, suggesting that males use technology for pleasure. Men are also more likely than women to be adept with computers and to view them favorably; nevertheless, men are more worried about the price of mobile devices. Michaud (2019) asserts that gender disparities in technological preferences and adoption behaviors are statistically significant. According to the poll, women use multi-user gaming and audio and video creation at a lesser rate than men do. These activities are used by men twice as often as by women following the earlier research's identification of the paradigm shift from teacher-centered to learner-centered instruction.

This study used the ASDDURE to test for Analysis of learners' characteristics, Statement of objectives, Design, Development, Utilization, and Evaluation investigating the interactivity effect of gender in the development of a mobile learning app for teaching a selected set of basic technology concepts to Upper Basic schools in Nigeria. The structured five-step process known as the ADDIE instructional design model consists of analysis, design, development, implementation, and evaluation (Criollo et al., 2021). The first two levels of Kirkpatrick's Evaluation model, which act as guidelines at both the formative and summative stages and the two models of ADDIE and ASSURE were used to conceptualize the current model.

Purpose of the Study

This study's primary goal was to design and develop a mobile application that upper-basic schools in Nigeria could use to teach a select set of basic technology concepts. In particular, this research:

1. created a mobile application covering specific fundamental technological principles for upper basic schools in Nigeria;
2. investigated how the application affected students' understanding of workshop safety, materials, and processes;
3. examined the developed mobile application on learning workshop safety and materials and processing by educational technologists;
4. determined the developed mobile application on learning workshop safety and materials and processing by instructional design experts; and
5. evaluated the developed mobile application on learning workshop safety and materials and processing by basic technology teachers.

Research Questions

This study provided answers to the following research questions.

1. What are the processes involved in developing the mobile application for teaching basic technology?
2. How does the developed mobile application affect learning workshop safety and materials and processing?
3. How is the developed mobile application for learning about workshop safety, materials, and processing rated by educational technologists?
4. What is the instructional design experts' rating of the developed mobile application on learning workshop safety, materials, and processing?
5. How do basic technology teachers rate the developed mobile application for learning workshop safety and materials and processing?

Method

This study was a design and development research of the model type. It involved developing and evaluating a basic technology learning application (BTLA). This research method employed a design and development-based research of one group pre-test post-test quasi-experimental design and experts' validation.

Also, the model adopted three levels of ADDIE and three levels of ASSURE model: ADD (Analysis, Design, and Development) and three levels of ASSURE (Statement of Objectives, Utilisation and Response). The study saw the Utilisation and Response of learners in place of Implementation in the ADDIE model. However, the evaluation level is traditionally in the two models. To cater for this, the Kirkpatrick model of evaluation was employed out of which the first two levels of the model were used (learning and reaction phases). The ASDDURE model is denoted by (Analysis, Statement of Objectives, Design, Development, Utilisation, Response, and Evaluation of the mobile application) as conceptualized by the researcher.

Research instruments used to gather relevant data for the study include Basic Technology Learning Application (BTLA); Educational Technology Experts' Questionnaire (ETEQ; Instructional Design Experts' Questionnaire (IDEQ) and Basic Technology Teachers' Assessment Questionnaire (BTTAQ

A test-retest reliability was employed to obtain data over two weeks to test the reliability of the instruments. Pearson Product Moment Correlation Coefficient was used to analyze the Performance Test Instrument which came out with a reliability coefficient of 0.83. Cronbach Alpha was used to analyze the Educational Technology Experts' Assessment, Instructional Design Experts' Assessment, and Basic Technology Experts' Assessments 0.90, 0.72, 0.79, and 0.94 respectively.

Procedure for the Evaluation of developed mobile application in learning workshop accidents and material technology in basic technology

The development and evaluation of a mobile application on workshop accidents and material and processing was carried out using research models (ADD + SUR + Evaluation of Kirkpatrick = ASDDURE). This model was conceptualized by the researcher to arrive at a unification of three levels of ADD(IE) model (Analysis, Design, and Development), three levels of (A)S(S)UR(E), and two levels of Kirkpatrick evaluation model (Reaction and Learning).

Additionally, the model Analysis, Statement of Objectives, Design, Development, Utilisation, Response from Learners, and Kirkpatrick's Evaluation are thereby explained as they were sequentially applicable to the exercise on the development and evaluation of the mobile application on workshop accidents and material technology.

Findings and Discussion

Research question one: What are the processes involved in developing the mobile application for teaching basic technology?

The first research question explained the steps taken in creating a mobile application that teaches basic technological processing, materials, and workshop safety. Research models were utilized in the creation process. Three ADDIE levels (Analysis, Design, and Development) and three ASSURE levels (Statement of Objectives, Utilization, and Response) were incorporated into the model. The study views the learners' Response and Utilization as taking the role of the ADDIE model's Implementation. Nonetheless, assessment is a part of both approaches. In order to address this, the Kirkpatrick assessment model was utilized, with the learning and reaction (attitude) stages comprising the first two tiers of the model. The acronym ASDDURE stands for Analysis, Statement of Objectives, Design, Development, Utilization, Response, and Evaluation of the Mobile Application, which is how the researcher constructed these models to arrive at their conclusion. Writing instructional materials in line with the Basic Technology Curriculum was the first step in the process. The Basic Technology Learning Application (BTLA) was created by integrating educational materials into a mobile application that was already designed. According to recommendations from experts and relevance to the application's contents, the researcher and programmer sorted through the embedded photographs. Additionally, the creation of the mobile application involved two main stages.

Second research question: What impact does the created mobile application have on the knowledge of materials, processing, and workshop safety?

To examine how the developed mobile application affected the respondents' understanding of workshop safety, materials, and processing, a Basic Technology Performance Test was administered to them both before and after their exposure to it. The data were analyzed for frequency and percentage, and the students' overall academic performance was calculated using a benchmark set of ranges that represented fail, bad, fair, good, very good, and excellent: 0–39, 40–44, 45–49, 50–59, 60–69, and 70–100.

Table 1. Respondents' academic performance in basic technology when taught using the developed mobile application

S/N	Grading Value	Performance Level (%)	Pre-Test Frequency	%	Post-Test Frequency	%
1.	0-39	Fail	3	12.0	0	0
2.	40-44	Poor	4	16.0	0	0
3.	45-49	Fair	3	12.0	0	0
4.	50-59	Good	5	20.0	5	20.0
5.	60-69	Very Good	8	32.0	11	44.0
6.	70-100	Excellent	2	8.0	9	36.0

Average Performance	53.0	66.4
Score Range	Good	Very Good
Performance Difference	13.4%	

When taught with developed mobile technology, pupils' academic success in Basic technology is displayed in Table 7. According to the table, almost 40% of the students' pre-test scores were below 50%. However, in the administered post-test, none of them scored less than 50%. A similar percentage of pupils (20%) received performance grades ranging from 50% to 59%. Performance of 60% to 69% of the pupils showed a rise of up to 12%, while the exceptional performance grade showed an increase of roughly 28%. The pre-test and post-test results showed cumulative average performance of 53.0 and 66.4, respectively, showing a 13.4% performance difference. This suggests that the mobile application that was built to teach specific basic technology concepts had a beneficial impact on the academic achievement of students studying basic technology.

Research question three: How do educational technologists rank the produced mobile application for learning about materials, processing, and workshop safety?

Range was used to determine the overall rating of the developed mobile application to respond to the third research question. The data was analyzed simultaneously using simple and cumulative averages. A reference point with values of 0-35.9, 36-70.9, 71-105.9, and 106-140 was utilized to denote poor, good, very good, and exceptional performance, respectively. The results of the analysis are shown in Table 2 and are explained as follows:

Table 2. Educational technology experts' rating of the developed mobile application

S/N	Content Assessment	Average Score
1.	The content is reliable	4.33
2.	A balanced presentation of information	4.67
3.	Bias-free viewpoints and images	4.33
4.	Correct use of grammar	4.00
5.	Current and error-free information	4.00
6.	Concepts and vocabulary relevant to learners; abilities	4.00
7.	Information relevant to age group	4.00
Structure		
8.	The content is structured in a clear and understandable manner	4.67
9.	The structure of the app permits learners to advance, review, see examples, and repeat the unit or escape to explore another unit	4.67
Adaptivity		
10.	The package encourages discussion and collaboration among learners	4.33
11.	The app contains assignments that can be executed by a group of learners	3.67
12.	The app facilitates learning by doing	3.67
13.	The app promotes collaborative learning	3.67
Design Factor Interactivity		
14.	The interactivity of the app is based on the maturity of the students	4.00

S/N	Content Assessment	Average Score
15.	The app allows students to apply what they have learnt rather than memories it	4.33
16.	The package allows learners to discover information through active exploration	4.00
Screen Design		
17.	Screens are designed in a clear and understandable manner	4.33
18.	The presentation of information can captivate the attention of students	4.67
19.	The design does not overload students' memory	4.33
20.	The use of text follows the principles of readability	4.33
21.	The color of the text follows the principles of readability	4.33
22.	The number of colors on each screen is not more than six	4.00
23.	There is consistency in the functional use of colors	4.67
24.	The quality of the text is good	4.67
25.	Presented pictures are relevant to the information included in the text	4.67
26.	A high contrast between graphics and background is retained	4.33
27.	The integration of presentation means is well-coordinated	4.33
28.	The quality of the images and graphics is good	4.67
	Cumulative Score	119

The designed mobile app on workshop safety, materials, and processes received a validation rating of 8 out of 10 from Educational Technology Experts. The developed mobile app on workshop safety and materials and processing was rated excellent by Educational Technology Experts, as indicated by the cumulative score of 119 (85%), based on the range benchmark of 0-35.9, 36-70.9, 71-105.9, and 106-140, which represent poor, good, very good, and excellent, respectively.

Fourth research question: How does the created mobile application for learning about workshop safety, materials, and processing rate among instructional design experts?

In order to address research question four, range was utilized to ascertain the overall rating of the created mobile application, and simple and cumulative averages were employed to analyze the data. A reference range of 0–23.9, 24-48.9, 49–72.9, and 73–95 was utilized to indicate the categories of bad, good, very good, and excellent. The analysis's findings are displayed in Table 3 and can be understood as follows:

Table 3. Instructional system designers' rating of the developed mobile application

S/N	Technicality Assessment	Average Score
1.	Home key for returning to the main page	4.33
2.	Back key to get back to the previous page	4.33
3.	The next key to moving forward to the next page	4.33
4.	Exit key for exiting the program	4.00
5.	Screens are designed in a clear and understandable manner	4.00
6.	A balanced presentation of information	4.00
7.	Key for moving forward or backward in a lesson	3.67
8.	Key for accessing the next lesson in a sequence	3.33

S/N	Technicality Assessment	Average Score
9.	The package considers the individual differences of the learners	3.67
10.	The package considers the different learning styles and experience	4.00
11.	The package facilitates learning by doing	4.33
12.	The package promotes collaborative learning	3.33
13.	GIF images are purposeful, adding impact to the learning experience	4.33
14.	Digital effects are used appropriately for emphasis	4.00
15.	The mobile app has durability over time	4.33
	Quality of Instruction Assessment	
16.	Menu keys are well-positioned	3.67
17.	The app is presented in a logical order	4.0
18.	The app contains rich information to support learners' understanding	4.0
19.	The app enhances the presentation of the subject matter	4.0
	Cumulative Score	75.7

Table 3 shows the Instructional System Designer's validation grade for the mobile app that was created to teach workshop safety, materials, and processing. The developed mobile application on workshop safety and materials and processing was rated excellent by the Instructional System Designer, as indicated by the cumulative score of 75.7 (79.7%), based on the range benchmark of 0-23.9, 24-48.9, 49-72.9, and 73-95, which represent poor, good, very good, and excellent, respectively.

Research question five: How is the produced mobile application for learning about workshop safety, materials, and processes rated by basic technology teachers?

To address research question five, range was utilized to ascertain the overall rating of the created mobile application, and simple and cumulative averages were employed to analyze the data. To indicate bad, good, very good, and exceptional, a benchmark of 0-37.9, 38-75.9, 76-113.9, and 114-150 were used, respectively. The analysis's findings are displayed in Table 4 and can be understood as follows:

Table 4. Basic technology teachers' rating of the developed mobile application

S/N	**Content Assessment**	**Average Score**
1.	Objectives are clearly stated and relevant to the concept	4.67
2.	The contents of the mobile app match the objective	4.67
3.	Presentation leads to the acquisition of knowledge sought for	4.33
4.	Content is up-to-date and effective for learning	4.33
5.	Adequate and relevant content to the intended learning outcome	4.33
6.	Relevant to JSS curriculum needs	4.67
7.	The design of the mobile app is based on reliable learning and instructional theories and is directly related to the content of the curriculum	4.33
8.	The application of the mobile app is possible for various topics in the curriculum	4.33

S/N	Content Assessment	Average Score
9.	The application of the mobile app is possible on issues related to the curriculum	4.33
10.	The mobile app can be used by learners alone, without the need for other instructional objects (i.e. book)	4.33
11.	There is a balanced presentation of information	4.33
12.	The logical progression of basic technology workshop accidents and materials processing is guaranteed	4.67
13.	Concepts and vocabulary are relevant for learners	4.33
14.	The content is sufficient to achieve the stated objectives for the selected topics, workshop accidents, and materials processing	4.67
Technicality Assessment		
15.	The number of color on each screen is not more than four	4.5
16.	Screens are designed in a clear and understandable manner	4.33
17.	The images in the mobile app are clear enough	4.67
18.	The mobile app can be used on different Android smartphones	4.67
19.	The content of the mobile app caters for the three domains of learning	4.33
20.	The quality of the text is good	4.00
21.	The mobile app allows students to assess themselves in the course of the lessons	4.33
22.	The interactivity of the mobile app is in accordance with the level of students	4.33
23.	The mobile app affords an opportunity for interaction at every unit of the lesson	4.33
Design Assessment		
24.	The mobile app permits individual learners to learn at their own pace	4.00
25.	The presentation of information arrests the interest of learners	4.00
26.	Menu keys are well-positioned	4.33
27.	The mobile app is self-explanatory to achieve the stated objectives	4.33
28.	The mobile app facilitates learning by doing	4.67
29.	The organization of the instructional package permits learners to repeat the unit	4.67
30.	The organization of illustration and graphics are well presented	4.67
	Cumulative Score	**132.5**

The validation rating of the mobile app that Basic Technology teachers built to educate workshop safety, materials, and processes is shown in Table 4. The developed mobile app on workshop safety and materials and processing was rated excellent by Basic Technology Teachers, as indicated by the cumulative score of 132.5 (88.3%), based on the range benchmark of 0-37.9, 38-75.9, 76-113.9, and 114-150 to represent poor, good, very good, and excellent were employed, respectively.

An overview of the results

The following is an overview of the research questions and research hypotheses findings:

1. The academic performance of students studying Basic Technology was positively impacted by the mobile application that was built to teach workshop safety, materials, and processes.
2. Instructional system designers, basic technology teachers, and educational technology experts all gave the created mobile application on workshop safety, materials, and processing an outstanding rating.

Discussion

The project's goal was to create a mobile application that upper-basic schools in Nigeria could use to teach themselves some important technological topics. The creation and evaluation of a mobile application for teaching workshop safety, basic technological materials, and processing was the main objective of the project. The first study question describes the procedures for developing and evaluating a mobile application that uses the ASDDURE model to educate workshop safety, materials, and processing. The findings demonstrated that the app for learning basic technology had been developed effectively and would help students studying basic technology in Nigerian Upper Basic Schools. This supports Amosa's (2015) findings, who developed and evaluated an interactive video-based teaching package for basic technology education in Nigerian classrooms using pottery. The interactive video-based educational package enhanced students' academic achievement in basic technological ceramic instruction, according to the results.

The findings of Sowunmi and Aladejana (2023), who investigated the effects of computer-assisted instruction and simulation games on primary science performance in Lagos State, Nigeria, for effective teaching and learning, corroborate the findings of the current study. Their results demonstrated that these strategies improved the academic achievement of elementary science students. Once more, Hsu and Ching (2023) found that instructional packages give students the chance to participate in self-learning experiences, which significantly affects students' performances regardless of factors like gender or age. also support the results of this investigation. The deal was made because of the special features of mobile applications, which include personalized learning and offline functionality. Furthermore, Stoyanov, Hides, and Wilson (2016) found that mobile apps have aided in students' development, particularly in the area of online learning. It is therefore impossible to overstate how unique it is in that it can deliver curriculum materials regardless of time or distance.

Examining experts' evaluations of applications for basic technology learning was the goal. The third through fifth study questions concerned the evaluation of the mobile application in learning workshop safety and materials and processing in basic technology by educational technologists, instructional design specialists, and basic technology teachers using the ASDDURE model. Results indicated that a useful and practical mobile application might teach Nigerian upper basic schools about workshop safety, materials, and processes. especially in terms of structure, complexity, screen design, adaptability, and the caliber of instructional content. According to Falode et al.'s 2023 findings, there was a discernible shift in the kids' academic achievement following the program's use.

Three criteria are used to rate instructional content: linguistic correctness, information balance, and content reliability. Information clarity was established via the arrangement. In the meanwhile, adaptivity includes things like whether the

mobile application promotes student participation and discussion as well as student-completed homework. The items related to screen design pertain to the application's ability to hold the interest of learners. These were all divided into individual items and evaluated by specialists in the fields of educational technology, computers, and subject matter, in that order. Every critique, correction, and observation was taken into account.

Conclusion

Using the ASDDURE approach, the study created a mobile application for Nigerian Upper Basic Schools to teach workshop safety, materials, and processing in basic technology. The findings demonstrated the efficacy of mobile applications as a tool for curriculum-based content learning. Therefore, instructional designers, educational technologists, and specialists in basic technology evaluated and determined that the areas of analysis of learners, objectives, contents, design, and development use were appropriate. One component of mobile learning that makes it simple to access instructional materials and learn at one's own pace and convenience is the mobile application. The academic performance of the learners had significantly changed as a result of using the mobile application. Nevertheless, after using the mobile learning application, there was no discernible difference between the attitudes and performance of male and female students.

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DEVELOPMENT OF MATHEMATICS LEARNING MEDIA CONCEPT BOARD (PAKELING BANDAR) FOR STUDENTS WITH SPECIAL NEEDS

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Abstract
The research aims to produce mathematics learning media that is valid, practical, and effective according to the student's needs, particularly in learning geometry for special needs students in Junior High School (phase D). The research method used is research and development with analysis flow; design, development, implementation, and evaluation. The study was conducted in a special school with a total of 3 students, namely 1 student with Autism Spectrum Disorder (ASD) and 2 students with intellectual disabilities. The data collection techniques used were questionnaires, observations, and test questions. The instruments used were validation questionnaires, teacher response questionnaires, student observation sheets, and sheets of pretest-posttest. The research results show that Pakeling Bandar media has valid criteria by the three validators with V-Aiken scores $\geq 0{,}61$ in all aspects of the assessment. The practicality test obtained an average score of 3,59. Media Pakeling Bandar was declared very effective based on the assessment results post-test with a completion percentage of 98,33%. Moreover, learning media has met the criteria of being valid, practical, and effective and has met the needs of phase D ASD and mentally retarded students in maximizing the learning of geometric elements in the material around triangles, squares, and rectangles. With Pakeling Bandar media, students can understand the concept of the perimeter of plane figures, and calculate the perimeter of plane figures, and students are actively involved in learning in class.

Keywords: ASD, mathematics learning media, special need

Introduction
Learning media is a tool that can help teachers transfer knowledge to students at school (Baysu et al., 2022; Fonger, 2019). Schijns (2021) also discusses the meaning of learning media as everything that is used in the learning process as a channel for messages and information that can stimulate students' thoughts, interests, and attention so that the process of learning interaction and communication between teachers and students can take place properly. With

learning media, teachers can maximize the quality of the learning delivered (Munfarikhatin et al., 2020). According to Chahal and Rani (2022) in his book which states that the general benefits and specific benefits of teaching aids for mathematics learning media for students are that learning becomes more active because there is interaction between students and teachers, improving the learning process and outcomes, and teachers become more motivated to design better learning.

Pakeling Bandar media is a combination of tangram game media and geometry board which are combined and modified according to students' needs. This media is a combination of tangram media and geometric boards. The tangram game is a geometric puzzle game that consists of seven plane figures, namely two large triangles, one medium triangle, two small triangles, one square, and one parallelogram (Bofferding & Aqazade, 2023; Pohl & Richter, 2021). Meanwhile, according to Yamada et al. (2024), the tangram game is a game that originates from China puzzle geometry consists of seven plane figures and the seven pieces are arranged and attached to form various geometric patterns and can form shapes such as ships, houses, animals, etc.

Bofferding and Aqazade (2023) stated that the geometry board learning media is a medium for introducing plane figures, helping children learn about plane figures, and helping children calculate the circumference of plane figures easily and in fun. In his research, this geometric board media was not only used by normal students but also by students with special needs who could also use it, one of which was blind students who could be touched in how it was used. From this opinion, it can be concluded that the geoboard is a learning medium that can be used as a learning aid in geometry material. Furthermore, a geoboard can help students calculate the area and perimeter of plane figures. Uya (2023) explains the benefits of geometric board media (geoboard) to help students form various shapes of plane figures, helping students understand the concept of perimeter and area of plane figures.

Meanwhile, according to Trimurtini et al. (2020), the application of geometry board media can help students understand the concept of perimeter and area of abstract plane figures so that with the geometry board media, students become interested, challenged, and active in learning using geometric board media. The development of sparkling bandar media has aimed at students with special needs, in this case, the students with ASD and mental retardation in the D phase to help students in introducing plane figures, introducing the concept of the perimeter of incoming shapes, and calculating the perimeter of plane figures, triangles, squares, and rectangles of varying shapes and sizes. Benefits of dealer media for students with special needs include: can attract the focus or students' attention, students can understand plane figures in geometric material, students can understand the concept of the perimeter of a plane figure, calculate the circumference of a plane figure through the media and maximize learning on geometric elements.

Autism spectrum disorder (ASD) or what is often known as autism students with obstacles to the development of the brain's nerves (Martono et al., 2020; Munfarikhatin & Rachmat, 2021). This disorder can be recognized since the child is 18 months old with symptoms of shutting down, liking to play alone, and liking to do things repeatedly. So that causes sufferers to experience obstacles in communicating and interacting in social environments. According to Irfan et

al.(2020) and Munfarikhatin et al. (2021), apart from the obstacles these students have, it turns out that some of them have quite good memories, especially in the form of visuals and real objects, and have good potential in the field of numbers and calculations.

The application of media for students with special needs has been carried out by Baysu et al. (2022) with research results that using Tangram media can improve the ability to recognize plane figures in children with learning difficulties. Olsson and Granberg (2022) also concluded that the ability to calculate the circumference of plane figures can be increased through the use of learning media geoboard. These three research results indicate that the application of geometric learning media has a positive impact on students with special needs.

Based on the results of joint interviews with teachers, information was obtained that ASD students are students with limitations in communicating, interacting socially, and only focusing on themselves (Marotta et al., 2020). In learning, these students often do not focus due to repetitive activities (Zeidan et al., 2022). However, despite the obstacles they suffer, ASD students have a talent for counting. These students are very fast and precise when solving the counting problems given by the teacher, but are still guided when solving them. One of the materials in secondary school mathematics learning that requires media as an intermediary for learning is geometric elements. The teacher is only limited to providing an introduction to geometric shapes in the description on the blackboard. Considering the learning achievements in geometry material, at the end of the phase students can show and determine the perimeter of plane figures (triangles, squares, and rectangles). Therefore, it is important to develop a learning media that can help meet the needs of ASD students in secondary school.

Method

Research and development methods are applied using the flow of analysis, design, development, implementation, and evaluation (Karimi et al., 2021; Umbara et al., 2023). This research involved two ASD students from one of the special schools as research subjects. At the analysis stage, information is collected related to the problems students are facing at school. At this stage, the researcher carried out two analyses of needs namely, an analysis of student needs and an analysis of learning media needs. The design stage emphasizes designing and creating Pakeling Bandar products and teaching modules. Pakeling Bandar media is arranged manually and consists of three components, namely individual boards, tangram boards, tangram pieces, and letter and string accessories. Meanwhile, teaching modules are developed by developing learning objectives based on learning outcomes. As a cognitive evaluation tool, pretest and posttest questions were also created which were carried out before product implementation and at the end of product implementation. At the development stage, the product that has been completed is then validated. The validated products are dealer media, teaching modules, and test questions. Validation is carried out to determine the suitability of the product that has been made. Validation tests are carried out by three validators who provide assessments until the product is declared valid. After the product is declared valid and suitable for use, the next step is the implementation stage.

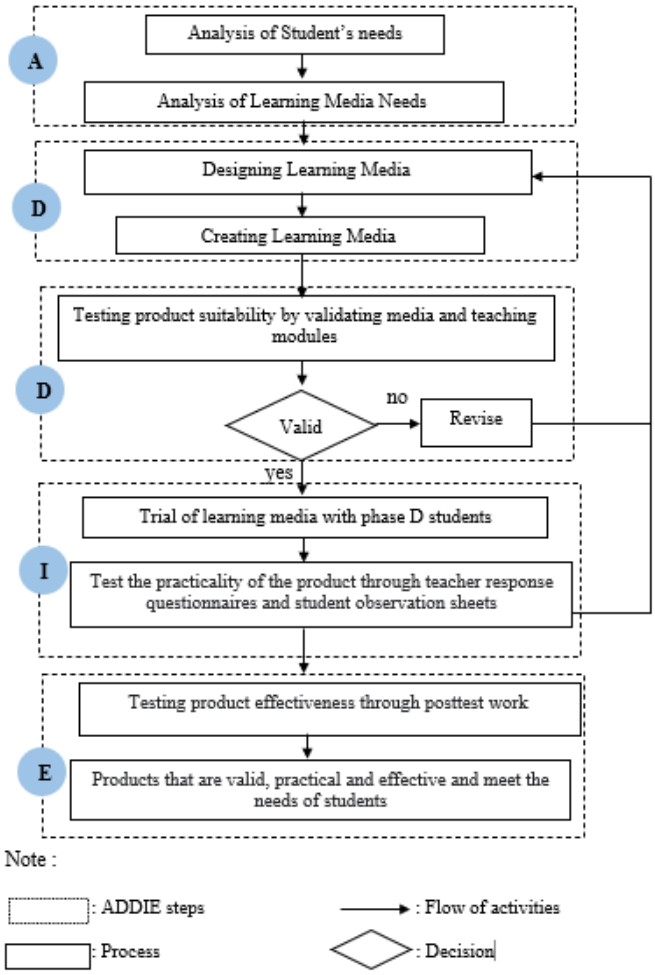

Figure 1. Learning media development flow

Product implementation is applied to learning for ASD students by conducting a pretest first. The Pakeling Bandar learning media was applied in two meetings, there are at the first meeting the students took part in the lesson with the learning objective indicator determining the perimeter of the triangular, square, and rectangular Plane figure by wrapping a rope around all sides of the Plane figure using Pakeling Bandar media. This aims to introduce the concept of the perimeter of a Plane figure. Furthermore, the learning objective at the second meeting was to calculate the perimeter of triangular, square, and rectangular shapes using Pakeling Bandar learning media. Assessment of the practicality of learning media is obtained from the results of teacher response questionnaires and student observations. A teacher response questionnaire was given to teachers to measure the practicality of the Pakeling Bandar media and teaching modules. Meanwhile, observation is used to see and measure the practicality of the dealer media that has been applied to students. Moreover, at the evaluation stage, an evaluation is carried out on the results of implementing the Pakeling Bandar learning media by giving a final test or posttest to determine the level of effectiveness of the media that has been developed. The dealer media is said to be effective if the students' posttest results are in the complete category. This stage is also the final stage to see whether the product created is successful, by initial expectations or not.

Findings and Discussion

Analysis

Based on the results of joint interviews with the homeroom teachers of ASD students, each type of student with special needs has its limitations, characteristics, and potential. This greatly influences learning activities at school. Therefore, it requires teachers to have skills in designing learning strategies that can facilitate students according to the limitations and characteristics of each type of student's disability. However, what happens is that schools still lack teachers and limited classroom space. This causes the types of impairment to be combined into one class. ASD has the characteristic of focusing on their activities without interacting with other people, but these students can count (Marotta et al., 2020). Minimal availability of learning media and lack of teacher skills in applying learning media. First, a lack of provision of media that can facilitate ASD students' phase D in learning. This is known from learning activities that still use the method of rewriting what the teacher said. Second, this obstacle is based on changes to the school curriculum. In implementing the independent curriculum, schools experienced changes, one of which was changes in teacher duties. Teachers who started as subject teachers now act as homeroom teachers who must have the ability to teach all subjects to students. The homeroom teacher for ASD phase D students was originally a science subject teacher but now must have the ability to teach other subjects, one of which is mathematics. So, teachers are required to be able to use mathematics learning media.

Table 1. Learning outcome in geometry content phase D

Element	Learning Outcomes
Geometry	At the end of phase D, students can show how to determine the perimeter, triangle, square, and rectangle using concrete objects (thread, rope, matches, sticks, and various objects that can be used as a unit of length), calculate the perimeter, triangle, square, and rectangle use concrete objects that can be used as a unit of length.

With the various limitations that students with special needs have, it becomes difficult for these students to learn the material without using the help of real objects or learning media (Andim & Aziz, 2021). One of the lessons that has not been maximized is on the geometric elements of phase D in the material on the circumference of triangles, squares, and rectangles. Therefore, the solution that can solve this problem is to develop learning media that suits the needs of students (Olsson & Granberg, 2022) so that learning objectives can be achieved. The learning outcomes that students must achieve in geometric elements can be seen in the table below.

Design

Pakeling Bandar unit board

Bandar Pakeling media is made manually and consists of 5 components namely individual boards, tangram board, tangram pieces, letter accessories, and rope. The unit board is the board used to arrange the tangram pieces to form the Plane figure being studied. Apart from that, the Bandar Pakeling unit board is also used to calculate the length units in the Plane figure killing.

Figure 2. Pakeling Bandar unit board

The Pakeling Bandar unit board has an overall size of 45 cm x 45 cm. The box lines measure 3 cm x 3 cm with a length of 12 squares and a width of 10 squares so the total measures 36 cm x 30 cm. At the top of the unit board, there is the writing "PAKELING BANDAR" and at the bottom, there is a place used to write the results of calculating the perimeter of a Plane figure. The Pakeling Bandar unit board is composed of plywood, zinc plate, and manila paper which has been made into individual checkered lines and thick plastic.

Tangram pieces board

The tangram board is a special board used to place tangram pieces. The tangram board has an overall size of 24 cm x 24 cm.

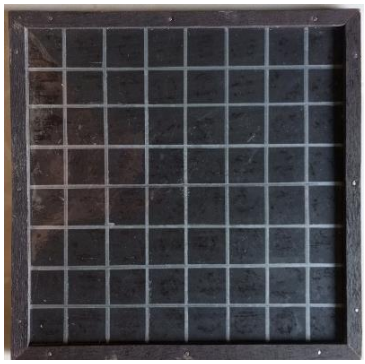

Figure 3. Pakeling Bandar pieces board

On the board, there are checkered lines to make it easier to arrange tangram patterns. The box lines measure 3 cm x 3 cm. The tangram board is composed of plywood, and zinc plate which has been lined with individual squares and thick plastic to avoid dirt and scratches on the individual square lines.

Tangram pieces

Tangram pieces are a tangram shape that has 7 plane figures, namely 2 large triangles, 1 medium triangle, 2 small triangles, 1 parallelogram, and 1 rhombus. The tangram pieces are modified into small pieces so that the size of the Plane figure becomes more varied. These tangram pieces are square and triangular pieces cut from the diagonal of the square.

Figure 4. Tangram pieces

Tangram pieces are used in preparing Plane figures whose circumferences will be calculated with shapes and sizes that can be adjusted to your wishes. These tangram pieces have a total size of 24 cm x 24 cm with each piece measuring 3 cm x 3 cm. Each piece is given a magnet or bold iron at the bottom to prevent it from easily shifting and falling when arranged to form a plane figure.

Letter and rope accessories

Letter and rope accessories are used as complements in arranging plane figures. Letter accessories are used to help students determine corner points and sides of flat figures. Meanwhile, rope accessories are used to help students show how to determine the circumference of flat shapes that have been arranged.

Figure 5. Letter and rope accessories

Teaching module

Teaching modules are a type of teaching tool to help direct the learning process to achieve learning outcomes (Damrongpanit, 2022). The teaching module consists of lesson plans, materials, LKPD, and assessment instruments (Uya, 2023). The teaching module consists of general information on teaching modules (identity of teaching modules, Pancasila student profiles, learning outcomes, learning objectives, learning models and methods, types of media used, number of students, initial competencies and target students), learning activities (composed of learning preparation and learning steps), formative assessment, remedial, teacher reflection, student reflection glossary and bibliography.

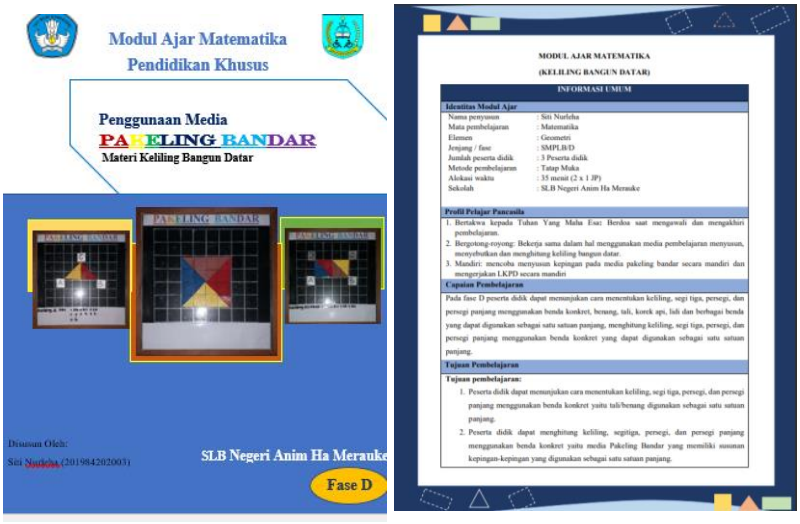

Figure 6. Pakeling Bandar teaching module

The material is arranged based on learning achievements and learning objectives in phase D geometry elements. The material shows how to determine the perimeter and calculate the perimeter of triangular, square, and rectangular shapes. Based on the learning objective indicators, the material is divided into two meetings. The first meeting shows how to determine the perimeter of triangles, squares, and rectangles. The second meeting calculates the perimeter of triangles, squares, and rectangles.

Develop

The media validation sheet for city packaging is given to 3 validators, namely validators I, II, and III. Urban packaging media is validated twice by validator I, twice by validator II, and once by validator III. Media Pakeling City is declared valid if all statements are on the V-Aiken score ≥ 0.61, that is with a value of. Media that has not been declared valid then the media needs to be revised until the media is declared valid.

Table 2. Learning outcome in geometry content phase D

Assessment Aspects	Item Number	Validator Results			n(c-1)	V-Aiken	Result
		I	II	III			
Content	1	5	4	4	12	0.83	Valid
	2	5	5	5	12	1.00	Valid
	3	5	5	5	12	1.00	Valid
	4	4	5	5	12	0.92	Valid
	5	4	5	5	12	0.92	Valid
	6	4	4	5	12	0.83	Valid
	7	5	4	5	12	0.92	Valid
Appearance	8	5	4	5	12	0.92	Valid
	9	5	4	5	12	0.92	Valid
Use and Presentation	10	4	4	5	12	0.83	Valid
	11	4	5	5	12	0.92	Valid
	12	5	4	5	12	0.92	Valid
	13	4	4	5	12	0.83	Valid

Assessment Aspects	Item Number	Validator Results			n(c-1)	V-Aiken	Result
		I	II	III			
	14	5	4	5	12	0.92	Valid
	15	5	5	5	12	1.00	Valid

Based on the validation results from the three validators, the score obtained from the V-Aiken calculation for all statement items is (valid). Thus, it can be concluded that the Pakeling Bandar media developed meets valid criteria and is suitable for use in mathematics learning in class VIII students with ASD phase D.

The teaching module validation sheet was given to 3 validators, namely validators I, II, and III. The teaching module was validated twice by validator I, twice by validator II, and one validation by validator III. The teaching module is declared valid if all the statement items are on the v-Aiken score, that is, if the teaching module value has not been declared valid, the media needs to be revised until the teaching module is declared valid.

Table 3. Data validation analysis of the teaching module

Assessment Aspects	Number of Statement	Validator Assessment			V-Aiken	Result
		I	II	III		
Learning Module Identity	1	5	4	5	0.92	Valid
	2	5	5	5	1.00	Valid
Implementation of P5	3	4	5	4	0.83	Valid
Learning Goals	4	4	4	5	0.83	Valid
Learning Equipment	5	5	4	5	0.92	Valid
	6	4	5	5	0.92	Valid
	7	4	4	4	0.75	Valid
Learning Material	8	5	5	5	1.00	Valid
	9	4	5	5	0.92	Valid
Learning Activity in Class	10	5	4	4	0.83	Valid
	11	5	4	4	0.83	Valid
	12	4	5	5	0.92	Valid
	13	5	5	5	1.00	Valid
LKPD	14	4	5	5	0.92	Valid
Language	15	5	5	5	1.00	Valid
	16	5	4	5	0.92	Valid
Appearance	17	4	5	5	0.92	Valid
	18	4	5	5	0.92	Valid

Based on the validation results from the three validators, the V-Aiken calculation score for all statement items is obtained, namely (valid). Thus, it can be concluded that the teaching module developed is valid and suitable for use in mathematics learning in class ASD phase D students.

Implementation

The practicality of learning media can be known after the learning media is applied to students in a class of ASD students. This is because conducting limited trials is difficult considering that these students are students with special needs, who find it difficult to get an immediate response without prior guidance (Luangrungruang & Kokaew, 2022; Marotta et al., 2020). So that the assessment of

the practicality of learning media is obtained from the results of teacher response questionnaires and the results of student observations when the Pakeling Bandar is applied in learning.

Figure 7. Students learning activity using Pakeling Bandar

A teacher response questionnaire was given to teachers to measure the practicality of the Pakeling Bandar and the teaching modules that have been implemented (Baanqud et al., 2020). Meanwhile, student observation aims to measure the practicality of the Pakeling Bandar in terms of the benefits and convenience of the media when implementing the media.

Table 4. Data analysis of teacher response questionnaires

Assessment Aspects	Question Number	Score
Learning material	1	4
	2	4
Learning Media	3	4
	4	3
	5	4
	6	4
	7	4
	8	4
	9	4
	10	4
Learning Module	11	4
	12	4
	13	4
Average Score	3.92	
Practicality Level	Very practical	

From the results of the teacher response analysis data, it can be seen that the results of the teacher responses were assessed with an average score of 3.92 in the very practical category.

Evaluation

To evaluate the product, an effectiveness test is carried out through the results of the test questions (pre-test and post-test) given to three students. Pakeling Bandar is declared effective if the student's test results are said to be complete by achieving the Minimum Completeness Criteria (KKM) that has been set at the school, namely 65.

Table 3. Pre-test and post-test data

Completeness Category	Pretest Result	Posttest Result
The Highest Score	70	100
Lowest Value	10	95
Average Value	39	98.3
The Number of Samples Completed	1	3
Many Samples are incomplete	2	0
Completion Percentage	33.3%	100%

Based on table data on the percentage of completeness pretest 33.33% have not reached the school KKM score. This data shows that students are not complete with an average score of 39, the highest score is 70, and the lowest score is 10. Meanwhile, the percentage score for completion post-test of 100%, students achieved the KKM score, namely 65 schools. This data shows that the three students completed it with an average score of 98.3 with the highest score being 100 and the lowest score being 95. Therefore, it can be concluded that the Pakeling Bandar media has been developed in the very effective category. The effectiveness of learning media was important for learning results particularly in mathematics class (Hwang, 2019). Moreover, the positive impact of using learning media can be shown by students' activities and enjoyment of learning (Munfarikhatin et al., 2019; Zeidan et al., 2022).

Conclusion

The resulting learning media development is Pakeling Bandar media which is equipped with teaching modules to facilitate the needs of students with ASD phase D special needs. Based on testing, the product was declared successful because it met the criteria of being valid, practical, and effective. As a result of the validation of the Pakeling Bandar media using the V-Aiken ≥ 0.61 calculation, scores were obtained for all aspects of the assessment, so that the Pakeling Bandar media was declared valid by the three validators and suitable for use in learning. The practicality criteria are based on the results of teacher response questionnaires and student observation sheets after the learning media is applied, with an average percentage of 89,1%, and are in the very practical category. With Pakeling Bandar media, learning in class will be more enjoyable and by students' needs so that the minimum completeness criteria for mathematics learning can be exceeded.

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USING WORDWALL.NET TO IMPROVE STUDENTS' VOCABULARY SKILLS OF FOURTH GRADERS: KAMPUS MENGAJAR 6

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Abstract
Kampus Mengajar is one of the programs initiated by Kementrian Pendidikan, Kebudayaan, Riset, dan Teknologi in the form of *"Merdeka Belajar - Kampus Merdeka." Kampus Mengajar* aims to assist school administration and improving literacy, numeracy skills, and technological adaptation. *Kampus Mengajar 6* program in this study took place at SDN Adikarto 1 Muntilan. This study aimed to improve the vocabulary skills of fourth-grade students using Wordwall.Net and monitor the increase in vocabulary mastery of each student. The reason for conducting this study is that almost all students need help understanding new vocabulary and lack interest in learning English. Therefore, the researcher used Wordwall.Net to achieve the desired goals of both the *Kampus Mengajar* and this research. This study used the class action research method and data processing using qualitative descriptive techniques. The results were obtained in the pre-cycle with an average of 54.41, while in the post-cycle with an average of 65.33. There was an increase of 10.92, as well as an increase in each student's grade in the first and second cycles.

Keywords: *Kampus Mengajar 6*, vocabulary, Wordwall.Net

Introduction
The times demand changes and reforms in all aspects of society and require them to adapt and develop abilities and skills to deal with these changes and reforms. One of the developing aspects of life is education. The educational aspect must include various learning innovations to face and respond to increasingly complex challenges. In carrying out learning innovations, it is necessary to integrate technology, data, and communication across disciplines to achieve the desired goals (Kristiawan, 2014). Education has a crucial role in individual self-development, such as knowledge and skills, character and value formation, and the development of creativity and innovation that can provide for human needs in an increasingly advanced and developing life. So, education plays an essential role in preparing future generations by forming a generation that excels in knowledge and skills in various fields.

To face challenges and renewal in the aspect of education, Kementerian Pendidikan, Kebudayaan, Riset dan Teknologi created a program called "*Merdeka*

Belajar - Kampus Merdeka" or MBKM which has several program branches and in the implementation of all programs is supported by the Lembaga Pengelola Dana Pendidikan (LPDP). The objectives of the program are (1) Expect that the competence of graduates will increase, both soft skills and hard skills, (2) so that graduates are better prepared for the demands of the times and prepare graduates as superior, moral, and ethical future leaders (Suhartoyo et al., 2020).

Kampus Mengajar is one of the MBKM programs that began in 2020 and aims to (1) Provide opportunities for students throughout Indonesia and from various educational backgrounds to help schools with teaching and learning aspects, technology adaptation, and administrative aspects (Tohir, 2020), (2) Provide opportunities for students to learn and develop themselves outside of lecture classes and with this program being able to add insight and experience for students to be more developed both in soft skills and hard skills (Anwar, 2021), and (3) Empower students in helping the teaching stages in schools in their area (Pradana, 2022). The targets of this program have specific criteria, namely schools located in 3T (Disadvantaged, Outermost, and Frontier) areas, low levels of literacy and numeracy, and lack of access to technology.

The researcher got the *Kampus Mengajar* 6 target school at SDN Adikarto 1 Muntilan for the 2022-2023 school year. At the beginning of the placement, the researcher observed all classes during English language learning. Furthermore, the researcher chose the fourth–grade class of twelve children as the research subject. The reasons are (1) almost all students do not look enthusiastic when learning begins, (2) some of them do not pay attention to the teacher when explaining, (3) learning resources only come from textbooks and learning media that are not varied, (4) they feel English is a complex subject (this is known when researcher conduct interviews with several students), (5) students have difficulty in learning new vocabulary. The low mastery of students' vocabulary can be caused by the student's lack of interest and concentration due to the teacher's limited and less varied learning methods or media (Zulaini et al., 2023). Therefore, to overcome these problems, the researchers renewed and combined the learning media during the teaching and learning process. Wordwall.Net is a solution to problems in the fourth grade of SDN Adikarto 1 Muntilan. This aligns with the objectives of the *Kampus Mengajar*, namely helping with technology adaptation and increasing student literacy.

Several previous studies have used Wordwall.Net to improve students' vocabulary. Majid and Akhsan (2023) conducted the first completed research. The study aimed to increase vocabulary because the media was fun. In conducting research, researchers used Class Action Research. Moreover, the results obtained after conducting two cycles increased students' vocabulary mastery by 17% after pre-cycle and 21% after cycle 2. Widyaningsih et al. (2023) completed the second research, which aims to know how using the media improves students' vocabulary skills. The method used was experiment research. The results obtained after applying the media to students increased by 65%, and the media affected students' vocabulary proficiency. The third research study was completed by Fatimah (2020). The purpose of the research conducted by the researcher is to find out to what extent the media can improve student vocabulary in junior high schools. Researchers used class action research. The results obtained were an increase in students' vocabulary mastery by 82.5%.

The difference between this study and the three previous studies is that it aims to improve students' vocabulary skills by using Wordwall.Net and monitoring each student's increase in vocabulary mastery.

Wordwall.Net

Today's education uses technology, which impacts modern learning (Hameed, 2020) and makes the learning process more interactive (Alkamel & Chouthaiwale, 2018). Using technology in learning English can liven up the class with various fun and challenging games (Shabrina & Taufiq, 2023). Therefore, researchers use technology-based learning media, namely Wordwall.Net. According to Nadhiroh (2010), Wordwall.Net is one of the exciting and easy-to-use learning media that teachers can design to teach vocabulary and can be the best media to make learning methods more fun (Novalia, 2019). According to Çil (2021), Wordwall.Net is a website in which there are many choices of games that can be played with groups or individually, such as matching quiz pictures, puzzles, and others or using variations of themes and using favorite words (Bandjarjani & Efrata, 2024) and to train vocabulary skills. Wordwall.Net is a collection of several words displayed in a particular place that can become vocabulary for students (Sipayung, 2018). Wordwall.net is a website used as an interactive learning media for students, and using this media will foster student learning motivation. Furthermore, students can remember vocabulary easily without pressure.

Vocabulary

Vocabulary is one of the essential language components to be learned and mastered by students who want to learn a language (Syafrizal, 2018). As shown by Atmaja and Sonia (2020), vocabulary is one of the most critical aspects of learning English and is crucial in learning a foreign language (Sari & Aminatun, 2021). Vocabulary is vital in all four language skills: reading, writing, speaking, and listening (Arndt & Woore, 2018). Good vocabulary mastery allows effective communication, comprehension, and language expression. According to Sanjaya et al. (2022), by understanding and learning vocabulary, meaning, and how to pronounce it, students will be able to understand and use the language in listening, speaking, reading, and writing. Students with a good vocabulary will be able to use it well in oral and written form. Therefore, vocabulary mastery is an essential component in achieving fluency in English. By gaining an extensive vocabulary, students can more easily understand the spoken language of native speakers (Aprianoto & Haerazi, 2019) and effectively communicate their thoughts and feelings in writing and orally (Chonnia & Izzah, 2022).

Method

The method used in this research is class action research. Class action research is practical research conducted by a teacher in a classroom that aims to improve and increase learning in the classroom by taking specific actions. According to Mahendra (2020), class action research is research that is carried out systematically by teachers and researcher from the beginning of planning to assessment in the form of teaching and learning activities to improve and improve the quality of learning in their classrooms to improve the quality of education or teaching methods that have been done before (Lestari, 2024).

This research used the Kemmis and Mc Taggart model (1992) in Bro (2020), which consists of two cycles carried out through four phases: planning, implementing, observing, and reflecting. The phases of the cycle can be described as follows:

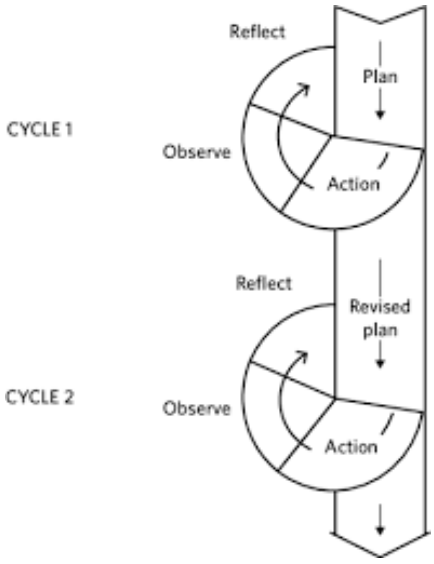

Figure 1. Kemmis and Mc Taggart (1992) cycle

Figure 1 shows that classroom action research uses repeated phases in each cycle. Each cycle consists of one meeting. They are starting from planning, implementation, observation, and reflection. The results of the first cycle will be used for improvement in the second cycle or until the problem in the classroom can be resolved. The subjects of this study were fourth-grade students of SDN Adikarto 1 Muntilan, totaling thirteen students consisting of five female students and seven male students. This study was conducted to improve fourth-grade students' vocabulary using Wordwall.Net.

In data processing, this research applied descriptive qualitative techniques. This technique uses qualitative data that is spread in descriptive form, which is usually used to analyze a social phenomenon or event. According to Moleong (2010), the qualitative method is a research procedure that produces descriptive data in the form of written or spoken words from people and behaviors that can be observed. Meanwhile, Kurniasari (2022) states that descriptive qualitative is a technique used for collecting, managing, analyzing, and presenting data that is described descriptively. The results obtained are presented in the form of a diagram.

Findings and Discussion

This section of findings and discussion will answer and discuss the research question, namely, whether the use of Wordwall.Net can improve the vocabulary skills of fourth-grade students at SDN Adikarto 1 Muntilan. Based on the research model used, the Kemmis and McTaggart Action Research Model, there are two cycles, each with four phases (planning, implementation, observation, and reflection).

Cycle 1

The first cycle was conducted on October 30, 2023, at 13.00 UTC+7. The four phases are detailed here.

Planning

This phase is used to prepare materials for students according to their needs. Learning plans are made for both learning methods and teaching media on the topic of numbers and their types, and success criteria are set.

Implementation

The initial activity was that the researcher conducted a test for twelve fourth-grade students of SDN Adikarto 1 Muntilan. The test consisted of 15 questions and consisted of two parts. Part A matches, and part B fills in the missing letters and writes the meaning in Indonesian. Then, after completion, followed by several activities, namely the first activity, the researcher focuses on providing material to students about numbers and types of numbers by watching the video that has been prepared. The second activity is that the researcher explains the video shown, such as how to spell letters, pronounce words, and their translation in Indonesian. In the third activity, the researcher invites students to learn vocabulary using Wordwall.Net and explains how to do it. The following are the test results on the pre-cycle that has been done:

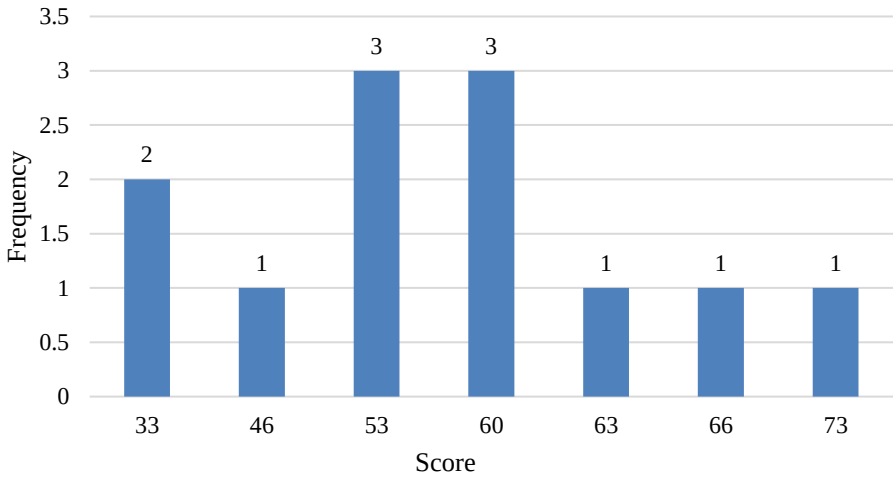

Figure 1. Pre-cycle test results

In this pre-cycle test, six students scored below the minimum of 60. Three students scored 33, one student scored 46, three students scored 53, three students scored 60, one student scored 63, one student scored 66, and one student scored 73. At the end of the lesson, the researcher reiterated the material learned and provided feedback to students.

Observation

The observation results show that the learning plan, such as the teaching methods and media used, has not been maximized. This is evidenced by the test results on the pre-cycle not yet included in the desired success criteria. Six students

passed the assessment criteria, and six students did not pass the assessment criteria. This was because the class was not conducive. After all, the learning began at 13.00 UTC+7, which is the last hour before going home from school. Not only that, the students could not concentrate, it was difficult to receive learning materials, and it was difficult to understand instructions from researcher when learning was carried out. The students looked tired and felt lazy. Given the material "numbers," this material is quite difficult if you do not pay attention well.

Reflection

Based on the observation, the thing that needs to be changed is the time the learning starts. In the second cycle, learning will be carried out in the morning and before break time, so that students can fully concentrate and easily receive and understand the instructions given by the researcher. The provision of material will start from basic numbers before entering the types of numbers.

Based on the results and analysis in cycle 1, the use of Wordwall.Net for students has not shown that it can improve students' vocabulary skills. Therefore, cycle 2 is needed to prove it. However, before cycle 2, the researcher will change the learning strategy, such as moving the lesson time, which originally started at 13.00 UTC+7, to 07.00 UTC+7 to overcome previous problems, such as an unfavorable class that caused students to not be able to concentrate properly and students who find it difficult to understand the material provided. For cycle 2, students will be given basic number material before the types of numbers. This is done so that students find it easier to understand the material.

Cycle 2

The second cycle was held on November 6, 2023, at 07.00 UTC+7. Previously, the researcher had consulted with the English teacher at school so that the subject would start at 07.00 UTC+7. The following are the details of the stages in the second cycle.

Planning

The researcher made improvements to the learning design, which included learning strategies, learning methods, and teaching media that were better organized than cycle 1. Pictures containing numbers were also added as the teaching media.

Implementation

The learning activity, which was attended by twelve fourth-grade students of SDN Adikarto 1 Muntilan, began with the researcher asking all students to say numbers from one to ten. After finishing, the researcher took pictures containing numbers and asked students to mention them in English. Then, the researcher repeated the vocabulary spoken by students. This is followed by the researcher writing the numbers tens and hundreds on the board and asking students to imitate the spelling of the vocabulary "numbers" spoken by the researcher and pronounce the vocabulary correctly based on the numbers on the board. Then, the researcher ensures students understand basic numbers before continuing with the types of numbers. In the next activity, the researcher explained the material based on the topic, and to make it more interesting, the researcher again used Wordwall.Net as a learning medium. Before the lesson ended, the researcher asked the students to take

a test (post-cycle), which contained 15 questions and was divided into two parts. Part A matches, and part B fills in the missing letters and writes the meaning in Indonesian. The following are the results of the post-cycle test that has been carried out:

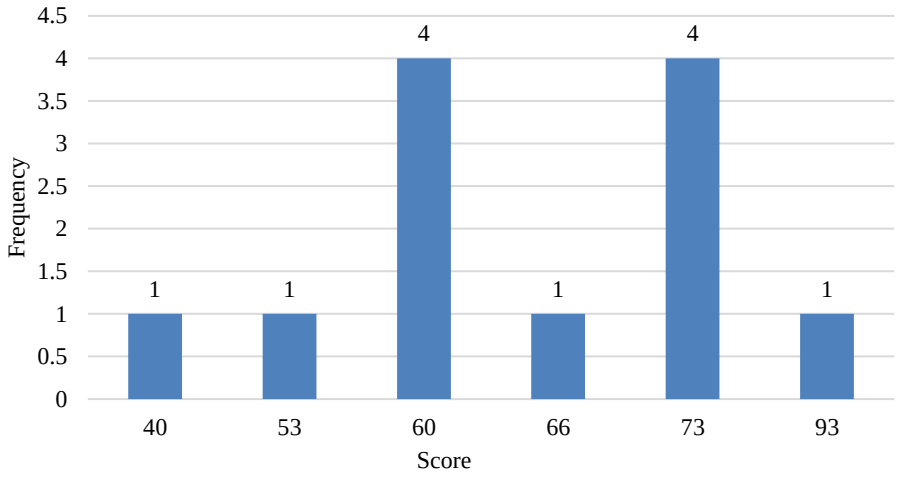

Figure 2. Post–cycle test results

Based on the post-cycle results, two students scored below the assessment criteria or below the score of 60. Four students scored 60, one student scored 66, four students scored 73, and one student scored 93. At the end of the lesson, the researcher gave feedback to students during two learning activities using Wordwall.Net.

Observation

The observation results showed that the lesson plan made was maximized. This was evidenced by the results of the post-cycle test, which showed that ten students had reached the assessment criteria. In this cycle 2, the class became conducive, and the students followed the learning with concentration and could follow instructions well. The students were more enthusiastic when learning by using Wordwall.Net. They seemed to ask more questions about learning and using Wordwall.Net. The change of class time to the morning made it more successful. The change of learning strategy by teaching the basic number material to the students before moving on to more in-depth material made it easier for them to understand the vocabulary.

Reflection

The observation results in cycle two have overcome problems, such as providing more in-depth material by adding pictures according to the topic, maximizing Wordwall.Net during learning, and changing the time from the afternoon to the morning in cycle 2.

Based on the results and analysis in cycle 2, using Wordwall.Net for fourth-grade students of SDN Adikarto 1 Muntilan successfully improved students' vocabulary skills. Thus, this cycle has reached the success criteria and should not be revised but stopped.

Overall findings

The test results in cycles 1 and 2 show that the use of Wordwall.Net was beneficial for each student because it increased their vocabulary skills.

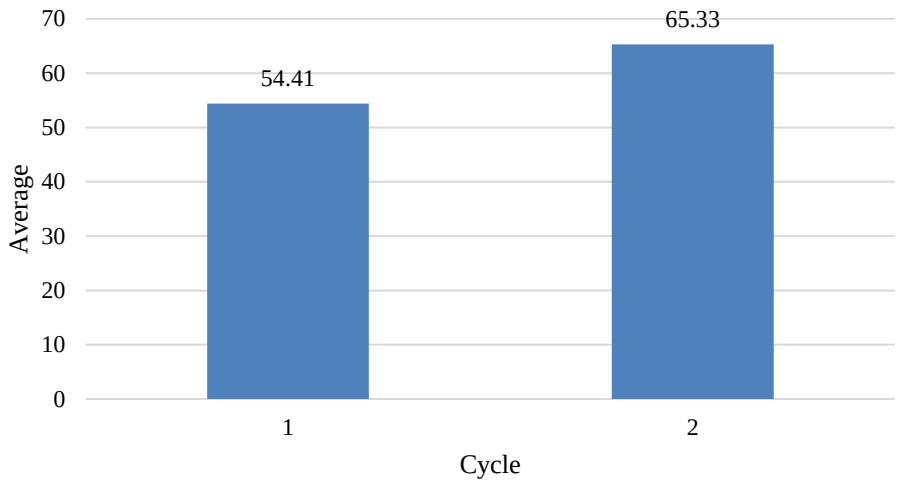

Figure 3. Average each cycle

In Figure 3, it can be seen that the averages in each cycle were carried out previously. The first cycle had an average of 54.41, while the second cycle had an average of 65.33.

Conclusion

Wordwall.Net is a web-based application that can be used for interactive learning in the classroom. Based on the research results in the fourth grade of SDN Adikarto 1 Muntilan, the average pre-cycle was 54.41 on a scale of 100. In comparison, the average result in the post-cycle was 65.33 on a scale of 100. So, there was an increase of 10.92 on a scale of 100, and each student experienced increased student vocabulary skills. It can be concluded that using Wordwall.Net can improve the vocabulary skills of fourth-grade students at SDN Adikarto 1 Muntilan.

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HOW DO FILIPINO TEACHERS INTERPRET SUSTAINABILITY DEVELOPMENT GOALS IN SCIENCE LESSON (AN INTERPRETATIVE PHENOMENOLOGICAL ANALYSIS)

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Abstract
The approach of this study was to interpret the perception of Filipino teachers on Sustainable Development Goals (SDGs) in K-12 Science lessons using an Interpretative Phenomenological Analysis (IPA). The findings of this research showed linkages between Quality Education, Education for Sustainable Development, and Disaster Risk Reduction. Participant 1 (FLE) and colleagues conducted a Project-based Learning to encourage students to solve environmental problems. This resulted in a White paper submission to the International Kids Conference 2022. The project reflected a strong implementation of SDGs 1, 2, 7, 8, 9, 12, and 13. Participant 2 (NM) implemented SDGs in the form of worksheet activities with open-ended questions for students to come up with many possible answers. This resulted in a strong implementation of SDGs 2, 4, 6, 7, 9, and 13. Participant 3 (JCT) promoted students' designs on Infographics about Environmental Disasters and endorsed those in a special event that promotes Earth Days. This resulted in the implementation of SDGs 3, 13, 14, 15, and 16. The analysis showed an applied proof of improved quality of teaching through Project-based Learning that established a safe and effective learning environment, and an inspiring cooperative and transformative learning.

Keywords: Filipino teacher, K-12 curriculum, science lesson, sustainable development goal, phenomenology

Introduction
Determining the improvement of human well-being and its link to Sustainable Education has become crucial over time (United Nations University, 2006). In 2000, there was a global effort, as part of the Millennium Development Goals (MDGs), to tackle the indignity of poverty that involved different countries working together. This goal was then superseded by the Sustainable Development Goals (SDGs) in 2015, which became essential in achieving a Sustainable Tomorrow by 2030 (The 17 Goals, 2015). A complex concept, such as human well-being, extends many ideations with its explicit distinctiveness (Clark, 2014).

The sustainable development goals outlined by the United Nations encouraged all learners to acquire the knowledge and skills required to promote Sustainable Development and address sustainability issues through development education, education for sustainable development, and global citizenship education (O'Flaherty & Liddy, 2017). Education for sustainability is defined, with emphasis, as a curriculum where students actively study the root causes of unsustainable activities and actively plan for and incite change in areas that are less well-known and less often used (Kennelly et al., 2012).

Figure 1. The seventeen sustainable development goals

The teacher played an important role in translating the curriculum into a learning process in the classroom. Lawale and Bory-Adams as cited in Turkmen (2022) suggested that SDGs integrated into lessons provide a convenient learning environment for the four pillars of learning, learning to know, learning to do, learning to live together, and learning to be. Some approaches that can be used are project-based learning, problem-based learning, or inquiry-based learning.

Literature Review

O'Flaherty and Liddy (2017) pointed out that the practice of teaching development education and education for sustainable development, as well as educational policy and rhetoric, all reflect the increasingly global nature of contemporary education. Therefore, in order to achieve student learning objectives, highly qualified teachers are crucial (Seebruck, 2015; Sirait, 2016).

The effectiveness of teachers played a vital role in raising education's overall quality (Peterson, 2000). This necessitated interventions to enhance instructors' teaching abilities to meet educational goals, especially for public schools (Darling-Hammond, 1990; Darling-Hammond et al., 2017). Additionally, the maintained competence of instructors has necessitated investing in training and development (Roberto & Madrigal, 2018). Similarly, science instructors have been competent in assisting their students create practical ventures utilizing their critical thinking skills and "out of the box" viewpoints (see also Aparecio, 2018).

Owston et al. (2008) discovered that teacher attitudes and content understanding were positively impacted by science teacher training programs. Ertikanto and colleagues (2017) also claimed that attending training programs helped primary teachers learn new abilities. Teachers who have received training can coach students to help them do better on their science investigation projects (Aparecio, 2018). According to the literature, teacher training programs include a

variety of goals and settings. Evaluation can be a useful technique for establishing whether these goals were achieved and for ensuring that the training is more relevant to learners' professional roles (Nemec, 2018).

Information and Communication Technology (ICT) training programs have a favorable attitude and competence influence on teachers (Dela Fuente & Biñas, 2020; Karagiorgi & Charalambous, 2006). A shift toward constructive teaching methods can be aided using ICT, and constructive teaching methods can increase the use of ICT in education. (UNESCO, 2011). In order to transform pedagogy and give students more agency, UNESCO (2018a) stressed the significance of incorporating ICT in schools and classrooms. Databases, spreadsheets, and graphing tools can be used to teach science courses, and ICT enhances education in this field in a variety of ways. (Demkanin et al., 2008). Because of this, teachers have adapted their teaching methods to fit the demands and learning preferences of their students. Similar outcomes involved student understanding of scientific ideas and the expansion of their scientific knowledge were validated when using ICT in the teaching of Physics (Mohammed, 2013; Wu & Glaser, 2004).

Method

The research questions were [1] How is the implementation of the teaching of natural sciences based on SDGs in the K-12 curriculum, and [2] How was the teacher's interpretation of the implementation of natural science based on SDGs in the K-12 curriculum?

To respond to both research questions, a Phenomenological Approach of Qualitative Research was adopted. The main purpose of those questions was to describe the implementation of the K-12 curriculum that relates to SDGs. This became the basic consideration for the adoption of the approach. Kahija (2017) explained that phenomenology would describe the experience as purely, genuine, and original.

The research design was explained in (Figure 1 research design) as the researchers used Interpretative Phenomenological Analysis (IPA). IPA aimed to explore in detail how participants are making sense of their personal and social world. The main currency for an IPA study was the particular experiences, events, and states of the participants. The approach was phenomenological which involves a detailed examination of the participant's experiences. It attempts to explore personal experience and is concerned with an individual's perception or account of an object or event, as opposed to an attempt to produce an objective statement of the object or event itself (Kahija, 2017).

Figure 1. Research design

The analysis of data started with [1] reading of exploratory notes; [2] formulating experiential statements, finding connections, and clustering experiential statements; and [3] to conclude, the report was compiled according to the respondents' experiential themes (Smith & Nizza, 2022).

Findings and Discussion

Teachers background

The first participant was FLE, a math and science teacher from Negros Oriental and currently pursuing PhD in education. FLE taught math for grades 7 and 11, Araling Panlipunan for grade 10, and MAPEH for grade 7. The second participant (NM) was a science teacher from one of the integrated schools in Iloilo. A graduate of MAEd and handled science 7. NM was a very passionate and innovative teacher. The last participant, JCT, was a science teacher from one of the integrated schools in Siocon, Zamboanga del Norte. JCT had 14 years of experience teaching science and currently pursuing PhD in education.

Curriculum development for implementing the SDGs

Sustainable Development Goals (SDGs) were a world agenda to make a better future and had 17 goals (Cottafava et al., 2022). These were (1) no poverty, (2) zero hunger, (3) good health and well-being, (4) quality education, (5) gender equality, (6) clean water and sanitation, (7) affordable and clean energy, (8) decent work and economic growth, (9) industry, innovation and infrastructure, (10) reduced inequality, (11) sustainable cities and communities, (12) responsible consumption and production, (13) climate action, (14) life below water, (15) life on land, (16) peace and justice strong institutions, and (17) partnerships to achieve the goal (*un.org*). Some of these goals were shown in the K-12 Curriculum in the Philippines, which also included disaster lessons at the Secondary level. The teachers developed the curriculum by preparing the lesson plans, where teachers used their creativity and innovation by adapting a project-based learning approach. In this research, it was observed that teachers incorporated SDGs into the curriculum.

Teachers' interpretation of the SDG in the K-12 curriculum

The research participants came from three different areas that have students within the middle-class economy background. Their schools were located in a mountainous area surrounded by farms where most of the students came from farming families.

The first participant (FLE) was pursuing PhD in Education and said that their school was situated in a mountainous area where sugar cane fields were abundant. The parents of the students were working as farmers, and some were domestic helpers, despite this they still required help from their children to make ends meet. The school was relatively new and still developing buildings and facilities.

"*However, the school still struggles to increase its enrolees"* (FLE, Q2).

The school has wonderful and creative teachers that encouraged students to learn more. From the in-depth interview, FLE did not understand SDGs, despite it being unconsciously practiced and incorporated in the lectures. FLE believed that science and math were subjects that helped students understand their daily lives. An example that gave a better interpretation of the Curriculum Implementation of SDGs, FLE together with colleagues, used project based learning to integrate SDGs in subjects like English, math, social studies, and topics about disaster.

> "*We use the prescribed K-12 curriculums by the government since this is a public school. This curriculum was designed I think to make our graduates globally competitive"* (FLE, Q6).

Knowing that The Philippines was always struggling with disasters,

> *"K-12 also has studied about the disaster, and I think there's also an implementation of SDGs here"* (FLE, Q5).

It encouraged students to solve problems about the environment as well as their daily needs. With that initiative, 2 groups have proposed interesting solutions. With coaching and mentoring, the students wrote a paper and presented the result at the International Kids Conference in November 2022.

The first project called *Eternal 4.0* was relevant to English, science, math, art, disaster, entrepreneurship, and social science subjects. In this project, students produced Christmas and home decorations from upcycling plastic that had been collected from sari-sari stores. This project showed the implementation of SDGs 1, 2, 7, 12, and 13. FLE aimed to help the environment through this project to encourage recycling and upcycling.

Project 100, the second project, was relevant to English, science, math, entrepreneurship, and social science. The students utilized natural food ingredients to make their local delicacies. SDGs 1, 2, 8, 9, 12, and 13 were implemented in this project. FLE mentioned that their school was struggling with infrastructure, especially with the internet. This challenge even encouraged the students to do better. FLE and colleagues helped the students create their eco packaging and brand logo using Canva, which implemented an ICT lesson in the class. Despite missing the event due to power and internet interruption, FLE, with the help of ICT, enabled the preparation of video presentations to be submitted to the International Kids Conference.

The second participant came from Iloilo City, which was located in Western Visayas.

> *"…have a Dinagyang festival that features dancers with elaborate costumes and headdresses"* (NM, Q2).

NM knew about SDGs but was not aware of their incorporation into the national curriculum. Naturally, as a science teacher, NM encouraged the students by implementing SDGs in their science class, and somehow concerned, *"…the challenging part is the lack of gadgets for presentation*" (NM_Q3). After discussing SDGs, NM stated that the implementation of SDGs in their daily lessons *"…will help students to understand how to use their creativity to protect their environment. I mean make it sustain so the next generation still has the same environment. Also, better education"* (NM_Q8). To implement SDGs, NM created science worksheet activities with open-ended questions with many possible correct answers. He believed that "*…output based on learners' understanding applied in Art or Music or Health or Literature. Lesson planning can be creative by way of preventing various learners-centered activities in pairs and groups to foster the spirit of collaboration and creativity"* (NM_Q2).

During lesson planning, the students' backgrounds were considered, especially the culture, to provide lessons relatable in their lives. This is reflected by the way activities were conducted in pairs. In the private conversation, NM mentioned that whenever possible he combined Art and Music. "*I am writing a science storybook to help the students understand about the environment"* (NM-Q8). The class was strong in implementing SDGs 2, 4, 6, 7, and 13. ICT as a tool to improve teaching in the classroom had been used by NM and interpreted SDG number 9 as an innovation in learning and teaching by providing some multimedia materials for the students.

The third teacher, JCT, knew about SDGs actively campaigned for environmental safety, and was inspired to join a special event that promotes Earth Days. JCT knows that SDGs run from 2015 to 2030,

> "*so far I understand, it is facing so many big problems in the world. It was made by the United Nations to help the world heal; I think it will be interesting if we can implement it in our curriculum"* (JCT_Q2).

He also mentioned that K-12 has subjects that relate to SDGs. *"Yes. I localized materials so my students would contextualize it"* (JCT, Q4). The other answer mentioned in the private communication, in April 2023 *"...not only about disaster but also about entrepreneurship. As a high school science teacher, sometimes I encourage my students to design their solutions to get money. For example, ukay-ukay. Ukay-ukay makes the pre-loved things still useful and last longer, and the students can learn about business, so we call it nature-friendly business."* JCT had no idea that K-12 contained several subjects that relate to SDGs.

However, after the conversation, he realized and mentioned a subject that may be related to SDGs. JCT utilized SDGs incorporated in K-12, which resulted in the implementation of SDGs 3, 13, 14, 15, and 16. An example of these implementations is in October 2022, JCT supported the Science Club students to make Infographics that guided the community when a disaster (especially a typhoon) hit their place. Heavy rain also caused flooding in Siocon. JCT said that:

> "*the goal was not about inspiring or winning a competition, it's about how to encourage students to help their family and community during a disaster*" (private communication, December 2022).

As an achievement, one of the group of students received a special award during the International Kids Conference in 2022. The interrelationship of human beings and the natural world, and the influence of the physical environment on a community's social and cultural development, was graphically demonstrated in societies that face the persistent threat (and reality) of disaster (Bankoff, 2007).

The findings of this research showed that the teachers know about SDGs which are organized by the United Nations. The teachers were not aware that the National Curriculum of the Philippines contained sustainability goals in the subjects, especially in language, science, and *Araling Panlipunan*. These were implemented in the classroom and there were known linkages between quality education, education for sustainable development, and disaster risk reduction, especially with the project that FLE and JCT did in their schools. Didham and Manu

(2020) found that the linkages may be strengthened and functionalized through the application of adaptive capacity as a common learning objective.

The three participants showed and applied a well-developed curriculum. They improved their quality of teaching through project-based learning. In that project, they established a safe and effective learning environment, inspiring cooperative and transformative learning. The best measure of development would be the ability of every human being to realize his or her full potential in life, both in terms of nurturing individual qualities, personality, and capacities and contributing to the improvement of society (Crone & Dahl, 2012).

Conclusion

The Science teachers (participants) gave their understanding of SDGs reflected in the K-12 curriculum as enabling lessons to help fight against poverty, improve health and well-being, clean environment, economic growth, and climate action. These goals were depicted in Science, Language, and Disaster lessons at the Secondary level.

The result of this research proved that there are linkages between quality education, education for sustainable development, and disaster risk reduction, especially with the projects that the target participants initiated in their respective schools. Through these initiated projects, the participants were able to put into practice and understand the value of sustainable development goals most genuinely. Overall, the participants' competency showed their effectiveness in necessitating interventions to meet educational and community goals.

The Interpretative Phenomenological Analysis (IPA) offered deep insights into individual experiences but sometimes it would not capture broader trends applicable to a larger population. Indeed, this method requested a small sample size of participants which restricts the generalizability of the findings. Finally, the research captured a specific time frame and was influenced by the researchers' perspectives, leading the potential biases in data interpretation.

Future research should consider expanding the sample size to include a more diverse group of teachers from various regions (as the Philippines consists of 81 provinces) and educational settings to enhance generalizability. Investigating the impact of different levels of infrastructure, resources, and professional development on the effectiveness of SDG integration could offer deeper insights. Addressing these aspects would contribute to a more holistic understanding of how Sustainable Development Goals could be effectively integrated into educational curricula and improve teaching practices.

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OPTIMIZING THE CONNECTION OF *PROJEK PENGUATAN PROFIL PELAJAR PANCASILA* (P5) WITH VOCATIONAL SOFT SKILLS DEVELOPMENT

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Abstract
The *Projek Penguatan Profil Pelajar Pancasila* (P5) as an educational innovation in the Merdeka Curriculum program offers a holistic approach to strengthening students' understanding of Pancasila values. On the other hand, vocationalization demands the development of practical skills and soft skills relevant to the world of work. The purpose of this study is to analyze the extent to which the implementation of P5 contributes to the development of students' vocational soft skills. The research method involved observations and interviews with students and educators at relevant vocational schools. The results showed a positive relationship between the P5 dimensions and vocational soft skill development, with significant improvements in skills such as teamwork, communication, and problem-solving. In conclusion, the integration of P5 in vocational programs can be an effective strategy to create students who are not only technically competent but also possess the soft skills necessary to succeed in the modern workforce.

Keywords: Merdeka curriculum, Pancasila student profile, vocational education, vocational soft-skills

Introduction
Education is considered a key element that plays a fundamental role in shaping individuals' knowledge, skills, and character (Irawati et al., 2022; Musdolifah et al., 2023). The implementation of education is carried out through the curriculum, which is regarded as the core of the entire education system structure (Ritonga, 2018). In 2019, a significant change occurred in the education curriculum known as the Emergency Curriculum. This change was motivated by learning disparities between regions and the existence of a lag in the development of students' competencies and character (Hasanah, 2022). From the implementation of the Emergency Curriculum, it is evident that 31.5% of schools expect the continuation of its use, accompanied by a significant decrease in the learning loss rate (Kemendikbud, 2022b). Subsequently, the Emergency Curriculum underwent adjustments, improvements, and became the basis for the formation of the Freedom Curriculum. Finally, in accordance with Permendikbudristek No. 56 of 2022, the

Freedom Curriculum was officially implemented at the elementary and secondary school levels.

Vocational education plays a central role in shaping a young generation ready to contribute to the workforce. In this era of globalization, it is crucial to ensure that vocational education graduates not only possess strong technical knowledge but are also equipped with the soft skills necessary for success in various work contexts (Siswaya, 2020; Winangun, 2017). Success in a career is not solely determined by technical skills but also by the ability to communicate, collaborate, and adapt (Suyitno, 2020). In the scope of education, the development of soft skills becomes a significant aspect to train individuals in self-motivation, understanding the needs for achievement, and having the skills to handle sudden small problems promptly and responsively (Iman et al., 2022; Setialaksana et al., 2023).

P5 emerges as an innovation in the Indonesian education curriculum, emphasizing the strengthening of Pancasila values and students' character (Aryani et al., 2022). This project aims to reinforce national identity and character, which is a crucial foundation for producing graduates who are not only academically intelligent but also ethical and of good character (Nur'Inayah, 2021; Pintek, 2022). According to Kemendikbud (2022a), the P5 concept is a response to the demands of the times that require the development of students' character and personality. This project involves not only the learning process in the classroom but also direct experiences in the community. Pancasila, as the nation's worldview, holds a central role as the foundation of the Indonesian state.

Hierarchically, Pancasila holds the highest position as the source of the entire legal system in Indonesia (Rahma & Dewi, 2021). The inherent values permeate into the lives of the Indonesian society, including spirituality, mutual cooperation, solidarity, and love for justice (Kaderi, 2015). Through collaborative projects, students are expected not only to acquire knowledge but also to enhance interpersonal skills, problem-solving abilities, and critical thinking.

In the context of vocational education, the P5 dimension is particularly relevant as it embraces a project-based approach. The implementation of P5 in vocational education aims to ensure that students not only understand Pancasila values theoretically but also can apply them in real work contexts. This aligns with the vocational learning approach that increasingly emphasizes the application of knowledge in a work context. According to Juniardi (2022), the success of P5 in a vocational context can be measured through the development of soft skills. They state that students involved in P5 projects tend to have better communication skills, honed leadership skills, and high adaptability. Therefore, it is necessary to further investigate how the P5 dimension can be optimized to develop relevant vocational soft skills.

Method

This research applies a qualitative method with a case study design as its main foundation. The case study approach facilitates the researcher to deeply understand the context, dynamics, and complexity of interactions between the dimensions of P5 and the development of vocational soft skills at SMKN 7 Kota Serang. The research subjects are tenth-grade (X) students and teachers who teach related subjects at SMKN 7 Kota Serang involved in the implementation of P5. Subject selection is done through purposive sampling technique to ensure representation

from various backgrounds and levels of vocational expertise. Data information collection is carried out using two main methods, namely observation and in-depth interviews. Observation aims to directly observe student interactions in the implementation of the P5 project and the dynamics of vocational learning. In-depth interviews are conducted with teachers and students to gain a deep understanding of perceptions, experiences, and the impact of P5 on the development of vocational soft skills.

Observations are conducted for two months in classes involved in the P5 project. Observations are carried out by the researcher with a previously prepared observation guide. In-depth interviews with teachers and students are conducted after observations to explore deeper perspectives. Data analysis is carried out using thematic analysis method. Data obtained from observations and interviews are carefully analyzed to reveal patterns, themes, and key concepts related to the relationship between the dimensions of P5 and the development of vocational soft skills.

Findings and Discussion

The results and discussions in this study will cover two indicators, namely the P5 dimension and aspects of vocational soft skills development, and can be outlined as follows:

Project strengthening Pancasila student profiles (P5)

P5 is one of the programs that is part of the Merdeka Curriculum. This project aims to shape learners who have Pancasila values as the foundation of nationhood, while also developing vocational skills and soft skills (BSKAP Kemendikbudristek, 2022). P5 is carried out through three stages: developing P5, implementing the project, and evaluating the project. P5 also provides flexibility for learners to develop products or study a problem as part of critical and creative thinking (Khairuddin, 2022; Sholihatinnisa et al., 2021). The dimensions of P5 include faith, independence, spirit of mutual cooperation, global diversity, critical thinking, and creativity (Nisa', 2022; Nurhasan, Mualimah & Sudrajat, 2023).

Figure 1. P5 dimensions (BSKAP Kemendikbudristek, 2022)

Based on the paragraph above, P5 can be explained as an effort or educational program aimed at strengthening students' understanding, internalization, and implementation of Pancasila values. In its implementation, P5 requires a coordinator capable of developing skills, leadership, and managing the necessary systems for educators as facilitators in the Strengthening Pancasila Student Profiles Project. The coordinator is also responsible for assisting learners in successfully completing the P5 Project.

P5 dimension

P5 includes a deep understanding of the six fundamental values of Pancasila, namely faith, independence, the spirit of gotong-royong, global diversity, critical thinking, and creativity. By focusing on these values, P5 is committed to creating an educational environment that not only develops students' cognitive aspects, but also builds their emotional and secial dimensions. The following table reflects the results of data collection from the observation and interview instruments:

Table 1. P5 dimension result

Dimension P5	Observation Finding	Teacher Interview Result	Student Interview Result
Believing, fearing God Almighty, and having noble character	Students are seen Integrating religious values in the project, such as mutual respect and honesty.	Teachers highlight the improvement of mutual respect and tolerance among students.	Students mentioned that they are more sensitive to religious values and respect religious diversity the classroom.
Independent	Students show initiative to seek information and complete tasks independently.	The teacher observes the improvement of students' ability to work independently.	Students feel more confident and able to take responsibility in completing tasks.
Working Together	Students engage in group activities well, helping each other and working together.	Teachers report an increase in student cooperation and engagement in group projects.	Students showed improvement in cooperating in groups and helping classmates.
Global Diversity	Students demonstrate an understanding of global diversity and appreciate cultural differences.	The teacher notes the students' increased awareness of globalissues and cultural diversity	Students mentioned that this project opened their minds about diversity and global cooperation.
Critical Reasional	Students are able to ask critical questions and construct arguments well	Teachers see improvement in students' ability to critically analyze information	Students feel more confident in formulating critical opinions and

Dimension P5	Observation Finding	Teacher Interview Result	Student Interview Result
			exchanging ideas rationally.
Creative	Students show creativity in developing solutions to project problems.	Teachers noted an increase in creative ideas and solutions generated by students.	Students felt that this project improved their ability to think creatively and develop ideas.

Based on Table 1. Observations indicated that PS effectively improved the implementation o Pancasila values in students' daily activities. Teachers reported improvements in attitudes, such a mutual respect and cooperation among students. This is in line with the findings of student interviews which show that they are more sensitive to religious values, work independently, and are more open to global diversity.

Vocational soft skills

Vocational soft skills refer to communication skills, personal characteristics, social intelligence, and the ability to adapt effectively in the workplace (Doyle, 2022). Some examples of vocational soft skills needed in the workplace include: 1) the ability to solve complex problems, 2) critical and analytical thinking, 3) creativity, originality, and initiative, and 4) leadership (Janitra, 2020; Wagiran, 2009).

Therefore, based on the paragraph, vocational soft skills refer to non-technical skills that are crucial for success in the workplace, especially in the context of specific vocations or industries. Vocational soft skills can encompass various skills such as communication, teamwork, problem-solving, and leadership. The importance of vocational soft skills has been recognized in various studies and educational initiatives, especially in vocational high schools (SMK).

Aspects of vocational soft skills development

The aspect of developing vocational soft skills in the context of P5 has a very important role in preparing students to face the challenges of the contemporary world of work. Below is a table containing the results of data collection obtained through observation and interview instruments, specifically related to the development of vocational soft skills abilities:

Table 2. Results of vocational soft skill development aspects

Vocational Soft Skills	Observation Finding	Teacher Interview Result	Student Interview Result
Comunication	Students engage in active and effective discussions on group projects	The teacher sees improvement in students' ability to express ideas and opinions.	Students mentioned that they are more confident in communicating and conveying ideas effectively.

Vocational Soft Skills	Observation Finding	Teacher Interview Result	Student Interview Result
Teamwork	Students show good cooperation skills in groups.	Teachers reported an increase in students' teamwork and engagement.	Students stated that this project improved their cooperation skills and understanding of working in a team.
Problem Solving	Students are able to identify and solve project problems well.	The teacher notes the improvement in students' ability to formulate solutions to problems.	Students felt that this project improved their ability to solve problems creatively and effectively.
Leadership	Students demonstrate the ability to lead groups fairly and effectively.	Teachers see improved leadership in guiding group projects.	Students stated that the project increased their sense of responsibility and leadership skills.

Based on Table 2. the results showed that P5 contributed significantly to the development of students' soft skills. Observations revealed that students experienced improvements in communication, teamwork, problem solving, and leadership. Teachers and students alike reported that the project created an environment that supported the development of these skills, preparing students for the challenges of the world of work.

Conclusion

In this study, optimizing the linkage of the dimensions of the Pancasila Learner Profile Strengthening Project (P5) with vocational soft skills development at SMKN 7 Serang City proved its success in creating a holistic learning environment. Students not only showed improvement in the application of Pancasila values, but also made significant progress in the development of soft skills, including communication, teamwork, problem solving, and leadership. Therefore, it is concluded that P5 has a crucial role in preparing vocational students to face the challenges of the modern world of work that requires not only technical skills, but also the ability to adapt, collaborate, and innovate.

As advice, vocational education stakeholders are advised to continue to support and expand the implementation of P5, ensure better integration with the vocational curriculum, and facilitate teacher training to maximize the benefits of this project in supporting the holistic development of vocational students in the future.

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THE PROFILE OF FIFTH-GRADE STUDENTS' SCIENCE PROCESS SKILLS AT MIN IN PONTIANAK CITY

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Abstract
Science process skills are one of the important skills for elementary children because they can provide a solid foundation for scientific understanding, the development of critical thinking skills, and the development of useful abilities throughout life. This research aimed to outline the science process skills profile of fifth-grade students at all Madrasah Ibtidaiyah Negeri (MIN) in Pontianak City. The research used the descriptive method with a quantitative approach. The population of this research is all fifth-grade students of MIN in Pontianak City. The sampling technique used is Stratified Random Sampling, in which 2 classes are taken as samples randomly from each school. Data were collected using multiple choice test instruments, as well as interviews to collect data on the types of errors that cause low science process skills of students. The results of the study showed that the average student's science process skills only reached 62.3% of each aspect tested. Thus the overall KPS of students at MIN Pontianak City is in the moderate category with an average of 7.2%. Based on the study's findings, it can be concluded that additional efforts are necessary to enhance the science process skills of elementary school students.

Keywords: fifth grade**,** profile, science process skills

Introduction
The word "skill" means ability or proficiency. In terminology, skill refers to the ability to perform tasks by job competencies that can be observed from the results. The key to producing good quality is through process. This process involves coordinating the design of each component involved and can be thought of as a technique that is planned or designed to guide and evaluate learning. The learning process in educational institutions is designed to be interactive, inspiring, enjoyable, challenging, and motivating, encouraging students to actively participate and develop themselves according to their interests, talents, and physical and psychological growth (Sakdiah & Syaharani, 2022).

Science includes products, processes, attitudes, and technology. Therefore, in science learning, students are not only given knowledge (products), but must also be actively involved in learning by seeking knowledge, proving it through practicum or experimentation, drawing conclusions, and finally creating tools or technology to solve community problems (Kristyowati & Purwanto, 2019). These skills include aspects such as the foundation of natural science, attitudes that prioritize the scientific method, and the ability to think critically are aspects which are important in developing understanding and expertise in science (Rustaman in Suryaningsih, 2017). Learning science through a process skills approach enables students to achieve the objective of understanding science concepts while also developing fundamental science skills, scientific attitudes, and critical thinking abilities (Suryaningsih, 2017). Science process skills (SPS) are all skills needed to understand, develop, and apply natural science concepts, laws, and theories can be categorized as science process skills.

According to Padilla (1990) in Science - A Process Approach (SAPA), science process skills are defined as a set of abilities that can be broadly applied across various scientific disciplines and reflect the behavior of scientists. SAPA categorizes these skills into two types: basic and integrated. Basic science process skills are simpler and foundational, including observing, predicting, measuring, communicating, classifying, and predicting. Integrated science process skills are more complex and involve controlling variables, defining operationally, formulating hypotheses, interpreting data, experimenting, and formulating models. The stages of science process skills outlined in this study are as follows: 1) Observation Skills: Students use multiple senses to gather information, identifying and collecting relevant facts about objects. 2) Making Predictions: Students use observed patterns to suggest potential outcomes in unobserved situations. 3) Measuring: Students use tools or materials to gather data, understanding why and how these tools and materials are used. 4) Communicating: Students describe empirical data from experiments or observations using graphs, tables, or diagrams. 5) Classifying: Students observe differences and similarities, determine characteristics, compare results, and find bases for grouping or classifying observations. 6) Predicting: Students connect observation results, find patterns in a series of observations, and draw conclusions or interpretations.

Science process skills are an integral element that is crucial for the development of students at the primary school level. They are not just technical skills, but the very foundation that empowers them to reach higher levels of scientific literacy. The ability to use the scientific method in all aspects, from careful observation and systematic data collection to data interpretation and drawing appropriate conclusions, are key components that form the core of students' scientific development. In a broader view, science process skills not only influence the learning and understanding of scientific concepts but also encourage students to become critical, analytical, and skeptical individuals in their approach to information. They will be trained to ask questions, seek evidence, and understand the basics of the scientific method which can help them in dealing with everyday problems and making informed decisions. Therefore, the development of science process skills at the primary school level is not only about forming future scientists but also forming competent citizens in facing the challenges of a modern world that is increasingly integrated with science and technology. In this context, educators

play a central role in equipping students with the knowledge tools, and skills needed to develop scientific literacy and a deep understanding of the scientific method (Özalp, 2023).

The importance given to science process skills in basic education is indeed very prominent, and its emphasis on training aims to significantly enrich students' learning experience. Science process skills are not simply an add-on or supplement to the curriculum, but an important foundation that forms the core of their science education. By deepening science process skills, students in primary schools are allowed to better understand and feel a close affinity with the scientific method. They learn to view the world around them through a critical lens, ask relevant questions, and observe natural phenomena. Their learning experience becomes more thorough and involved as they are invited to actively engage in experiments, field observations, and systematic data collection. In addition, science process skills also open the door to the development of critical thinking, analytical, and problem-solving abilities that will be very useful in various aspects of students' lives outside the classroom. They become trained to solve problems with a scientific approach, explore deeper knowledge, and make decisions based on facts and evidence. When students in primary school have rich and deep learning experiences through the application of science process skills, they are building a solid foundation for more advanced and complex scientific knowledge in the future. This is why it is important to place a strong emphasis on developing science process skills early on so that students can gain maximum benefit from their science education and face the future with confidence supported by a deep scientific understanding (Chrisnawati et al., 2022).

From the previous explanation, it can be concluded that the definition of science process skills (SPS) can be interpreted as various scientific skills that are useful in scientific activities to find something. This includes basic and integrated science process skills. In this study, the process skills used are basic science process skills including observing, measuring, classifying, predicting, concluding, and communicating. The importance of science process skills for students, especially elementary school students, is that students will learn to see the world using a critical lens, problem-solving, analytical, development of thinking skills, asking relevant questions and observing natural phenomena carefully, this also provides experiences for students that aim to build important foundations to build the core of education. The importance of developing science process skills at the primary school level is that it creates a solid foundation for further scientific understanding in the future, as well as helping students bring scientific passion and confidence to their daily lives. Through this immersive learning experience, students not only acquire knowledge, but also experience the essence of the scientific method, and this will bring long-term benefits to their intellectual and academic development (Rintayati et al., 2020). Thus, the role of science process skills in basic education is not just to produce students who can memorize scientific facts, but to create learning that triggers cognitive growth, problem-solving, and in-depth exploration. Students who have a strong foundation of science process skills can step into the world with sharper thinking abilities, as well as the potential to make meaningful discoveries and integrate scientific concepts into their daily lives (Widyaningsih et al., 2020)

However, in practice, there is a fact that students' science process skills are still low. Research findings by Anam (2014), which involved 30 representative

students from 30 MI in Sumedang Regency in Madrasah Science Competency activities, reinforced the weakness of Science Process Skills (SPS). The results showed that on average students only had low proficiency in four types of process skills, namely observing, planning experiments, classifying, and making tables. In addition, they are also not proficient in inferring skills. The results of research conducted by Sukarno et al. (2013) also showed that the science process skills of junior high school students in Jambi were still low in the skills of making conclusions, observing, predicting, measuring, and classifying. Based on observational data, it appears that the level of participation of students in science learning activities in 6th grade is still low, only reaching 40% (Afidin et al., 2022).

The science process skills of elementary school students are still relatively low because teachers rarely conduct experiments in science teaching. This can result in a lack of in-depth understanding of science concepts. Teachers need to improve their learning strategies by incorporating more experimental practices in the curriculum. In this way, students will have more opportunities to observe, test hypotheses, and develop science process skills more comprehensively. Thus, they will be able to build a solid foundation for understanding the complex world of science (Rustan et al., 2020). Based on initial observations, it was revealed that the knowledge of science process skills among elementary school teachers is still minimal. This suggests that serious efforts are needed to improve their understanding of this important aspect of science learning. By strengthening teachers' knowledge of science process skills, it is expected that they will be able to teach science materials more effectively and motivate students to actively engage in the learning process. This is an important step in building a strong foundation for the development of students' science competencies at the primary school level (Chrisnawati et al., 2022). Based on the above description of the importance of science process skills for students, research is needed to analyze the profile of Science Process Skills of elementary school students in MIN Pontianak City.

Method

The method used is descriptive research with a quantitative approach. According to Sugiyono (2022), descriptive research is conducted to determine the value of one or more independent variables without making comparisons or connecting them with other variables. The population of this research is all 5th-grade students of Madrasah Ibtidaiyah Negeri (MIN) in Pontianak City which consists of 4 Madrasah Ibtidaiyah Negeri (MIN) namely MIN 1 Pontianak, MIN 1 Filial Pontianak Saigon, MIN 2 Pontianak and MIN 3 Pontianak. From the four Madrasahs, researchers chose the Stratified Random Sampling technique, namely from each school 2 classes were taken to be sampled randomly.

The data collection technique is a test technique with multiple choice question instruments developed by Anisa et al., (2023). Data collection methods are methods and instruments used in a study to collect and process data in an organized and structured manner (Sukmawati, Sudarmin, & Salmia, 2023). Collecting data on science process skills by calculating the scores obtained by students when working on multiple choice questions, so as to get a percentage value of the science process skills of students of Madrasah Ibtidaiyah Negeri. To make it easier to analyze the data, researchers made indicators of each aspect of basic science process skills data collection by including six aspects of basic science process skills modified from.

The aspects of basic science process skills are observing, measuring, classifying, predicting, concluding, and communicating skills.

SPS questions were developed and administered following expert validation (judgment expert). The data obtained from the students' SPS tests were then analyzed using simple statistical analysis methods and classified according to the table provided below

Table 1. Categories of assessment of science process skills

No	Score	Categories
1	0 - 3	Very Low
2	4 - 6	Low
3	7 - 9	Average
4	10 - 12	High

As for calculating each aspect of students' SPS, the following formula is used.

$$(\%) = \left(\frac{Students' \ Score}{Maximum \ Score}\right) \times 100 \qquad (1)$$

Then the percentage of each category is translated based on the following table:

Table 2. Science process skills categories

No	%	Category
1	0 - 25	Very Low
2	26 - 50	Low
3	51 - 75	Average
4	76 - 100	High

Sumber: (Rahayu & Anggraeni, 2017)

Findings and Discussion

Data on Science Process Skills of MIN Pontianak City students were obtained by giving several SPS questions to students individually. To analyze the data, first, the number of correct answers of each learner was calculated. Furthermore, the students were grouped based on the number of correct answers they obtained, according to the categories that had been previously determined. More detailed information about the SPS ability of students in each MIN studied can be found in Table 3.

Table 3. Students' SPS categories of each MIN in Pontianak City

School name	Σn	Students' SPS				Students' average score
		VL	L	A	H	
MIN 1	90	1	21	57	11	7.5
MIN 2	84	5	25	52	2	6.9
MIN 3	72	1	12	47	12	7.1
MIN 1 Filial	73	3	11	46	13	7.6
Total	19	10	69	202	38	29.1
Percentage	-	3.1	21.6	63.3	11.9	7.2
Category	Average					

Based on the table above, it can be seen that there are 2 Madrasah Ibtidaiyah that have Science Process Skills (SPS) scores above the overall average of students. However, all the average scores of the 4 Madrasah Ibtidaiyah in this study showed a medium category in terms of students' SPS. This finding is in line with research conducted by Sukarno et al. (2013), It is stated that the students' low Science Process Skills (SPS) are due to several factors, such as: 1) teachers' limited KPS abilities; 2) insufficient learning materials to develop and enhance students' KPS; and 3) a lack of guidance in creating assessment instruments focused on KPS for both teachers and students. In addition Rillero, (1998) emphasizes that individuals who are not able to apply SPS will experience difficulties in everyday life.

The percentage results of the overall Students' SPS Profile of MIN in Pontianak City students can be seen in the following chart:

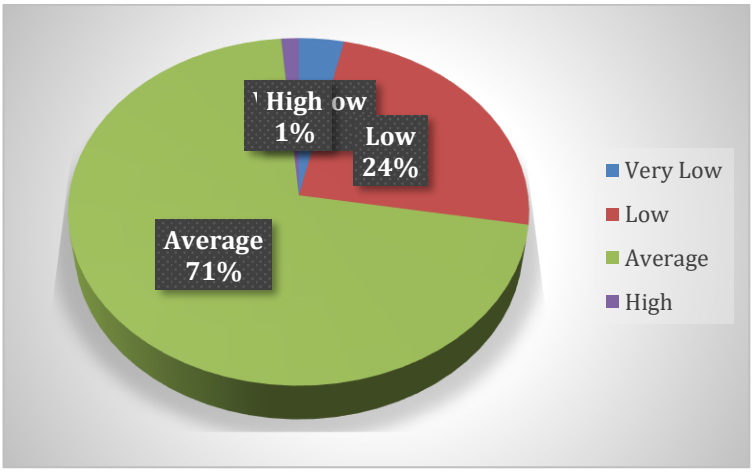

Figure 1. Percentage chart of students' SPS profile of MIN in Pontianak City

Based on the table and graph above, it can be seen that the average value of students when viewed from the average value of KPS only reaches 7.2%. Thus overall it can be concluded that the KPS of MIN in Pontianak City students is still in the average category. Problematic students' science process skills have several impacts. First, it hinders their ability to fully engage in online learning during the Covid-19 pandemic (Handayani & Setyawati, 2022). Second, it affects the understanding and application of science concepts, especially when the learning model emphasizes receiving information from the teacher (Kadmayana et al., 2021). Third, it limits their ability to infer, organize data, control variables, and formulate models, among other skills required for scientific inquiry (Saban et al., 2019). Fourth, it inhibits their ability to formulate problems and hypotheses, which are critical for meaningful learning and scientific thinking (Astuti, 2019). Lastly, it contributes to learning difficulties in certain topics, such as human blood circulation organs, due to factors such as low attention, motivation, and inappropriate teaching methods (Maryani et al., 2018).

The next step of analysis is to examine and categorize the correct answers of students in each aspect of Science Process Skills (SPS). To get a deeper understanding of the extent of SPS of Madrasah Ibtidaiyah students in Pontianak in each aspect of SPS, please refer to Table 4.

Table 4. Profile of each aspect of students' SPS in MIN Pontianak City

No.	Aspects of KPS	Correct Number	%	Category
1.	Observing	400	63	Average
2.	Measuring	355	56	Average
3.	Classify	443	70	Average
4.	Predict	262	41	Low
5.	Summarizing	474	74	High
6.	Communicating	446	70	Average
	Total	2380	62.3	Average

Based on table 4. It can be seen that of the 6 aspects of SPS tested in the SPS question there is only 1 aspect in the high category, the rest appear in the average and low categories. The aspects of students that appear in the high category are concluding, for the medium category there are aspects of observing, measuring, classifying, and communicating. While the aspect in the low category is predicting. Based on the interview process with some of the samples of fifth-grade students in all MIN Pontianak, the researcher determined the evaluation criteria with four types of errors as follows:

Table 5. Type of error caused by students of MIN in Pontianak City

Error Type	Description
1	Fooled by the answer options
2	Less thorough
3	Problems still contain concepts
4	Guess

After the researcher established the categories of error types, the next action involved interviewing the students. The results of this interaction were then systematically recorded and neatly organized in the following table. The percentage breakdown describing the results of this analysis is as follows:

Table 6. Percentage of students' interview results in MIN Pontianak City

SPS	Error Type	MIN (%) 1	2	3	Filial
Observing	1	0	0	0	0
	2	0	0	0	0
	3	10	50	50	25
	4	20	0	12.5	37.5
Measuring	1	10	0	0	0
	2	0	0	0	12,5
	3	20	75	37.5	75
	4	0	25	12.5	0
Classifying	1	0	100	0	0
	2	10	0	0	37.5
	3	10	75	50	12.5
	4	30	25	0	37.5
Predicting	1	0	50	0	0
	2	0	0	0	12,5
	3	80	12.5	100	0
	4	20	0	0	75
	1	10	100	50	0

SPS	Error Type	MIN (%) 1	2	3	Filial
Summarizing	2	0	0	0	75
	3	10	25	0	25
	4	50	25	25	12.5
	1	30	0	37.5	37.5
	2	0	0	0	12.5
Communicating	3	10	75	0	0
	4	30	50	0	0

Based on the data above, it can be seen that in analyzing the causes of errors in type 1 and type 2, it was found that the error rate in all MINs was 0%. Next, the causes of errors in type 4 were measured. The results show that the error rates in MIN 2 and fillial have the same percentage, which is 75%. Classification was done on the most frequent causes of errors in type 1, and the findings showed that the most dominant cause of errors was in MIN 2, with an incidence rate of 100%. The same is true for type 3, where the researcher found that the most frequent cause of error lies in MIN 3 with an incidence rate of 100%. The researcher concludes that the most unique cause of the error is found in type 2, especially in the filial MIN with an incidence rate of 75%. This is interesting because the error rate in MIN 1, 2, and 3 in type 2 is 0%, while the filial MIN has an error rate of 75%.

It is important to note that type 2 has very unique characteristics, where the error rate only appears in MIN filial with a percentage of occurrence of 12.5%. Students' SPS, especially basic SPS, needs to be improved to enter the high category. This shows that students' SPS of MIN in Pontianak City for each aspect is generally in the average category, where on average students are only able to answer correctly 62,3% of each aspect of the KPS tested. There is a similarity between the results of this study and the results of research from Anam (2014) showing that on average students are less proficient in four types of process skills, namely observing, planning, experimenting, classifying, and making tables.

In the observing aspect, 63% of students made mistakes in answering the questions. Among them, 20% still guessed the question when facing the observing aspect of the question, indicating that the student's ability to observe the question is still inadequate. These factors collectively contribute to the low observed science process skills in science. The cause of the lack of students' observation skills in science subjects at the primary school level is often due to teaching approaches that are more likely to be instructive and centered on the role of the teacher. In this case, students lack the opportunity to develop their observation skills optimally because their active involvement and interaction are not emphasized enough. This also impacts students' ability to understand and apply scientific concepts in a practical context. Therefore, a more learner-oriented teaching approach is needed, where they have an active role in the learning process and are directed to practice their observation skills more skillfully and effectively (Minarni & Napitupulu, 2018).

The cause of low science process skills in science (Integrated Science) is attributed to several factors. One of the main causes is the short teaching experience of science teachers, which affects their ability to effectively teach and develop students' science process skills (Suryani et al., 2022). Another factor is the educational background of science teachers, which may not be linear with their

competence in teaching science process skills (Aulia et al., 2023). In addition, the lack of appropriate teaching materials and methods in the classroom may hinder students' engagement and limit their opportunities to develop science process skills.

In addition, the lack of experience and understanding of lab topics among physics education learners may also contribute to their low science process skills. In the aspect of predicting, 41% of cases were recorded where the most frequent error type was error type 3, indicating that the question still holds concepts that should be concept-free in science process skills. The low skills of elementary school students in solving prediction problems can be attributed to several factors. One of the main causes is a weak understanding of concepts, which causes difficulties in applying them (Smith et al., 2023). In addition, it is noted that learners may experience deficiencies in developing critical thinking and reasoning skills. These skills are essential in solving prediction problems (Sulianto et al., 2020). Therefore, special attention needs to be given to the development of critical thinking and reasoning skills in learners, so that they can be more competent in predicting and solving problems more effectively. While in the aspect of classifying 70% of the most errors appear in type 4, where students still have difficulty in classifying or categorizing information in the problem.

On the other hand, 30% of learners are still unable to answer questions by classifying or categorizing information. The results of this study reveal that learners' participation in science learning activities is still at an unsatisfactory level, which then has a direct impact on the achievement of their learning outcomes. These factors together influence the classification of science subjects at the primary school level as a low- performing category. Therefore, increasing students' participation in science learning as well as improving learning outcomes is crucial to improving the quality of science education at the primary school level. These efforts need to continue to be made so that the quality of science education can improve significantly and have a positive impact on the development of learners (Degita et al., 2019). In terms of making tables or communicating information, the percentage indicating that learners performed moderately was 70%. This indicates that the frequent error types are types 1 and 4, with the same percentage of 30%. In this context, the majority of learners still tend to guess the questions and are fooled by the answer choices on the questions. The study concluded that the lack of opportunities to engage in relevant practical activities is one of the main factors affecting the low science communication skills of primary school learners.

Hands-on experience in conducting experiments or direct observation in the field has a significant positive impact on learners' ability to communicate scientific ideas and findings clearly and effectively. Therefore, steps are needed to expand opportunities for learners' participation in practical activities so that they can better hone their science communication skills. This will contribute greatly to improving the quality of science education at the primary school level (Degita et al., 2019). Moreover, there are limitations in measuring skills experienced by students. As many as 56% of them often experience errors in type 3, which indicates that the questions still contain concepts that require deeper understanding inhibiting learner engagement and limiting their opportunities to develop science process skills (Setiawan & Sugiyanto, 2020). This emphasizes the need for improvement in the preparation of evaluation instruments to ensure that the concepts tested are in accordance with the measuring skills of students (Rochman et al., 2022).

Thus, process skills require development through learning experiences that involve direct interaction with the material or activity being carried out. Through this direct experience, individuals can go deeper and appreciate the process or activity that is being undertaken. Therefore, it is important to develop process skills through direct experience as a form of deeper learning experience.

Conclusion

Based on the results of the research conducted, it can be concluded: In general, the science process skills of Madrasah Ibtidaiyah students in Pontianak are still low with the average value of SPS only reaching 7.2%. Overall, the science process skills of Madrasah Ibtidaiyah students in Pontianak still show a low level in each aspect of SPS, with a percentage of 62.3%. The low level of science process skills in students raises demands for teachers in planning and implementing Science learning that is expected to be able to advance students' SPS at the Madrasah Ibtidaiyah level.

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INSTAGRAMMERS' PERCEPTION OF USING INSTAGRAM APPLICATION FOR LEARNING ENGLISH VOCABULARY

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Abstract
In this generation, the use of Instagram as a learning media for learning English is quite familiar. This research determined the Instagrammers' perceptions of using the Instagram application for learning English vocabulary. The data were analyzed using a descriptive qualitative methodology, and some earlier research was used to support the findings. The study examined Instagram users who used the platform to practice their English vocabulary. To get precise information about how 35 respondents felt about using Instagram applications to acquire English vocabulary, interviews with 5 informants were conducted. The majority of respondents to the study were satisfied with using the Instagram app to develop English vocabulary, according to the study's findings. Instagram users concurred that the platform aids in their vocabulary development. Instagram users can choose the vocabulary topic they want to focus on improving with an Instagram video or photo, and they agree that Instagram makes it simple for them to recall new English words.

Keywords: Instagram, Instagrammers' perception, vocabulary item

Introduction
Living in this era of globalization, people experience dependence on technology because all access is at their fingertips. Technology has access to practically all human works of life (Rasyiid & Maulina, 2021). The easiest way to access technology is to use a smartphone. According to Mamudi and Alamry (2021), nowadays relying on internet-connected cell phones, we can already access several social media and use them anywhere and anytime as long as it is connected to an internet connection, and that makes the information flow bigger and faster. Maghfiroh et al. (2021) discovered that in socializing concerns, numerous platforms, known as social media, may be employed to immediately obtain knowledge from society.

With the advent of a more modern and diverse era, social media has grown in popularity among the general public, particularly among the younger generation (Anindita & Noveintine, 2022). Given that the majority of young people and students utilize social media, it can make it easier for students to obtain courses or knowledge. Using social media to supplement classroom learning is one possibility

(Mamudi & Alamry, 2021). Social media is often used for language learning, one of which is vocabulary learning. One of the crucial parts of classroom learning is vocabulary. Now, we can expand our vocabulary by reading people's posts on social media.

English vocabulary

Vocabulary is the first element and an important component in the English language, so students should learn vocabulary because when students learn vocabulary, they also learn how to speak, listen, read, and write (Nurrizal & Septiani, 2021). Without having a sufficient amount of vocabulary, the learners will find it difficult to communicate and express their feelings both in spoken and written form effectively (Devi et al., 2020). So, from the explanations of some of these experts, vocabulary is a very important component for us to master when we want to learn English, from that vocabulary can make it easier for us to master some skills in English (Maghfiroh, 2018).

According to Agustin and Ayu (2021), students in Indonesia have limitations in improving their ability to master vocabulary. To overcome this, students need tools or media to learn vocabulary. To build vocabulary, one of the interesting vocabulary teaching techniques relates to the function of the internet. New technologies for teaching English as a second language are based on the belief that mastery of language structure is more important than vocabulary acquisition (Prastyo et al., 2022). But we can't learn the structure with a few things alone, we must have enough vocabulary to use it. To learn a language, one needs to master a lot of vocabulary and its basic structures.

Instagram for learning vocabulary

People frequently use social media, especially the younger ages, to learn vocabulary. One of the popular social media tools for vocabulary acquisition is TikTok. On TikTok, some movies and audio can help students understand the meaning of vocabulary and spark their enthusiasm for learning new words (Hastomo et al., 2022). In addition, the writer also stated the TikTok videos' audio instructions and all of the graphics can help pupils explain the meaning of new words and pique their interest in learning new words. In addition to TikTok, Twitter is now another platform that students adore for use in the classroom. Twitter users are expected to read any posted text messages on the social networking site. Melliyani and Mardiyati (2022) found that the best way to increase vocabulary learning is through reading. That is the way Twitter increases vocabulary.

There is another platform that can serve as a medium in addition to the two that can be utilized as a tool for vocabulary growth. Facebook is a social networking platform that is well-liked across a variety of demographics. Using Facebook has aided pupils in improving their language acquisition. Furthermore, the writer affirms that for EFL learners or non-native speakers, Facebook involvement has not been found to precisely compensate for vocabulary learning. Instagram is also a similarly engaging tool for learning English. Instagram provides a wide range of educational content that can be used to learn new things by anyone, starting with subjects like science, history, skills, the most recent news, languages, and different tutorials (Anindita & Noveintine, 2022). By reading an Instagram post, updating

their status, or uploading images and videos to Instagram with captions, students can acquire vocabulary (Prastyo et al., 2022).

According to Verawati et al. (2021) the most social media used by students nowadays is Instagram. Instagram placing it 4th in our ranking of the world's most 'active' social media platforms. As per the Datareportal April 2023 global overview, we can see that social media growth has continued to increase more than half of the world now uses social media (60%), 4.80 billion people around the world now use social media, 150 million new users have come online within the last 12 months and the average daily time spent using social media is 2h 24m.

Instagram as an English learning tool and figured out its effect on learners' English skills (Rasyiid & Maulina, 2021). Mastering vocabulary is the main basis for learning English. This research aims to find out Instagrammers' perceptions about how useful and effective Instagram applications are for learning vocabulary. The subject of this study is an Instagrammer who follows English learning accounts. Furthermore, this research will show whether the use of Instagram contributes to learning vocabulary.

Method

The purpose of this study was to find out Instragammers' perceptions about how useful and effective Instagram applications are for learning vocabulary. Therefore, to reach the goal of this study, the researchers employed a descriptive qualitative method in this article. Instagram users who followed accounts that frequently posted on language development made up the sample. A questionnaire and interviews with questions regarding the effect of utilizing social media on vocabulary development were the instruments employed in this study. To distribute the questionnaire, the researchers used a Google form, and the link was shared via WhatsApp, after which the researchers distributed it to 20 participants with 10 question items on June 22, 2023. The questionnaire was given to 35 randomly selected participants, and interviews were given to 5 participants who followed English learning accounts on Instagram.

The writer conducted interviews with a number of Instagram users who follow the English Learning English account. The questions that were asked during the interview were nearly identical to the questions on the questionnaire; however, they also included certain situational inquiries and justifications for the answers given. The researchers divided the interview results into 5, namely 1) the familiarity with Instagram, 2) the form of Instagram content, 3) the importance of Instagram for English vocabulary learners, 4) the effect Instagram to motivate informants in learning, and 5) the shortcomings of Instagram as a vocabulary learning media.

Findings and Discussion

This section gives the result and analysis based on the gathered data.

Questionnaire

To know the student's factor the researchers focus on two steps, there are:

Table 1. Result of questionnaire

No.	Statements	SD	D	N	A	SA
1.	Instagram aids me in acquiring vocabulary in English	2.9%	0%	11.4%	68.6%	17.1%
2.	Instagram allows me to study vocabulary in English whenever and wherever.	0%	0%	22.9%	45.7%	31.4%
3.	Instagram allows me to choose the vocabulary topic I want to work on.	2.9%	5.7%	28.6%	45.7%	17.1%
4.	Instagram makes learning English vocabulary simple.	0%	0%	17.1%	48.6%	34.3%
5.	Instagram vocabulary learning strengthens learning for oneself	0%	2.9%	22.9%	37.1%	37.1%
6.	Utilizing Instagram to learn English vocabulary is useful because you can read it anytime.	0%	0%	25.7%	42.9%	31.4%
7.	Regular classes assist you greatly expand your vocabulary, according to an Instagram post.	0%	8.6%	25.7%	42.9%	22.9%
8.	You can learn vocabulary from Instagram posts through the caption	2.9%	2.9%	20%	37.1%	37.1%
9.	Using Instagram to learn English vocabulary is enjoyable and engaging.	0%	2.9%	14.3%	45.7%	37.1%
10.	Instagram makes it simple for me to remember the fresh English words you've learned.	0%	2.9%	22.9%	40%	34.3%

According to the first statement in the questionnaire, Instagram aids Instagram users in acquiring vocabulary in English. 17.1% of Instagram users strongly agreed, 68.6% agreed, 11.4% of Instagram users neutral, 0% disagreed, and 2.9% strongly disagreed. Based on Devi et al. (2020), vocabulary is better learned when the meaning of words is represented, such as by an image, an action, or a real object.

The second statement is that Instagram allows them to study vocabulary in English whenever and wherever. 31.4% of Instagram users strongly agreed, 45.7% of Instagram users agreed, 28.9% of Instagram users in neutral, 0% of Instagram users disagreed, and 0% of Instagram users strongly disagreed. It can be inferred that students accepted the freedom to use Instagram whenever and whenever they choose. The primary benefit of adopting Instagram as a teaching tool is that students are already familiar with it (Rokhmawati & Mastuti, 2018).

The third statement is that Instagram allows them to choose the vocabulary topic they want to work on. 17.1% of users strongly agreed, 45.7% of users agreed, 29.6% of Instagram users were neutral, 5.7% of users disagreed, and 2.9% of users strongly disagreed with the statement. The conclusion drawn from the students' responses is that they concur that the Instagram videos give them the freedom to select the vocabulary they wish to hone. Students can find new English terminology on Instagram using the function called feeds, which they have never seen or heard before (Kovida et al., 2022).

The fourth statement claims that Instagram makes learning English vocabulary simple. A total of 34.3% of Instagram users strongly agreed, 48.6%

agreed, 17.1% of Instagram users neutral, 0% of Instagram users disagreed, and 0% of Instagram users strongly disagreed. Students generally believed that Instagram was a simple tool for learning English vocabulary. This is based on the fact that there are a lot of social media accounts, notably Instagram, which can be viewed from anywhere at any time, and that social media users in Indonesia are huge and continue to grow (Woods et al., 2019).

The fifth statement explains Instagram vocabulary learning strengthens learning for oneself. 3.71% of Instagram users agreed, 3.71% of Instagram users strongly agreed, 23.9% of Instagram users neutral, 2.9% of Instagram users disagreed, and 0% of Instagram users strongly disagreed. It may be inferred that the majority of students concur that acquiring English vocabulary through Instagram strengthens learning that is done on one's own. As learners, students are encouraged to use independence to accomplish their learning objectives (Daar, 2020)**.**

The sixth statement demonstrates utilizing Instagram to learn English vocabulary is useful because they can read it anytime. 31.4% of Instagram users strongly agreed, 42.9% of Instagram users agreed, 25.7% of Instagram users were neutral, 0% disagreed, and 0% strongly disagreed. Learners can conclude that Instagram is a good way to acquire English vocabulary because they can watch it again at any moment. The students can store the videos online in case they forget the technical aspects of online learning if they feel they still do not understand the terminology they have learned after seeing the video content several times (Wu, 2013).

The seventh statement outlines how regular classes assist them in greatly expanding their vocabulary, according to an Instagram post. 22.9% of Instagram users strongly agreed, 42.9% of Instagram users agreed, 25.7% of Instagram users were neutral, 8.6% of Instagram users disagreed and 0% of Instagram users strongly disagreed. It can be inferred that students concur that Instagram significantly increases their vocabulary. Additionally, Instagram was used in formal classes with educators' main focus being on increasing student involvement (Erarslan, 2019).

The eighth statements talk about how Instagram users can learn vocabulary from Instagram posts through captions 37.1% of Instagram users strongly agreed, 37.1% of Instagram users agreed, 20% of Instagram users were neutral, 2.9% of Instagram users disagreed and 2.9% of Instagram users strongly disagreed. It can be stated that students concur that the Instagram caption aids in vocabulary learning. Agustin and Ayu (2021) observed that Instagram offers several statements, captions, and movies about English that are meant to be quite fascinating in the hopes that viewers will be amused and readers will not become bored.

The ninth statement demonstrates how using Instagram to learn English vocabulary is enjoyable and engaging. 37.1% of Instagram users strongly agreed, 45.7% of Instagram users agreed, 14.3% of Instagram users were neutral, 2.9% of Instagram users disagreed and 0% of Instagram users strongly disagreed. In order to keep viewers engaged and readers from becoming disinterested. Serang and Sahib (2023) collected a lot of intriguing remarks, captions, and videos regarding English. The author also claimed that using Instagram for learning makes learning enjoyable and joyful.

The last statement is about Instagram makes it simple for them to remember the fresh English words you've learned. 34.3% of Instagram users strongly agreed, 40% of Instagram users agreed, 22.9% of Instagram users were neutral, 2.9% of

Instagram users disagreed and 0% of Instagram users strongly disagreed**.** It can be inferred that students concur that Instagram makes it simple for them to recall new English words. According to Auly et al. (2021), using the Instagram filter can significantly increase learners' understanding of new vocabulary.

Interview

The familiarity of Instagram

The primary benefit of adopting Instagram as a teaching tool is that students are already familiar with it (Mastarini et al., 2021). Judging from the results of interviews with informants below:

> (Informant 1) "Yes, because of the active use of Instagram. Instagram has become a familiar platform and appropriate choice for learning vocabulary."
> (Informant 4) "Yes, because Instagram is an application that I use quite often and is quite familiar, it is also one of the reasons why I use it to learn vocabulary."

Based on the findings of the study on using Instagram to acquire English vocabulary, the researchers claimed that Instagram's primary contribution is that it is widely known, used, and utilized. Many people are already active on Instagram and choose Instagram as a medium for learning.

The form of Instagram content

The main Instagram feeds are in the form of photos and videos, according to Atila and Irnanda (2021), Instagram scripts or written formats of feeds. According to the outcomes of the informant interviews below:

1) Video

> (Informant 2) "It's easier to learn with videos, because they are usually accompanied by text, and you can learn pronunciation at the same time."
> (Informant 3) "I think Instagram posts in the form of videos are more effective because we can learn the vocabulary while understanding the pronunciation, meaning, and intonation."

2) Photo

> (Informant 1) "I would say Instagram photos, from the text or caption more specifically. Because I like reading more than watching."
> (Informant 4) "Instagram posts in the form of photos are more effective for me because I like to read"

The informants are more helped by video posts because they are considered more effective due to Instagram's varied capabilities. In addition, video publications can help in learning the pronunciation of new words. Pronunciation is important for learning vocabulary for some people. Chotimmah et al. (2023) stated that it is important to have clear pronunciation. However, it can be concluded from the interview that reading is a hobby for people. A person who reads tends to be interested in certain genres of literature (Indriastuti, 2021). Reading-based writing will be more beneficial for developing their vocabulary.

The importance of Instagram for English vocabulary learners

According to Rokhmawati and Mastuti (2018), students can expand their vocabulary using Instagram, and they are quite motivated to do so. Considering the outcomes of the student interviews below:

> (Informant 1) "Yes, Instagram has become an important vocabulary learning tool for me because it's an interesting platform with many helpful features."
> (Informant 2) "I think Instagram is very important for learning vocabulary. The application is interesting also I am quite active in using it so the impact in increasing my vocabulary is quite high."

From Instagram, informants will find new words with the many diverse features of Instagram. In learning vocabulary, the more vocabulary you have, the easier it will be to speak, and vocabulary development will be easier, this will also facilitate the process of learning vocabulary by yourself. Thus, Instagram has become an important and interesting medium for learning, especially vocabulary.

The effect of Instagram on motivating Informants' learning

According to Atila and Irnanda (2021), Instagram was seen by students as a motivating medium that promoted learning. Students' motivation might affect their desire to study and their ability to meet learning objectives (Azzahro' et al., 2021). Considering the outcomes of the student interviews below:

> (Informant 3) "The explore feature on Instagram influences my motivation in increasing my learning motivation."
> (Informant 5) "Yes, it is quite motivating because it makes learning easier."

Instagram has been used as one of the learning media. Just as Instagram users want to learn and master vocabulary because they are interested in what they see on Instagram, so it can be said that informants are motivated to learn vocabulary through Instagram. The vocabulary of informants (Instagram users) also increases with the existence of Instagram because they are used to reading and listening to words that appear in their Instagram content so that they are familiar with and used to using a lot of new vocabulary without realizing it. Informants said that learning by using Instagram can help in developing their learning, including vocabulary that they can learn by themselves.

The shortcomings of Instagram as a vocabulary learning media

Instagram does not prioritize delivering the educational information that students want, but many of the photographs and videos there are not what students need to study (Audina & Muassomah, 2020). which can be seen from the interview results below:

> (Informant 4) "The content on Instagram is limited, you can't choose specifically."
> (Informant 5) "The content provided is too mixed, unable to filter only what I want to learn."

In the process of learning English, it will not be separated from the lack of media used for learning itself. Likewise, Instagram also has shortcomings as a medium for learning English vocabulary. From the results of the interview, the informant said that one of the shortcomings is the lack of specific content, the scope is too broad and there are no features that regulate it.

Conclusion

Several inferences may be drawn based on the findings of descriptive qualitative research employing interview techniques and questionnaires on Instagram users who use the platform to learn English vocabulary regarding their impressions of using the Instagram application to do so. When learning English, vocabulary is a crucial skill to have under our belts. By doing so, we may more easily master certain English skills. Instagram was also used as a tool for learning English, and its impact on learners' English skills was studied. Instagram is a rather effective tool for learning English vocabulary, according to this study. The majority of respondents to the questionnaires and interviews agreed that Instagram was crucial for them as a tool for vocabulary learning because of its varied features, which can aid users in expanding their vocabulary. Even though the content is sometimes less detailed, many respondents claimed that Instagram features like captions, videos, and reels might help them find what they are looking for. In this study, the researchers also discovered that practically all of the informants believed Instagram to be an easy and enjoyable learning tool because it is a widely known and used program. Instagram content may also be seen and read again, making it more practical. The limited sample size and multitude of sources are just two of the study's many drawbacks. In later research, a larger sample size can be used to examine student perceptions.

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THE IMPACT OF PICTURE PROMPTS ON STUDENTS' ABILITY IN SUBJECT-VERB AGREEMENT: A CLASSROOM ACTION RESEARCH

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Abstract
This study aims to find out how the impact of picture prompts can improve the ability of seventh-grade students at SMPN 121 Jakarta regarding the use of subject-verb agreements in simple present tense sentences. Observation before action was carried out in class VII SMPN 121 Jakarta. From the data collected through observation and prerequisite tests before entering a new chapter, it is known that the students have difficulty answering subject-verb agreement questions in simple present-tense sentences. In addition, not all the students are facilitated by gadgets. For this reason, the researchers uses pictures that can be used both electronically and paper-based to encourage students' ability to subject-verb agreement. This research was conducted using the Classroom Action Research method which focused on solving the problems encountered. The use of pictures as a learning medium in English is expected to encourage the students to more easily understand the subject-verb agreement material. From the findings, reports on the student learning outcomes, and observations it can be said that the use of pictures is quite effective in improving students' ability to subject-verb agreement material in simple present tense sentences.

Keywords: classroom action research, picture prompt, subject-verb agreement

Introduction

Tomakin argued that people will not be able to master a language if they are not learning the rules of grammar (as cited in Marsevani, 2023). Grammar has an important role in learning English, to ensure that the sentences used can be understood accurately and clearly. Grammar is a description of the rule that determines how a language's sentences are formed. The sentence should be in the correct grammatical form to make sure other people understand what they are talking about (Shafira, 2021). We use grammar to communicate more effectively, and more precisely with others (Scrivener, 2013). By understanding grammar, we can construct sentences correctly to avoid mistakes in interpreting the meaning of the message conveyed. One important aspect of constructing sentences is understanding and correct use of subject-verb agreement. In line with previous

research which stated that in making sentences well and correct grammatically, the students need to pay attention to the subject-verb agreement in every single sentence (Dinillah, Anugrawati, & Ariana, 2021)

The expectations above do not match the reality in the field, where studying grammar, including subject-verb agreement, is not easy. Learning grammar is something undesirable subject faced by some students in the teaching-learning process (Suseno, 2021). Difficulties in subject-verb agreement refer to the lack of ability of language users to construct subject-verb agreement in English sentences (Badereddeen, 2023). Subject-verb agreement errors related to the use of singular and plural subjects in respondents' essays often occur because respondents have difficulty determining whether the subject they use is singular or plural (Tarigan et al., 2022).

Based on pre-observations and prerequisite tests to enter a new chapter in seventh grade at SMPN 121 Jakarta, it is known that students have difficulties answering questions regarding subject-verb agreement in simple present tense sentences. Of 101 students who answered the questions regarding this material, only 13 students could answer correctly. Generally, the students are confused about when to add "-s/-es" and when not to add "-s/-es" to the verb that agrees with the subject in simple present tense sentences. This material is also new material for seventh-grade students, so their abilities regarding subject-verb agreement are still very low. Moreover, some students did not get English lessons in elementary school, thus adding to the challenges of learning this grammar concept. Another obstacle faced is that not all students have adequate access and facilities to use electronic devices.

To overcome these problems, this research aims to improve students' ability to understand and use subject-verb agreement by using picture prompts as a tool that can be used both electronically and in printed form. Therefore, this study addressed the research questions: Do the picture prompts improve the seventh graders' ability in subject-verb agreement? And how does the picture prompt improve the seventh graders' ability in subject-verb agreement? The researchers used the digital platform Canva to develop picture prompts. This classroom action research is expected to be able to overcome existing problems and be able to show the impact of using pictures in learning English, especially the material subject-verb agreement in the simple present tense.

Subject-verb agreement in simple present tense

Subject-verb agreement in a sentence is one of the important aspects that must be learned because students are required to make grammatically correct sentences (Sari & Wahyuni, 2022). Subjects and verbs are the main parts needed to make a sentence. Straus said that the term "subject" can be defined as a noun or pronoun that does an action, while "verb" is a word that indicates an action or a state of being (as cited by Hasanah & Habibullah, 2020). Subject-verb agreement is the grammatical rule that the verb or verbs in a sentence must match the number, person, and gender of the subject; in English, the verb needs to match just the number and sometimes the person (Yuniarty et al., 2023). According to Eastwood, subject-verb agreement is selecting the appropriate singular or plural verb that comes after the subject. Subject-verb agreement is like the backbone of grammar because it is the basis of how you will compose your sentences and ideas correctly

(as cited by Cabaltica & Osabel, 2021). In other words, subject-verb agreement refers to the rule which states that the verb in a sentence must agree with the subject (agreement).

According to Azar and Hagen (2016) subject-verb agreement in the present simple tense has several basic rules, such as: when the subject is a singular noun or third-person singular pronoun (she, he, it), the verb is added by -s/-es (E.g., he/she/it/Mary works at the bank). When using the subject "I" or plural subjects (you, we, they, friends) only the base form of the verb is used (E.g., I/you/we/they/my friends live in Boston).

Furthermore, Badereddeen (2023) writes that subject-verb agreement in numbers is embedded in each English sentence. For example, the verb to be, when first-person subjects are used (I "am", we "are"), represents the subject-verb agreement forms. She/he/it takes the "is" form of the verb to be, while we/they/you take the "are" form of the verb to be (E.g., I am a student, they are students, he/she/it is a student). Regarding the verb "to have", the singular form is "has" with third person singular (she, he, it) and "have" with other subjects (I, We, they, and you). E.g., I/you/we/they have a car, he/she/it has a car.

The use of pictures in teaching English

The use of pictures in teaching English is also known as visual aids. It is known that visual pictures are better stored in our brains than verbal ones (Antonova et al., 2019). Dolati and Cameron stated that the most common and simple forms of visual aids are pictures (as cited by Quecan, 2021). The use of pictures, video clips, objects, and internet facilities helps students to have a real-life imagination of the context of what is being taught (Ordu, 2021). The use of visual media is an effective learning medium because it attracts students' attention. Students can be immediately interested in something they see directly through the sense of sight, which stimulates the performance of the student's brain to develop and convey ideas, concepts, and thoughts based on what they see (Santoso et al., 2019). This shows that the use of pictures in learning English has an important role in facilitating students' understanding of the material.

Visual tools can convey meaning or information in a way that is more concrete or more tangible than spoken words can convey (Meilani et al., 2022). With visual aids, the students were able to understand the concept even though it was difficult (Halwani, 2017). Widodo said that visual grammar includes, drawings, pictures, photographs, cartoons, and stick figures which serve as visual aids, and enable students to vocalize particular grammatical patterns (as cited in Pfotenhauer, 2019). It means pictures can help students easily understand and realize the main points they have learned in the classroom, such as learning grammar.

Method

This study used a collaborative classroom action research (CAR) method which aims to improve the ability of seventh-grade students at SMP 121 Jakarta regarding subject-verb agreements in the simple present tense using pictures as learning media. This research involved 30 students who were students of class VII B at the school. The research was carried out in two cycles to see an increase in student learning outcomes.

According to Zulfani et al. (2016), collaborative classroom action research is a research design that aims to provide solutions to class-based problems faced by teachers by forming collaborative teams (as cited in Syahdan et al., 2022). Classroom action is a method of finding out what is the best way in the classroom to improve students' abilities in the learning process (Putra et al., 2022). The research process was carried out in collaboration between the researchers who also acted as a teacher, colleagues as observers, a tutor teacher, and a lecturer as supervisors in carrying out the research. The researchers uses a Classroom Action Research (CAR) designed by Kemmis and Mc Taggart model (2013) that consists of four steps namely, planning, acting, observing, and reflecting (as cited in Putra et al., 2022).

The source of the data in this study is quantitative data collected from the results of the pre-test and post-test. The pre-test is conducted to know the students' initial understanding of the subject-verb agreement in the simple present tense before the action is carried out. The test consists of 10 short questions or fill-in-the-blank with the verb in the brackets related to subject-verb agreement rules in simple present tense sentences. After the learning process is completed in each cycle, the students are given the post-test to measure the improvement in their understanding after using picture prompts.

The process of data analysis in this study is a comparison of quantitative data from the result score of the pre-test and the result score of the post-test using descriptive statistical analysis techniques. Descriptive statistical analysis according to Syahrum and Salim (2016) is statistics that studies procedures for collecting, compiling, presenting, and analyzing research data in the form of numbers, to provide an orderly, concise, and clear description of a symptom, state of events, so that it can be certain understanding or meaning is drawn (as cited in Siregar, 2021). The data are presented in table form.

Findings and Discussion

Based on the Kemmis and McTaggart PTK procedures, researchers began research by making observations to identify problems in the learning process that occurred in class (Rukminingsih et al., 2020). So, the researchers identified the problems or the challenges in learning English for seventh-grade students by observing the implementation of learning when the tutor teacher was teaching, discussions with the teacher, debriefing with students, and conducting prerequisite tests before entering a new chapter to find out the problems faced by students. After doing these things it is known that students experience difficulties related to subject-verb agreement material in simple present tense.

The students' improvement of subject-verb agreement in cycle I

At the time of planning, the researchers discussed with colleagues, lecturer, and tutor teacher to develop learning designs and assessment instruments. The researchers identified the important parts of the subject-verb agreement which can be illustrated by pictures. Then the researchers developed the picture prompts using Canva with the concepts involving singular and plural subjects as well as situations in daily life. In each developed picture, the researchers wrote sentences describing the subject-verb agreement below the pictures. After that, the researchers consulted with the lecturer and tutor teacher, about whether the lesson

plan, the assessment instruments, and the pictures used were the material to be measured.

At the implementation stage, the researchers started the learning process by showing a picture as a trigger accompanied by trigger questions such as: "Based on this picture, how many children are in it?", "What are they doing?", "Can you make a simple sentence based on the picture?" Then, the researchers helped the students to understand the basic rules of the subject-verb agreement by providing other pictures that have differences in singular or plural subjects in the form of worksheets. For example, the researchers showed a picture of two children studying mathematics. The students are asked to circle the correct verb or rewrite the verb in the bracket by adding -s/-es or don't/doesn't if needed. The students identified the subject-verb agreement through the worksheet in groups. After they completed the worksheets, the groups exchanged the answer sheets to be corrected together. The students are assisted by the teacher in discussing the worksheets as well as strengthening teaching material. At the end of cycle I, the students were given a post-test to see how far their ability had increased in subject-verb agreement material.

In the observation and reflection stages to determine the assessment scale, the researchers referred to the Permendikbud no. 104 of 2014 concerning the assessment of learning outcomes by educators in primary education and secondary education, as shown in Table 1 (as cited in Wachidah & Khatimah, 2018).

Table 1. Assessment scale of learning outcomes

Category	Score Range
Very Good (A)	86-100
Good (B)	71-85
Fair (C)	56-70
Low (D)	≤55

The results of the pre-test and post-test in Cycle I can be presented in Tables 2 and 3 below:

Table 2. The students' pre-test results in cycle I

Category	Score Range	Frequency	Percentage
Very Good (A)	86-100	0	0%
Good (B)	71-85	0	0%
Fair (C)	56-70	2	6.67%
Low (D)	≤55	28	93.33%
Mean score: 29			

Table 3. The students' post-test results in cycle I

Category	Score Range	Frequency	Percentage
Very Good (A)	86-100	7	23.33%
Good (B)	71-85	2	6.67%
Fair (C)	56-70	9	30%
Low (D)	≤55	12	40%
Mean score: 62			

By comparing the results of the average pre-test and post-test scores in cycle I, it is known that student learning outcomes have increased quite significantly.

The average score of the pre-test cycle I is 29, while the average score of the post-test cycle I is 62. Table 3 shows that 23.33% of the students got a very good score, 6.67% got a score in the good category, 30% got fair, and the remaining 40% still got a low score. The increase in the percentage of very good, good, and fair categories shows that the student's abilities regarding subject-verb agreement have improved. It means that the pictures provided can help the students visualize and make it easier to understand the concept being studied. This finding is supported by the previous research which stated that the pictures in the cards act as concrete materials in guiding the students to know about the rules of subject-verb agreement (Layat et al., 2017).

Besides, the findings of increased learning outcomes, the researchers also saw that the students became more active when answering trigger questions with the picture prompts. It shows that pictures can create more interactive learning. In line with the previous research that stated that using pictures can make exercises and activities more interesting and more interactive (Hashanah, 2015). In addition, from the students' worksheets, the researchers also found that the students had difficulty answering post-test subject-verb agreement questions in the form of negative sentences. For this reason, the researchers prepared learning materials, activities, and media for cycle II which focused on studying subject-verb agreement in the form of negative sentences.

The students' improvement of subject-verb agreement in cycle II

During re-planning for cycle II, the researchers discussed with colleagues, tutor teacher, and lecturer to develop pictures and lesson plans that more focused on subject-verb agreement in negative form in the simple present tense. The researchers designed a lesson plan and developed picture prompts that support negative sentence statements such as adding crosses to pictures and creating assessment and reflection instruments. After that, the researchers consulted again whether the lesson plan, materials, instruments, and media used were appropriate for the material to be taught.

Similar to cycle I, the learning activities in cycle II also began by showing pictures as a trigger for learning. Asked the students to make positive sentences based on pictures, then changed them into negative forms. The students are also invited to remind themselves of learning subject-verb agreement in previous lessons. The activity continued by asking the students to identify subject-verb agreement using the pictures along with the example sentences that have been provided. The pictures were more focused on the visualization of singular or plural subjects with negative concepts. For example, a picture of a woman with a crossed soda drink shows that she does not drink soda. After the students complete the worksheet, the correct answers are discussed together.

During the implementation of cycle II, the researchers found that the use of pictures began to make the students feel bored during learning. This appeared to be caused by learning activities that were no different from cycle I. This cycle ended by providing a post-test and student reflection. The reflection is carried out orally by answering reflective questions: "How enjoyable is this learning process?", "How well do you understand the material?" The researchers asked the students to give points by raising their fingers from 1-3 regarding the questions. From this oral reflection, it can be concluded that, on average, the students gave 2

points in the category of quite understanding and having fun in learning subject-verb agreement using picture prompts.

As shown in Table 4, the average score of post-test cycle II was found to be higher than the average score of post-test cycle I. There were 33.33% of students who got very good marks, 13.33% got scores of which is good, 33.33% were fair and the remaining 20% is still in the low category.

Table 4. The students' post-test results in cycle II

Category	Score Range	Frequency	Percentage
Very Good (A)	86-100	10	33.33%
Good (B)	71-85	4	13.33%
Fair (C)	56-70	10	33.33%
Low (D)	≤55	6	20%
Mean score: 71			

In Figure 1, it can be seen that there is an increase in the average score from the pre-test which is 29 to post-test I which is 62, and post-test II which is 71.

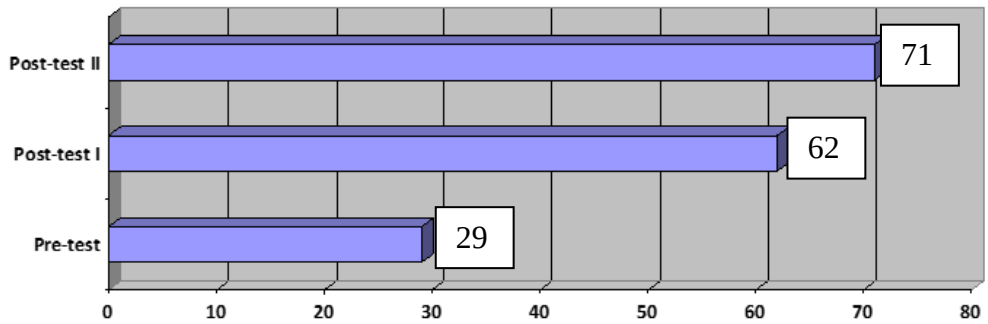

Figure 1. Mean scores of pre-test, post-test I, and post-test II

The findings above show that the picture prompts were quite effective in improving the seventh-grade students' ability to subject-verb agreement in the simple present tense. This result is in line with similar studies, Sartika stated that flashcards are effective in improving the third graders' mastery of the simple present tense (Sartika, 2020). Learning using the picture and picture model can improve students' mastery of simple present tense material and improve student learning achievement which is marked by increased completion in first grade of accounting students at SMK Negeri 1 Langsa (Linda & Nasir, 2022). This also answered the first research question, "Do the picture prompts improve the seventh graders' ability in subject-verb agreement?"

To answer the second question, "How do the picture prompts improve the seventh graders' ability in subject-verb agreement?" It can be related to the impact of using picture prompts on improving student learning outcomes regarding the subject-verb agreement material. The pictures used have attracted the attention of students and made the learning process more interactive. For seventh-grade students, visual aids can improve understanding of complex concepts such as subject-verb agreement rules. The pictures provided concrete examples of singular and plural subjects with variations in subjects and daily situations so that the students can see how subject and verb interact in a sentence through identification

activities during learning. This makes abstract concepts more real and easy to understand. The statement is supported by previous research which stated that different visuals bring variation in the classroom as they help to draw the attention of the learners toward the topics. The use of different pictures related to the lesson of the class leads the classes to be lively as well as learners get some outlines of the topic. It is always better to have something visual in front of the learners so that they can understand the point well (Macwan, 2015). In addition, the teacher provided direct feedback during class discussion and worksheet discussion. This feedback helped the students correct their mistakes and strengthen their understanding of subject-verb agreement.

Conclusion

Based on the findings and discussion, it can be concluded that picture prompts are proven to have a positive impact on increasing the ability of the seventh graders at SMPN 121 Jakarta to learn subject-verb agreement. The results of the study show that the use of pictures as learning media can make material more interesting and interactive, produce a significant increase in learning outcomes as can be seen from the comparison of the average pre-test scores with the average post-test II scores, as well as provide a better understanding of complex concepts such as subject-verb agreement. Even though challenges such as boredom arise in the second cycle, the pictures still play a role in improving student learning outcomes. The use of pictures can be varied and combined with other media so that students do not feel bored during learning. More attention needs to be paid during implementation, observation, and reflection regarding the involvement of students in learning so that it can be taken into consideration in planning the next learning strategy.

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ANALYSIS OF LOCAL WISDOM-BASED COLLABORATION SKILL INSTRUMENT (LWCSI) IN CIVICS FOR HIGHER EDUCATION

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Abstract
The ability to collaborate is highly important in the world of work and social life. This skill is related to the individual's ability to cooperate with others in achieving a goal. Several previous studies related to the development of collaboration ability instruments using visible dimensions as their pivot, such as aspects of performance outcomes and levels of interaction. However, some previous studies suggest that a person's ability to collaborate comes from within as well. Therefore, an instrument is needed to measure students' collaborative abilities in depth and adapt to the diverse Indonesian context, which is diverse in so many aspects. The researchers developed an instrument called the Local Wisdom-Based Collaboration Skills Instrument (LWCSI), which is an instrument that measures students' collaboration abilities but is adapted to the context of Indonesia which is Godly and diverse in culture. The population in this study consisted of 166 students who took civics education classes in the short semester of 2022/2023. To determine the validity, the df value used is (166-2) = 164 with an α value of 0.05. The R-table value obtained is 0.1281. From the table the R-count is greater than the R-table, so it can be concluded that all items are valid. The number shows 0.06 so it can be concluded that the LWCSI instrument is reliable and can be utilized to measure student collaboration skills based on local wisdom. Therefore, it can be concluded that this instrument is able to measure the collaboration skills of students with a variety of beliefs and cultures, especially in Indonesia that have a large and diverse population.

Keywords: civics education, collaboration scale, collaboration skills, higher education

Introduction

The ability to collaborate is very important in the world of work and social life. This skill is related to the individual's ability to cooperate with others in achieving a goal. In the context of education, collaboration skills are very important

to help students learn effectively and prepare them for future success (Afif & Fauzi, 2022). Collaboration skills are an important ability for students to face an increasingly complex world of work. Collaboration is also the key to success in completing assignments or projects in the work environment and when studying.

The Republic of Indonesia's national education law number 20 of 2016 targets graduates to be equipped with knowledge, good character, and various skills. In terms of skills, students are expected to have the ability to think creatively, critically, independently, and be able to collaborate and communicate. This is in line with the skills that humans need to have in the 21st century, namely being able to think critically, creatively, communicative, and collaborative (Braathen, 2022; Maniam & Pruekpramool, 2019). Collaboration skills are one of the skills that are important for students to have before they enter the world of work which continues to be affected by globalization (Pazos et al., 2020).

In the context of Indonesian higher education, the implementation of collaborative learning strategies can also contribute to the development of intercultural competence (de Hei et al., 2019). As Indonesia's higher education system becomes increasingly internationalized, students must be equipped with the skills to navigate diverse cultural contexts and work effectively with peers from different backgrounds. However, existing research suggests that there are several challenges to promoting collaboration among students in Indonesian higher education (Djalante, 2016). These include limited experiences with collaborative learning, power dynamics within student groups, and a lack of incentives for international collaborations and publications. To address these challenges, institutions must prioritize the development of student collaboration skills through the integration of group-based learning activities, the provision of training and support for both students and faculty, and the implementation of policies that encourage and reward collaborative work.

Indonesia's higher education institutions face a pressing need to cultivate students' collaboration skills (Ye & Xu, 2023). This is crucial for equipping them with the necessary abilities to thrive in the 21st century workforce, where teamwork and cooperative problem-solving are highly valued. Studies have shown that Indonesian students' critical thinking and communication skills lag behind international standards (Susanto & Lestari, 2020). This underscores the urgency for universities to prioritize the development of collaborative competencies. As Yokhebed (Hikmawati et al., 2021) notes, communication skills are essential for effectively conveying ideas to others - a cornerstone of successful collaboration.

Collaborative capacity is the key to success, both in work and life (Phương & Dương, 2018). Students must be able to work cohesively, leverage each other's strengths, and collectively tackle complex challenges. Septikasari and Frasandy (Hikmawati et al., 2021) emphasize that 21st century learners need to master the "4C" skills - critical thinking, creativity, collaboration, and communication - to thrive in the modern landscape.

One promising avenue is to develop learning materials and assessments rooted in Indonesia's rich cultural heritage. Marzuki and Feriandi (Murdiono et al., 2020) note that civic education should leverage local wisdom to promote global citizenship values, including social responsibility and political engagement. By tapping into Indonesia's diverse cultural tapestry, universities can design collaboration-focused curricula that resonate with students' lived experiences and

social contexts. This approach not only strengthens students' sense of identity and belonging, but also equips them with the collaborative skills needed to navigate an increasingly interconnected world.

Incorporating local wisdom into collaboration-oriented assessments can provide a more holistic and contextually relevant measure of students' abilities. Research-based on local culture in the field of science as an effort to develop students' critical thinking and communication skills is still rare (Hikmawati et al., 2021), underscoring the need for more targeted efforts in this area.

Based on the results of observations by the researchers at a private tertiary institution in Tangerang, there has not been an instrument that can measure student collaboration skills, especially when blended learning is applied. Student collaboration activities already exist, but there is no instrument that measures student collaboration abilities. Instruments used in learning tend to measure students' cognitive abilities only. Several previous studies related to the development of collaboration capabilities instruments only focused on visible dimensions, such as aspects of performance outcomes and levels of interaction (Sufajar & Qosyim, 2022), participant roles and responsibilities (Boyraz, 2021) and willingness to express opinions (Tang et al., 2022). Thus, an instrument is needed that can measure students' collaborative abilities in depth and adapted to the diverse Indonesian context. In this study, developed an instrument called the Local Wisdom-Based Collaboration Skill Instrument (LWCSI), which is an instrument that measures student collaboration skills, but adapted to the God-diverse and diverse Indonesian context.

This research only focused on student collaboration skills at a private university in Tangerang. Measurement instruments: This research will only focus on developing instruments to measure student collaboration skills; therefore, this research will not discuss efforts to improve student collaboration skills. The validity of this research instrument will focus on developing a valid and reliable instrument for measuring student collaboration abilities. This research will not discuss internal validity, such as course content or constructs.

The research question in this study is how to develop a valid and reliable instrument to measure students' collaboration abilities in civics education courses? The purpose of this research is to develop a valid and reliable instrument to measure students' collaboration abilities in civics education courses in accordance with the rules of local wisdom in Indonesia, which is a country with a very large population. The purpose of this research for higher education in general is to improve the quality of measuring student collaboration abilities. With the existence of valid and reliable instruments, it can help ensure that measurements made regarding collaboration capabilities are more accurate and reliable. For tertiary institutions, the aim of this study is that LWCSI can be input for tertiary institutions to develop curriculum and learning better and according to the needs of students in developing collaboration skills. For researchers, the development of this instrument can be preliminary research before carrying out further research on a larger scale.

Literature review

Collaboration skills are very important for students to have, collaboration skills will make students proficient in mobilizing and providing energy for other people to form a common vision in solving a problem (Nova, 2022), develop

teamwork and leadership skills (Umrotin et al., 2022), and able to make commitments (Salasiah et al., 2022). A high-level collaborative learning process, including self-reflection from different perspectives (de Hei et al., 2019) and integration of new emerging knowledge within the group (Poort et al., 2022) is an important aspect of the collaborative process.

Several previous studies related to collaboration ability instruments

The standard rubric of collaboration skills put forward by the International Reading Association suggests five aspects in measuring collaboration skills. Which are, contribution, time management, problem-solving, working with others, inquiry and synthesis techniques (ReadWriteThink, 2005). Several other studies have developed collaboration ability instruments, writing down several indicators of collaboration ability, among others, asking friends or teachers, being able to speak or express opinions, respecting and respecting the opinions of others, working together to solve problems, sharing tasks among group members, showing concern, and able to guide others to achieve goals (Verawati et al., 2020). Friesen and Brown also suggest a sense of responsibility as an indicator of collaboration (Friesen & Brown, 2022). Greenstein also put forward several indicators in measuring collaboration skills, including giving opinions in groups, having empathy and compromise, prioritizing group interests, being able to develop values, being able to work together to create new ideas and ideas, and actively participating in completing assignments and having respect, respect opinions of others, have the ability to resolve conflicts and is active in group discussions (Greenstein, 2012).

Ability to collaborate in the context of religious pluralism

One's collaboration ability is certainly influenced by various aspects. Collaboration that occurs in rich nuances with spiritual values can produce products with a high level of trust (Daniel, 2010), success in inquiry learning (Irwandi et al., 2022), and build a positive climate of collaboration (Kim & Gentle-Genitty, 2020). Faith belief is found to be one of the positive quality factors in a person including his ability to interact (Stewart-Ginsburg & Kwiatek, 2020). Collaboration between different religions makes students use existing communal power (Miles-Tribble, 2020) so that the results of the collaboration become more meaningful. Research shows that collaboration that occurs in a pluralistic religious context creates positive relationships and an antidote to negative stereotypes in collaborative groups (Berling, 2020). Thus, the aspect of spiritual values can be used as one dimension in measuring a person's collaboration ability.

Collaboration skills and cultural diversity factors

A person's understanding of the value of diversity influences his success in the process of collaborating (Stafford, 2022). The higher the sensitivity to diversity, the easier it will be for him to work in groups with different backgrounds from his own (Seithers et al., 2022). If collaboration skills are still low, it is highly recommended for educators to often apply group designs with various backgrounds, so that they can quickly form intercultural competence (IC) in self-member groups. (Liang & Schartner, 2022). Cooperation in various diversity also has a very significant impact, one of which is to minimize the emergence of subjectivity in the results of the work made (Novelty, 2021). Thus, the dimension of sensitivity to

diversity is an indicator that needs to be considered when trying to measure one's collaboration abilities. Based on the explanation of the experts above, it can be concluded that there are several aspects of one's collaboration skills, including aspects of contribution (Greenstein, 2012), time management (ReadWriteThink, 2005), religious pluralism awareness (Berling, 2020) and cultural awareness (Stafford, 2022). Below is a grid of research instruments developed based on previous studies.

Table 1. Grid table

No.	Dimensions	Indicators	Questions
1	Contributions	Actively giving opinions and carrying out activities in groups	1. I actively give my opinion when working on group assignments. 2. I attend group meetings 3. I am not negligent in doing my part 4. I give a progress report on the task of my section 5. I convey my approval and disapproval in group discussions
2.	Time management	Able to manage time in teamwork	1. I provide time for discussion. 2. I manage my time well. 3. I neglect group study time. 4. I focus during group discussions. 5. I am still doing other things when working in groups
3.	Religion pluralism awareness	Understand your own religious insights and those of others in the team	1. I know about the teachings of my religion 2. I have sufficient knowledge about the different religions of my colleagues. 3. I know when my partner's worship time is. 4. I am willing to be assigned with colleagues of different religions 5. I am not comfortable with colleagues who are of a different religion than mine
4.	Cultural awareness	Understanding own culture and others in the group	1. I know my cultural background. 2. I know the cultural background of my group mates. 3. I am comfortable working with colleagues from different cultures with me. 4. I am slow to adapt to people who are culturally different from me. 5. For me working with people from different cultures is not a problem.

Method

The research methodology used in this study focused on the following sub-sections: population, sampling procedure, sample size, instruments, and data analysis techniques.

Population and sampling procedure

The population in this study consisted of 166 students who took civics

education classes in the 2022/2023 short semester at a university in the Banten area. Students who are the sample come from various study programs such as design, nursing, law, engineering, and mathematics. According to Hair, the number of samples should be more than 100 people (Hair et al., 2014) thus if the number of samples is 166 for 20 items it is considered sufficient to maintain the validity of the instrument.

Development process

The development method that will be applied in this study is the development of 4D models, namely define, design, develop and dissemination. The defining stage is useful for determining and defining the requirements needed in the learning process and gathering various information related to the product to be developed. (Arkadiantika et al., 2020). Researchers conducted a needs analysis in the field, regarding the need to develop instruments that measure student collaboration abilities. Researchers are also looking for various sources related to indicators and various aspects related to collaboration capabilities. At this stage, several aspects were found that form student collaboration abilities which were adapted and developed from the International Reading Association (ReadWriteThink, 2005) and the results of personal analysis from various literature reviews. These aspects include contribution, time management, problem solving, inquiry techniques, understanding inter-religiousness and awareness of cultural diversity.

The define stage is also used to determine its implementation, which will be implemented in the Citizenship Education course, in the short semester which lasts from May to July 2023. The product was tested on 166 third semester students at a private university in Tangerang. Instruments in the form of psychometric scales or questionnaires will be distributed using cloud media, namely OneDrive to make it more efficient and effective (Dewi & Akhlis, 2016). The second stage is the design or planning. At this stage the researcher made an initial design, as seen in the grid table in the previous chapter.

Then at the development stage, this instrument was developed specifically to form 20 questions. After the items were formed, they were tested on 166 students. These items were then tested for validity with the help of SPSS version 28 and for reliability using Cronbach alpha.

Data collection and analysis

This study uses online questionnaires through OneDrive forms and distributed to the participants using WhatsApp. All participants were informed about the purpose and procedure of the study in the introductory section. The identity of the participants remained anonymous as their data was kept privately and confidentially. The data collected was transferred into IBM SPSS 28 for data cleaning, reliability, and validity.

Findings and Discussion

Demographic

The participants' demographic information was collected using the online survey questionnaire. The demographic information included gender, semester, and religion. Only 166 of the online survey questionnaires were valid for the analysis. As illustrated in Table 1, 65.6% (n=109) were female students while 34.3% (n=57)

were males. Regarding religion, most of the respondents 66.3% (n=110) are Christians, Catholic 13.9% (n=23), 12.04% (n=20) are Muslims, 1.2% (n=2) are Hindu and 6.6%(n=11) are Buddhis. In terms of the academic semester, most of the students that participated were in their 3rd semester.

Table 2. Demographic characteristic of participants

Characteristic	N	%
Gender		
Male	57	34.3
Female	109	65.6
Religion		
Christian	109	66.3
Catholic	23	13.9
Muslims	20	12.4
Hindu	2	1.2
Buddhis	11	6.6
Semester		
Three	166	100

Measurement model

The measurement model used in this study identifies the validity and reliability of the developed instrument. To determine validity, the score of df (166-2) = 164 with the α score is 0.05. From this formula, the value of r-table is 0.1281. Showed in table 2, the result of validity test from LWCSI.

Table 3. Tabel item total statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Contribution				
X1.1	81.07	49.590	0.505	0.843
X1.2	80.86	50.884	0.445	0.846
X1.3	81.02	48.896	0.592	0.840
X1.4	81.14	48.787	0.579	0.841
X1.5	81.11	49.326	0.477	0.844
Time management				
X1.6	80.99	49.109	0.618	0.840
X1.7	81.36	48.632	0.535	0.842
X1.8	81.16	50.448	0.222	0.858
X1.9	81.31	47.717	0.631	0.838
X1.10	81.43	49.580	0.318	0.852
Religion pluralism awareness				
X1.11	81.11	49.823	0.470	0.845
X1.12	81.90	48.136	0.410	0.848
X1.13	81.78	46.341	0.539	0.841
X1.14	81.13	50.128	0.419	0.846
X1.15	80.94	50.918	0.318	0.850

Cultural awareness				
X1.16	81.37	48.660	0.545	0.841
X1.17	82.14	47.809	0.414	0.848
X1.18	81.36	50.315	0.325	0.850
X1.19	81.37	50.610	0.318	0.850
X1.20	80.96	50.653	0.381	0.848

From the table, the r-count is greater than the r-table, so it can be concluded that all items are valid. Reliability was also calculated in this study as shown in the table below.

Table 4. Reliability

Reliability Statistics	
Cronbach's Alpha	N of Items
0.852	20

The number shows 0.06 so it can be concluded that the LWCSI instrument is reliable and can be used to measure student collaboration skills based on local wisdom.

By using SPSS version 28, item statistics are calculated to see the average value of each item being tested. As shown in table 2, questions 12, 13 and 17 have a lower average value than the other items. Two statement items come from the dimension of understanding of religious diversity and one item from the awareness dimension of cultural diversity. The high average score is on the contribution dimension.

Table 5. Item Statistics

Item Statistics			
	Mean	Std. Deviation	N
X1.1	4.49	0.600	166
X1.2	4.69	0.488	166
X1.3	4.53	0.600	166
X1.4	4.42	0.624	166
X1.5	4.44	0.665	166
X1.6	4.56	0.555	166
X1.7	4.19	0.687	166
X1.8	4.40	0.927	166
X1.9	4.25	0.691	166
X1.10	4.13	0.868	166
X1.11	4.44	0.608	166
X1.12	3.65	0.920	166
X1.13	3.77	0.951	166
X1.14	4.42	0.625	166
X1.15	4.61	0.639	166
X1.16	4.18	0.672	166
X1.17	3.41	0.960	166
X1.18	4.20	0.732	166
X1.19	4.19	0.693	166
X1.20	4.59	0.594	166

Discussion

The paper determined the validity and reliability of the collaboration capability instrument based on local wisdom. Many studies have been conducted regarding the development of a scale to measure students' collaboration abilities and many have used it as a reference (Hojat & Gonnella, 2011; Van Winkle et al., 2011). However, no instrument has yet been developed considering the beliefs and cultural background of each collaborator. Indonesia, which is famous for its diversity, makes Pancasila the basis of the state. The constitution of the country regulates various aspects of trust and humanity. As the ideology and basis of the state, every aspect of society, including various collaborations in education, cannot be separated from the values of Pancasila. These values include the value of God and awareness of diversity.

In developing this instrument, researchers tried to include two dimensions that had never been measured before in ensuring a student's collaboration skills. The two dimensions are divinity or awareness of religious diversity and awareness of cultural diversity. Previous studies have explained the relationship between collaboration skills and awareness of one's religious diversity. The link between collaboration skills and awareness of cultural diversity has also been studied before. Through the development of this measurement tool, it is seen that the items that measure the two dimensions are valid and reliable.

The calculation results with SPSS also show that all the 20 items proposed are valid and acceptable. At the dissemination stage, the results were seen from the answers of 166 respondents in this study. LWCSI can be an alternative when researchers or educators want to observe students' collaborative skills in their class.

Conclusion

The novelty of the development of this instrument is that it involves the dimensions of religious diversity and cultural diversity. In the context of Indonesia and other countries that have diversity, the availability of a scale to measure collaboration based on the diversity of the participants' backgrounds will be very useful. In the future, research on student collaboration skills will continue to be of interest, because it is one of the human competencies of the 21st century. Thus, this measurement scale can be an example that can be studied further or modified according to needs in the research area.

The development of a local wisdom-based collaboration skill instrument for civics education in Indonesian higher education could have significant implications for both research and practice. First, it would contribute to the growing body of literature on the role of local wisdom in shaping 21st-century skills, particularly in the context of higher education. Second, the instrument could provide a practical tool for educators to assess and improve students' collaboration skills, which are essential for their academic and professional success. Moreover, the implementation of a local wisdom-based collaboration skill instrument could lead to the design of more culturally relevant and engaging learning experiences for students, fostering a deeper understanding and appreciation of Indonesian cultural heritage.

In conclusion, the urgency of developing collaboration skills among students in Indonesian higher education is clear, and the integration of local wisdom into the curriculum and teaching practices can be a promising approach to address this need.

The development of a local wisdom-based collaboration skill instrument could have far-reaching implications for improving the quality of higher education in Indonesia and preparing students for the global challenges of the 21st century.

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EXPLORING DIFFICULTIES IN TEXTUAL UNDERSTANDING OF MATHEMATICAL WORD PROBLEMS FROM A PSYCHOLINGUISTIC PERSPECTIVE AND USE OF DRAWINGS

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Abstract
Several studies have reported the importance of textual understanding in the solving of verbal mathematical problems. Therefore, the objective of the present study was to analyze the difficulties the secondary-education students presented in the textual understanding of verbal mathematical problems. An instrument was applied with three verbal problems in three different moments: comprehension of the problem, representation of the situation, and the application of a semi-structured interview. An important factor that could be seen in the responses obtained is that the context played an essential role. It was also obtained that the textual understanding and the cultural context show an important relationship when building a representation of the problem. Finally, according to the results obtained in the study, we suggest that it would be important to encourage students to do previous work to familiarize themselves with the context posed in the problem to be able to reach a solution that satisfies the statement.

Keywords: situation model, textual understanding, verbal mathematical problem

Introduction
Mathematics education has been a fertile field for research and innovation, given that mathematics is fundamental in our society and its applications are present in almost all areas of daily and professional life. However, learning mathematics, especially through the use of mathematical word problems, presents challenges that extend beyond the simple acquisition of numerical concepts and skills.

At the core of mathematics education lies the desire to equip students with the tools necessary to confront and solve problems. As Polya (1945) points out in his work "How to solve it", problem-solving is essentially the act of discovering a path that takes us from an initial situation to a desired final situation. Nevertheless, in the education field, mathematical word problems often add an additional layer of complexity, as the student must translate natural language, with all its ambiguity and richness, into the precise and structured language of mathematics (Cummins et al., 1988).

Psycholinguistics delves into the study of how people understand, produce, and acquire language. When analyzing mathematical word problems from a psycholinguistic perspective, we are faced with the task of unraveling how students process the linguistic information contained in a problem and how they transform that information into mathematical representations. Bruner (1986) reminds us that the act of understanding is not static, but rather involves the active construction of meaning. This construction is strongly influenced by the student's previous experiences, cultural knowledge, and linguistic competence (Ginsburg, 1997).

Over the years, various studies have indicated that errors and difficulties in textual understanding of mathematical verbal problems are not solely due to a deficit in mathematical skills. On the contrary, many of these errors have their origin in difficulties in understanding the text of the problem, in constructing an adequate representation of the situation described, or in connecting that representation with the relevant mathematical procedures (Gerofsky, 1996; Leiss et al., 2010). These difficulties can be exacerbated when problem statements are unclear or formulated ambiguously, leading to erroneous interpretations (Islas et al., 2012).

Notwithstanding, beyond identifying and describing these difficulties, it is crucial to understand their underlying causes. Why do some students face greater challenges than others when tackling mathematical word problems? How do factors such as cultural context, prior educational experiences, or individual language skills influence a student’s ability to understand mathematical word problems?

With this research, we seek to delve into these questions, exploring in depth the interactions between language, thinking, and mathematics. The goal is to shed light on the challenges inherent in understanding mathematical word problems.

Problem statement

Mathematics is a discipline that has been fundamental in the evolution of human thought, both in science and in everyday life. However, one of the most challenging areas within the teaching and learning of mathematics is understanding word problems. Mathematical word problems require not only mathematical skills but also linguistic and cognitive competencies to interpret and translate verbal information into mathematical representations (Polya, 1945; Cummins et al., 1988).

Despite the importance of addressing mathematical verbal problems, many students face difficulties in understanding and solving them (Bruno & Espinel, 2002; Chin & Fu, 2021). These difficulties are not only related to mathematical skills, but also to the ability to build and manage mental models based on the information provided (Johnson-Laird, 1983). The interdisciplinary nature of verbal problems suggests that a psycholinguistic approach may be essential to understanding the roots of these difficulties (Gerofsky, 1996).

The literature has pointed out different factors that can influence the understanding of mathematical word problems. For example, the way statements are presented can affect student understanding (Islas et al., 2012). Likewise, the ability to imagine or visualize situations can improve reading comprehension in mathematical contexts (Glenberg et al., 2004). Furthermore, the construction of situational models, which refer to the mental representation that people make of a text, is crucial for understanding and solving problems (Leiss et al., 2010).

Nevertheless, it is evident that not all students construct these models effectively, which may be a contributing factor to their difficulties.

Bruner (1986) suggests that the way we interpret and understand the world is intrinsically linked to our ability to narrate and construct meaning. This is especially relevant in mathematics, where the ability to construct meaning from verbal statements is essential (D'Amore et al., 1996). Nonetheless, research in mathematics education has not exhaustively explored how linguistic and cognitive skills interact in the construction of meaning in mathematical contexts (Silva, 2014).

Therefore, it is essential to further investigate the difficulties and errors in the textual understanding of mathematical word problems. Understanding these difficulties can offer valuable information to develop effective pedagogical strategies and improve the teaching and learning of mathematics.

Objective

The objective of this research is to analyze the difficulties that secondary education students present in understanding verbal mathematical problems.

Method

This is a qualitative study that allowed us to explore the possible relationships between comprehension skills and the cultural context of students when understanding verbal mathematics problems. In addition, it contributed to providing a stronger understanding of the underlying causes of why students have difficulties in this area and in offering guidelines for improving mathematics education.

Exploratory scope

The exploratory scope of this research involves the initial exploration and understanding of errors and difficulties in the textual understanding of mathematical word problems from a psycholinguistic perspective, without attempting to establish definitive causal relationships or broad generalizations (Hernández et al, 2010). This approach seeks to identify initial patterns and trends in the interaction between language, thinking, and mathematics, as well as generate hypotheses that can be investigated in future studies.

Semi-structured interview

Individual semi-structured interviews provide flexibility, allowing students to express their thoughts and reasoning in their own words while following a predefined question guide to ensure consistency in data collection (Cohen & Manion, 1990).

Participants

The participants in this study were chosen in a stratified manner, specifically considering students who had greater difficulty in understanding the text on the subject matter in their native language (Spanish) and who had poor performance in mathematics. In this way, a sample of six students was selected, three men and three women, who were studying the third grade of secondary education in a school in the City of Puebla, Mexico.

Data collection instrument

Two verbal mathematical problems from existing literature were used, which were modified for this study. Table 1 shows each of the verbal problems.

Table 1. Verbal problems applied to students

	Mathematics word problem
PVM_1	A horse is tied to a lasso that allows it a maximum reach of 2 m, attached to a ring, which moves on a bar in the shape of a right angle whose sides measure 2 m and 4 m. What is the area of the region covered by the horse?
PVM_2	On the beach, Fernando wanted to take a parachute tour, while Luis went diving. When Fernando passed just above Luis, he was 27 m above sea level and Luis was 9 meters deep. How far away are they at that moment?

The instrument was applied in a written format, for the purpose of evaluating textual understanding in three moments:

First moment. The students were asked to read the problem carefully to understand the text.

Second moment. Make a drawing of the situation that is represented in the mathematical problem.

Third Moment. Application of an individual semi-structured interview.

Findings and Discussion

The assessment of the responses to these items allowed us to precisely identify the areas of difficulty in textual understanding and how these difficulties impact each student's ability. All students were asked to draw the situation described in the PVM_1 one shown in Table 1. When each of the students' representations were analyzed, the following results were obtained. Two categories were generated, Congruent Drawings (DC) and Non-Congruent Drawings (DNC).

DC Category. They are those graphic representations that have all the elements and data of the problem correctly located. An example of this type of drawing would be the following.

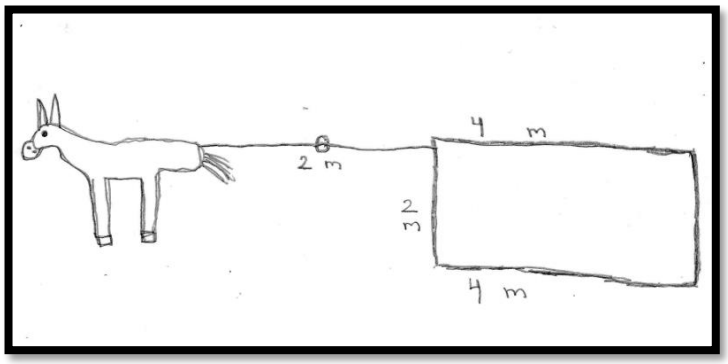

Figure 1. Student S1's drawing of the problem posed in PVM_1

Answers from student S1

I*: Have you witnessed or seen any situation like the one described in the problem?*
S*: Eh... the truth is that once, when I went with my flights and we were trying to take the horses with my grandparents, I left one yellow, I think it is the only time I saw something similar happen.*
I*: What are the characters or objects mentioned in the problem?*
S*: A horse is mentioned, a lasso, what else? what else? a bar that measures 2m by 4m.*
I*: Did any words cause confusion for you when reading?*
S: *Yes, the word shackle, I don't know what a shackle is.*
I*: Regarding your drawing, why do you think it is correct?*
S*: I think it is not because I only tried to do what I understood.*

DNC category. In this category, the representations do not have all the elements described in the word problem and lack the dimensions specified in the problem as well. Five students were placed in this category. You can see drawings like the following in this category.

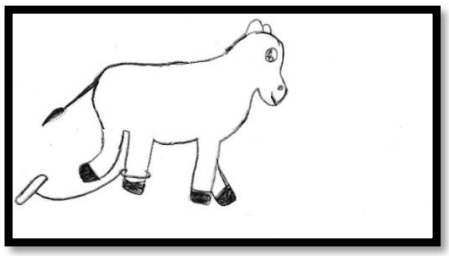

Figure 2. Student S3's drawing of the problem posed in PVM_1

Answers from student S3

I: *Have you witnessed or seen any situation like the one described in the problem?*
S: *No*
I: *What are the characters or objects mentioned in the problem?*
S: *A horse, a 2-meter lasso, and a horseshoe are mentioned.*
I: *Did any words cause confusion for you when reading?*
S: *A shackle.*
I: *Regarding your drawing, why do you think it is correct?*
S: *Well, for the horse, because there is no other way to saddle a horse, and for the horseshoe, well, I believe it is a tool to keep it from leaving.*

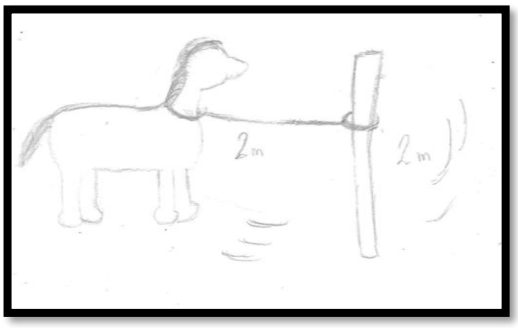

Figure 3. Student S2's drawing of the problem posed in PVM_1

Answers from student S2

I: *Have you witnessed or seen any situation like the one described in the problem?*
S: *No, I only have cats at home, and I don't tie them up.*
I: *What are the characters or objects mentioned in the problem?*
S: *The character is the horse, and the objects are the bar and the shackle.*
I: *Did any words cause confusion for you when reading?*
S: *Yes, the word shackle.*
E: *Regarding your drawing, why do you think it is correct?*
S: *Yes, because I based it on what the problem says.*

In this first problem, it was found that only one student came closest to what was described in the problem, and five students managed to draw the situation described in the problem, but they lacked some elements or the dimensions described in the problem, which in the case of Student S1, who is the one who manages to get closest to the situation of the problem, he could achieve it because he experienced something similar to what he mentions in the problem. It is important to emphasize that cultural context is an important factor so that students can understand the mathematical word problem.

For the $\boldsymbol{PVM_2}$, shown in Table 1, it was analyzed with the same categories of the $\boldsymbol{PVM_2}$and the results obtained were as follows.

DC Category. In this category were placed those drawings that have all the elements and data of the problem correctly located. An example of this type of drawing would be the following.

Figure 4. Student S2's drawing of the problem posed in PVM_2

I: *Have you witnessed or seen any situation like the one described in the problem?*
S: *Yes, on television.*
I: *What are the characters or objects that are mentioned in the problem?*
S: *The characters are Fernando and Luis, and the objects would be the parachute.*
I: *Did any words cause confusion for you when reading?*
S: *No word confused me.*
I: *Regarding your drawing, why do you think it is correct?*
S: *Yes, because it represents what the problem says.*

DNC category. In this category, the representations do not contain all the elements described in the word problem and lack the dimensions specified in the problem. Five students were placed in this category. An example of the above can be seen in Figure 5.

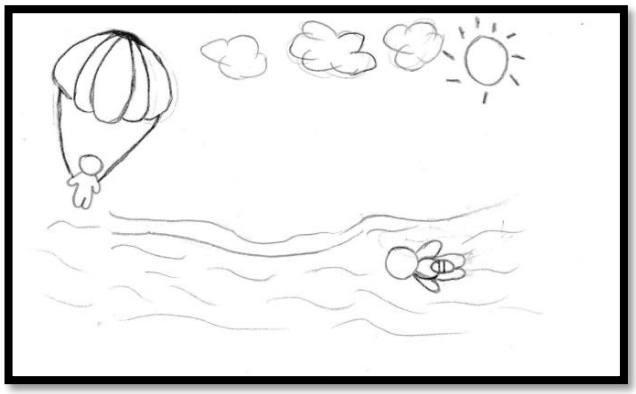

Figure 5. Student S3's drawing of the problem posed in PVM_2

I: *Have you witnessed or seen any situation like the one described in the problem?*
S: *No. But I do know that diving and getting on it are similar.*
I: *What are the characters or objects mentioned in the problem?*
S: *One person parachuting and one person diving*
I: *Did any words cause confusion for you when reading?*
S: *Not that I remember.*
I: *Regarding your drawing, why do you think it is correct?*
S: *Because of the drawn waves, the parachute, and I wanted to give the details of the clouds and the Sun.*

In this second problem, by presenting clearer, unambiguous language with a more familiar context to students, misinterpretations were minimized, and comprehension was improved. In this way, five students managed to successfully understand and draw the situation described in the problem and only one student managed to draw the situations described in the problem, but with some shortcomings such as those shown in Figure 5, where there is no linearity. between the person who is diving and the person who is in the parachute.

Conclusion

The results of this study reflect a strong relationship between textual understanding and cultural context. When students have experienced or have observed a similar situation, they are able to build a mental image with fewer errors and thus improve understanding.

Likewise, when they read and do not understand complete words or sentences, they construct a situation lacking elements present in the text presented to them, which generates confusion and doubts when constructing the mental scheme.

It is evident that difficulties in textual understanding of verbal mathematical problems cannot be attributed solely to students' mathematical abilities. In fact, a

lack of familiarity with the context posed in the problem and comprehension skills plays a relevant role in how a student approaches and interprets a problem.

Furthermore, the way students approach word problems is deeply personal and influenced by their previous educational and cultural experiences. This conclusion reinforces the importance of student-centered pedagogy, which seeks to nurture critical thinking and understanding skills beyond simple memorization of formulas or procedures.

Recommendations

Based on the findings and conclusions in this research, the following recommendations are presented to address the difficulties inherent in understanding mathematical word problems.

1. ***Clear Problems.*** When creating or using word problems, it is crucial to ensure that the language used is clear and free of ambiguity. This clarity can minimize misinterpretations and improve accuracy in understanding.
2. ***Promotion of Meta-Cognitive Strategies***. Promote students' ability to reflect on their thinking process. Encourage them to ask questions such as: "What do I understand about the problem?", "Am I interpreting the information correctly?", or "Does my answer make sense in the context of the problem?"
3. ***Culturally Relevant Approach***. Word problems should be contextually relevant to students. Using situations and scenarios that students recognize in their daily lives can improve their connection to and understanding of the problem.
4. ***Collaborative Interaction***. Stimulate group work and discussion among peers. Encouraging students to share and debate their interpretations of a problem can help clarify doubts and diversify understanding strategies.
5. ***Constructive***. When correcting errors, it is essential to not only point out the error but also guide the student through the process of identifying where and how the misinterpretation occurred.

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BRIDGING THE GAP: EFFORTS TO MINIMIZE EDUCATION GAPS THROUGH INCLUSIVE EDUCATION IN RURAL AREAS

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Abstract
This study intends to explore the efforts to minimize the education gap between urban and rural areas through the implementation of inclusive education. This research uses qualitative methods with an oncoming literature study which is carried out to gain information from various literature sources that are relevant to the issue of inclusive education and educational disparity. The results show that inclusive education has the potential to address existing educational disparities between urban and rural areas. Inclusive education, by prioritizing the accessibility and participation of students with diverse backgrounds and needs, is an approach that promotes equity in education. Collaboration of various stakeholders such as the government, educational institutions, and local communities is important to support the implementation of inclusive education and overcome obstacles faced by students in rural areas. This research offers a foundation for policy recommendations and obvious actions to optimize the implementation of inclusive education as a concrete effort to bridge the education gap.

Keywords: disparity, education, inclusive, rural, urban

Introduction

Disparity of access to education is still a significant challenge in the realm of Indonesian education to date. This gap manifests across multiple dimensions including socioeconomic background, geographic location, gender, ethnicity, and ability. Individuals coming from economically disadvantaged backgrounds often face barriers in obtaining quality education as financial constraints impact their access to adequate educational resources. With financial limitations, a person is also limited in choosing educational institutions and prefers schools at affordable prices even though they are not the best choice (Anwar, 2022).

Rural and remote areas face different challenges, The educational infrastructure in this region is sometimes only limited to dreams from pictures in textbooks. Majestic school buildings, modern laboratories, or digital libraries are still out-of-reach things. Not infrequently, internet access becomes a rare commodity. Education in rural areas needs to get special attention to detect the gaps

that exist compared to urban areas. Gaps that include accessibility, quality, and equality in education. Rural areas often face challenges of limited infrastructure, accessibility to adequate educational facilities, and availability of qualified teachers. These factors contribute to low participation rates, inadequate quality of learning, and high dropout rates in rural areas (Arnawan, 2016).

Investing resources and special attention to education in rural areas is essential. It is necessary to develop adequate educational infrastructure, teacher training in accordance with regional needs, and provision of sufficient educational resources. In addition, providing incentives for educators working in rural areas can help attract and retain qualified educators.

A holistic and inclusive approach is needed to minimize education gaps. Encouraging local community participation, involving parents in the education process, and understanding the local cultural context are important steps. The active involvement of the government, educational institutions, community organizations, and the private sector is also key to improving education in rural areas. By focusing on equitable access, improving quality, and ensuring equal opportunities, education in rural areas can be a motor of change that brings progress and equality and reduces disparity with urban areas.

Inclusive education in rural areas is a lofty idea that leads to an education system where no child is marginalized (Mahmud et al., 2023, p. 4). In rural areas with accessibility challenges and limited resources, inclusive education affirms that every child, regardless of origin, has the same right to quality education. It is about opening up opportunities for all students, including those with special needs. Promoting inclusive education in rural areas aims to ensure that rural children get justice with full access to quality education.

Justice is not a new thing in human life, it has undergone a very wide development in its history and has been widely discussed in various fields of discourse, theory, and practice. Justice has its paradigm and adapts to the needs of the theory to transform the form of justice. Community development discourses and practices can broaden different perspectives on justice. John Rawls is a phenomenal justice figure and thinker through his work "Theory of Justice". John Rawls' theory of justice focuses on the issue of how justice can be distributed in society fairly, through mutually agreed mechanisms regardless of social status (Amadi, 2012). With regard to inclusive education in rural areas, this theory can be a very relevant foundation to ensure that every child, especially those living in rural areas, has a fair and equal opportunity to get a quality education. Applying Rawls' theory in this context means ensuring that education policy considers the needs and conditions of children in rural areas without discrimination.

This study aims to analyze real efforts that can be made to minimize education gaps in rural and urban areas. Discuss how to create equal opportunities for learning for children and young people in remote villages so that no one is left behind, especially in this often-forgotten region. It is hoped that this research can open discourse to create inclusive education that embraces diversity and empowers every child with the knowledge and skills they need. With inclusive education, every child from various backgrounds and conditions is allowed to achieve their dreams.

Research with similar themes has been carried out but this study certainly has differences from previous studies, among the studies that can be correlated with this study is "Investigating Education Disparity in Urban and Rural Communities

Between Kota Baru and Banyusari Districts in Karawang Regency" which compares the condition of education in urban and rural areas reveals that the factor of education disparity in rural areas is the lack of emphasis on the community the importance of education and scholarship programs as well as relatively low rural literacy rates (Gumilar & Ningsih, 2022). "Rural and Urban Education Gaps" reveal the Education gaps that exist in cities and villages. Education in cities is more advanced, supported by adequate facilities and qualified teaching staff, while in rural areas, teachers tend to be less interested in a career in the village because of the lack of access to transportation and poor school facilities are serious factors that must be found solutions. The Bachelor of Education in the Regions (SM3T) Program is a concrete step by the government in efforts to equalize education in rural areas (Vito & Krisnani, 2015). "Villages and Cities in the Portrait of Education" states that education should be a priority for all Indonesians, but education in villages is a luxury that is difficult to obtain. The high cost of education to unaffordable access for rural communities is a serious problem faced. The government through the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System is responsible for providing quality education that is affordable or even free for the community (Anas et al., 2015). This research will focus more on bridging the education gap that exists in urban and rural areas, formulating concrete efforts to minimize existing gaps through inclusive education in rural areas, and providing recommendations for various stakeholders to maximize their role in advancing education in rural areas.

Method

The method in this study uses qualitative methods with a literature study approach (Adlini, 2022). Literature study is a research approach that focuses on collecting data from various literature sources that are relevant and related to the research topic, to analyze, synthesize, and present existing information. The first step in the literature study method is the identification and selection of literature sources relevant to the research topic. These literature sources can be scientific journals, books, articles, theses, and official publications related to inclusive education and education gaps in rural areas.

After the literature sources are identified, a reading and analysis of the content of each literature source is carried out. Information relevant to the research objectives is extracted and compiled systematically. Furthermore, the information is synthesized to form a comprehensive understanding of efforts to minimize education disparities through inclusive education in rural areas.

This research uses a literature study approach because it wants to build a strong and thorough theoretical foundation based on pre-existing findings and thoughts in the literature. This approach is considered appropriate to understand the efforts that have been made in minimizing education disparities through inclusive education in rural areas, to make a valuable contribution in the context of inclusive education, and to motivate further research in this area.

Findings and Discussion

Problems of education in rural areas

Education in rural areas certainly has its problems that are different from those in urban areas, by understanding the social conditions of the community and the problems they face in rural areas will provide an overview to formulate solutions by considering various aspects so that the resulting solutions can be in harmony with the situation or context in the village and run optimally.

The education of children in rural areas is often hindered by economic limitations or income from parents. Many of them experience financial difficulties that have an impact on the fulfilment of their children's education, thus students in rural areas experience difficulties in the accessibility and quality of education (Falah & Hadna, 2022). Educational expenses such as monthly tuition fees, textbooks, uniforms, and stationery can be a heavy burden for families with limited income. Some parents may be forced to choose between meeting the basic needs of the family or paying for their children's education. As a result, children from low-income families in rural areas have a high potential to drop out of school or even never attend formal school by choosing to work to help the family economy. Such conditions create gaps in access to education stemming from the internal conditions of children in rural areas.

In performing the quality education process, it is necessary to pay attention to aspects of infrastructure. Education in rural areas is often hampered by limited infrastructure such as the lack of schools, classrooms that do not meet standards, libraries, laboratories, and sports facilities that are far from feasible. This problem makes it difficult for children in rural areas to access quality education, good schools with adequate infrastructure may be too far away and difficult to reach for those who live in remote areas (Firdaus et al., 2018). Safe and comfortable transportation is very important for them if they have to pass through the shelter area or river. In addition, lack of access to technology and the internet is an obstacle to education in villages because digital resources are needed in today's modern era (Rismayani et al., 2021).

Another challenge that hinders education in rural areas is the inadequate quality of educators available. In rural areas, it is often difficult to attract and retain qualified educators to teach there. Many teachers are reluctant to teach in villages due to limited facilities and infrastructure which results in a lack of adequate and qualified teachers in rural schools. So that the teaching and learning process in the village can be affected. Moreover, teachers who dedicate themselves to rural areas have to face additional challenges such as lack of access to the training and professional development needed to improve the quality of their teaching (Elvira, 2021).

Population migration patterns also influence education in rural areas. Many villagers, especially the younger generation, tend to migrate to urban areas in search of job opportunities and better access to education (Widiawaty, 2019). This has an impact on decreasing the number of students in rural areas and can disrupt the sustainability of education there. This migration can also result in the loss of potential quality human resources in the village because many of the potential talents in the village who migrate and succeed in the city never return from overseas to develop education in their village.

The importance of inclusive education in rural areas

The Liberty Principle formulated by John Rawls states that every individual should have equal rights to the broadest system of fundamental freedoms and be acceptable to all. This underscores the importance of ensuring that every member of society has equal access to fundamental freedoms, one of which is education. This principle explains that individual freedom is an inviolable foundation in a just society, social structures must be designed to ensure that freedom of access to education must be felt by everyone, without exception (Soleh, 2004).

Inclusive education is an act to ensure that every member of society has an equal opportunity to receive quality education, without discriminating between children with special needs and children in general. The purpose is that all children can access proper and quality education to prepare for future life (Darma & Rusyidi, 2015). Inclusive education in rural areas is an educational approach that focuses on the full involvement and participation of every member of the village community in the Education process. This approach promotes the spirit of equality, diversity, and acceptance of individual differences.

In rural contexts, inclusive education encourages all children to have the right to adequate quality education regardless of their social background, abilities, or deficiencies. Inclusive education in rural areas also takes into account the unique characteristics of the village environment and the understanding of educational needs that are certainly different from urban areas as well as adjustments to cultural values and local norms. With full involvement and support between teachers, parents, and the community, it is hoped that it can provide an understanding of the importance of education, and create a conducive environment for learning to realize equitable, fair, and meaningful education for every member of society (Gutama & Widiyahseno, 2020).

Inclusive education becomes especially important when discussing affordability and better accessibility, especially in rural settings. In many cases, rural areas tend to experience limited access to quality education. By ensuring that every child has equal opportunities to receive education, inclusiveness brings great hope to addressing the disparity between rural and urban areas.

By extending access spaces and designing inclusive education systems, children in rural areas not only have the opportunity to learn but also to grow and develop according to their unique potential. This is a progressive step leading to broader social change and better educational justice for all children.

Strategies to improve inclusive education in rural areas

In improving inclusive education in rural areas, the first thing to do is to identify and evaluate needs. This process requires an in-depth assessment to understand the challenges and needs faced by children in rural areas with their diverse backgrounds. By recording and analyzing the needs of education, facilities, and social support needed, especially for children who have limited access. It is also important to understand the social, cultural, and economic context of rural communities that can affect inclusive education. The data obtained from this identification and evaluation will form the basis for designing appropriate and effective inclusive education programs, and assist in the appropriate allocation of resources to meet the diverse educational needs of rural areas (Ardea, 2023).

Developing a learning plan that is accessible to all children is a key step in developing inclusive education in rural areas. Learning plans should take into account the different needs of each child, including children with special needs, and ensure that each child can access the curriculum and learn in a way that suits their abilities and needs (Ariastuti & Herawati, 2016). This can be achieved by adapting teaching methods, content, and assessment to ensure that all children can be effectively involved in the learning process. Teachers should be given training to equip them with the knowledge and strategies needed to teach students, including inclusive teaching strategies, good classroom management, and utilization of educator technology so that teachers have a deep understanding of the unique needs of each of their students and can devise plans appropriate to their skill level and interests (Rahim, 2016).

In addition to teachers, parents who are guardians of students need to be empowered so that inclusive education can be optimal. Parents have a central role in supporting the educational development of their children. In rural contexts, they are often the backbone of informal education and the first to interact with their children's educational process. Therefore, empowering them with knowledge, understanding, and active involvement in the educational process can have a great impact (Atnawi, 2019).

Effective inclusive education requires significant parental involvement. By coaching on the importance of inclusive education they can support children and participate in educational decision-making. Parents should also be involved in identifying their children's needs and planning solutions accordingly. So, a collaboration between school and family is very important (Esmeralda & Kristiana, 2018). A successful inclusive education program in rural areas must build bridges of communication between schools and parents. By empowering parents, they can be effective partners in ensuring meaningful, inclusive education for children in rural areas.

The supporting aspects of education also include infrastructure. Therefore, improving physical accessibility in rural areas must be considered to ensure that educational facilities and infrastructure can be easily accessed by all children. Repair and renovation of school buildings to the procurement of other educational facilities in the village are needed so that every child, including those who come from families with economic limitations, can comfortably and freely access education. Increased physical accessibility also creates an inclusive environment that allows for optimal academic growth for all children. Therefore, the role of the government is needed to provide equal access to education in rural and urban areas according to their needs. Designing a more physically inclusive educational environment can open opportunities for every child to maximize their potential in the world of Education (Noor, 2023).

Ultimately, improving inclusive education in rural areas is a journey toward equal and meaningful access to education for every individual. Promoting physical accessibility, empowering parents, developing inclusive learning plans, and building close partnerships with communities are some of the strategic pillars that must be well integrated. All these steps should be summarized in a comprehensive plan, in which appropriate policies and efficient resource management play a major role.

Patterns of cooperation and stakeholder involvement

Inclusive education in rural areas can only be realized with the collaboration of various parties. Two important elements can be used as a foundation for developing inclusive education in rural areas, namely the group dynamics of Kurt Lewin's theory (Susetyo, 2021, p. 14) and Wilbert More's social change theory (Goa, 2017). Group dynamics refers to the interactions and processes that occur among group members who have a common interest in achieving inclusive education. Group dynamics includes how to form social structures and establish communication between one party and another. In rural environments, group dynamics influence how collaboration and interaction between individuals and groups can shape inclusive and mutually supportive educational environments.

Meanwhile, social change refers to the transformation of values and norms in society. Inclusive education requires a change in people's perceptions, attitudes, and actions towards inclusive education for children. Factors such as innovation in inclusive teaching methods, dissemination of information on the benefits of inclusive education, and the role of technology can drive social change that supports inclusive education in rural areas. Understanding group dynamics and social change is an important aspect of building a sustainable, inclusive education system in rural areas.

Successful inclusive education in rural areas is a reflection of collaboration between government stakeholders, educational institutions, and local communities. Inclusion is not just about ensuring access, it's also about empowering individuals to reach their maximum potential without any restrictions. All children should have equal opportunities to obtain quality and relevant education.

Government involvement has a very important role in developing inclusive education in rural areas. As a regulator and policy provider, the government can make policies in the education sector that ensure all future generations of the nation get fair and equitable access to education. Through its authority, the government can allocate sufficient funds and resources to build inclusive education infrastructure in rural areas. This includes building schools that are accessible to all students, training teachers to understand and implement inclusive methods, and providing facilities and teaching materials that suit the needs of diverse students (Astawa, 2017).

The importance of government involvement also lies in its role in increasing public awareness of the importance of inclusive education. By counseling the importance of education, the government can build a better comprehension of inclusion, get rid of stigma, and guide communities in supporting the implementation of inclusive education in rural areas.

Educational Institutions are the main foundation for developing inclusive education in rural areas, so the involvement of Educational Institutions is absolute. Educational institutions, as the spearhead of the education system, must play an active role in shaping an inclusive and welcoming learning environment for all students. Educational institutions can develop inclusive education policies and programs that suit the needs of students in rural areas.

Educational institutions can comprehend the characteristics and challenges faced by rural students. With this comprehension, they can build effective strategies to ensure that all students can keep up with education well. Educational institutions also have a crucial role in preparing and training teaching staff to implement an

inclusive approach. The training includes an in-depth understanding of the needs of diverse students and appropriate teaching methods. By preparing teachers to teach inclusively, educational institutions make a major contribution to the quality of education and the well-being of all rural communities (Nurmalasari, 2020).

Inclusive education is not only the responsibility of educational institutions or governments but also a shared responsibility of all members of society. Local communities have in-depth knowledge of the needs and potential of every child in rural areas. The involvement of local communities enables the development of inclusive education that is appropriate to the local context and can address education problems in villages more effectively.

Local community leaders can play an active role in promoting a culture of inclusion around them by increasing public awareness and knowledge about inclusive education. Communities can also play a role in monitoring and advocacy by monitoring and evaluating inclusive education policies and programs implemented in their areas and providing valuable feedback to educational institutions and governments. They can also be advocates for positive change in making inclusive education programs in rural areas a priority and getting sufficient support from various parties (Normina, 2016).

Collaboration with various stakeholders is the key to realizing inclusive education in rural areas and at the same time reducing education disparity. Inclusive education cannot be achieved effectively without the involvement of all parties. Close collaboration allows the sharing of knowledge, resources, and expertise from various stakeholders (Pitri, 2016). Educational institutions can provide insight into the challenges and opportunities they face in implementing inclusive education in rural settings. The government can play a role in developing policies that support inclusive education and allocate adequate budgets. While local people have in-depth knowledge of the special needs and characteristics of children in their environment.

By promoting close and sustainable collaboration, inclusive education can become a better reality in rural areas. This will lead to a reduction in educational disparity, creating a more equitable and equal education system for all children, regardless of their background or condition.

Conclusion

Educational disparity between urban and rural areas is a serious problem that requires special attention. Efforts to develop inclusive education in rural areas and encourage collaboration among different parties are key to overcoming this disparity. Inclusive education focuses on ensuring that every student, especially in rural areas who often experience limited access and resources, has an equal opportunity to receive quality education.

Collaboration with various parties including governments, educational institutions, and local communities allows integration of resources and knowledge to design appropriate and effective solutions. By prioritizing the development of inclusive education in rural areas and working together to overcome these barriers, we can reduce longstanding education disparity. Equitable and equitable inclusive education is the key to unlocking opportunities and maximizing the potential of all future generations in rural areas and ensuring that they can contribute maximally to the progress of the nation and achieve equality in access to education and learning.

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EXPLORING THE CONTRIBUTION OF MASTER'S ENGLISH LANGUAGE EDUCATION PROGRAM ON TEACHER PROFESSIONAL LEARNING

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Abstract
Teacher professional learning (TPL) has been considered a significant need to strengthen teachers' professional growth, which in turn fosters high-quality teaching and enhances students' learning experiences. It has become a prominent interest in education around the globe, including in Indonesia. However, little is known about the contribution of a university program, especially a Master's program, towards TPL in the Indonesian context. This study aims to investigate the contribution of the Master's English Language Education (MELE) Program towards TPL on graduate students who have become teachers at once. The data were collected from graduate students of the program. A focus group was conducted with nine representatives of two classes that were categorized into two different groups. Constant comparison analysis was used as the data analysis method. The findings revealed three important themes namely applying knowledge into practice; transforming teaching through teachers' self-inquiry; and improving knowledge, skills, and attitudes toward academic publication. The paper also presents the empirical evidence that takes place during the program and how it contributes to their professionalism.

Keywords: professional development, teacher education, teacher professional learning

Introduction
Teacher professional learning (TPL) has been given prominent attention over the years (Akiba & Liang, 2016; Ping et al., 2021; Popp & Goldman, 2016; Tam, 2015). In TPL, teachers are engaged in continuous professional learning activities that are crucial for the improvement of knowledge, beliefs, and instructional practices (Akiba, 2012). The process requires teachers to undergo effective activities such as working together with others and critically evaluating their teaching practices in an ongoing, timely, reflective, collaborative, and intensive environment (Mostafa, 2021). It is expected to result in positive changes for both teachers and students. In this idea, teachers do not simply improve the quality of their teaching skills but focus on making significant contributions to student

learning (Stoll & Louis, 2007). Therefore, TPL has been considered a significant need to strengthen teachers' professional growth, which in turn fosters high-quality teaching and enhances students' learning experiences.

Since TPL is essential to promote teachers' development and contribute to effective collective practices with a high degree of professionalism (Boeskens et al., 2020), many experts have published empirical works to assist teachers with the process. Literature shows that TPL can be conducted through two different approaches: formal and informal (Mostafa, 2021). In formal learning, teachers are involved in courses, seminars, workshops, etc. Meanwhile, self-study without monitored outcomes, peer exchange, and collaboration are some instances that tend to be less formal and take place in teachers' workplaces (Boeskens et al., 2020). Although they seem to be different, they have the same crucial elements to be attained including (a) teachers as the recipient and providers of TPL, (b) schools, and (c) systems that can shape teachers' professionalism through formal involvement (Boeskens et al., 2020). TPL then can be facilitated not only through their role as a teacher and involvement in the school environment but also through the system that can shape them with professionalism. Hence, TPL is likely to be actualized through many activities by considering all the elements to be fulfilled.
The significance of TPL has been increasingly growing, proven by numerous previous studies. Research on TPL, professional learning activities, and professional learning communities (PLCs), e.g., professional development programs, teacher collaborations, university courses, professional conferences, and individual learning activities have been previously undertaken. They were directed at different contexts such as centering around teacher educators in the Netherlands and China (Kwakman, 2003; Ping et al., 2021; Tam, 2015) and English language arts in America (Popp & Goldman, 2016). They mainly focused on investigating the TPL of elementary, secondary, and higher education teachers.

In the Indonesian context, TPL has been gaining recognition. As per government decree No. 62/2013, teachers are required to obtain professional certification through teacher professional training and education (known as PPG [*Program Pendidikan Profesi Guru*]) provided by the Indonesian government to improve their teaching quality (Permendikbud, 2013). However, several researchers (e.g., Komariah et al., 2019; Kuswandono, 2013; Trilaksono et al., 2019) have investigated TPL as part of teacher professional development (TPD), proving that teachers' professionalism can be improved in many other ways. Literature indicates that TPL through pre-service teachers' reflection and online training has been conducted (e.g., (Bamrungsin & Khampirat, 2022; Kuswandono, 2013). Moreover, a study of PLC, a new term that is argued to replace TPD, has been conducted in high schools in Eastern Indonesia (Trilaksono et al., 2019) to explore the most effective PLCs by school principals and teachers. In addition to PLCs, academic supervision as part of the activity was also conducted to improve teachers' performance (Komariah et al., 2019). The existing evidence suggests that TPL has become a prominent interest in Indonesian education. However, it signifies that little is known about the contribution of a university program, especially a Master's program, towards TPL in the Indonesian context.

For these reasons, this study aims to investigate the contribution of the Master's English Language Education (MELE) Program towards TPL to graduate students who have had dual roles both as teachers and students at the same time.

Thus, it attempts to answer the following question: In what ways does the MELE program contribute to the TPL? This study aims to contribute to this growing area of research by exploring the empirical evidence that takes place throughout the program and how it contributes to teachers' professionalism. The term TPL in this study refers to some main categories of professional learning frameworks proposed by Ping et al. (2021). The present study used the adapted version in which the order was reorganized to help answer the research question more logically. They include three main focuses namely (1) 'reason' referring to the intention of being involved in the program, e.g., personal ambition, professional role transition, and external requirements; (2) 'content' referring to what teachers have been learning, e.g., knowledge base, professional identity, research and reflection; and (3) 'activities' indicating the projects, tasks, and other activities to be completed.

Method

Research design

This study was qualitative in nature, with a focus group approach. A focus group is used to gain an understanding of a group of people's experiences, meanings, attitudes, opinions, knowledge, and/or beliefs of the issues under question (McLafferty, 2004). Thus, a focus group in this study was intended to generate more elaborative explanations from a particular group of people who experience a similar process.

Participants and sampling

The data were collected from graduate students of the MELE program at a state university in the Special Territory of Yogyakarta, class of 2021. This batch was selected because the students were currently undergoing the second semester of their study when this research was conducted. The first two semesters were the important period when most of the theoretical and practical courses were given. In the program, there were three different classes with a population of around 90 students. However, only 9 students (10%) were selected as the sample. The selection criteria were based on two underlying reasons: (1) convenience sampling because they happened to be available and accessible at that time (Cohen et al., 2018), and (2) dual roles status both as a student and a teacher. The time constraint was also the underlying factor for selecting the sample. To avoid confusion, the participants are referred to as 'teachers' for the rest of the sections.

After having been selected, they were divided into two mini focus groups, each consisting of 4 members, that were categorized based on their classes (class B and C). Unfortunately, those from class A could not be interviewed because most of them had resigned and focused on being full-time students. The groups are referred to as Group 1 and Group 2 (see Table 1).

Table 1. Sample distribution of participating teachers

Group	Name (Pseudonym)	Teaching Experience	
1	Ms. Andita	Non-formal education (NFE)	1 year
	Ms. Ilsa	Junior secondary school (JSS)	3 years
	Ms. Dian	NFE	8 years
	Mr. Dendra	JSS	1 year
2	Ms. Indri	JSS (*Madrasah Tsanawiyah*)	3 years

Group	Name (Pseudonym)	Teaching Experience	
	Ms. Elsa	Higher education	2 years
	Ms. Rara	SHS	4 years
	Mr. Majid	JSS	2 years

Furthermore, McLafferty (2004) asserted that focus groups do not always require a large number of participants, but can also be in the range of four to six participants. Focus groups can also be used when the topic needs to be explored in greater depth and when participants have long and substantial experiences to share with the group (Dilshad & Latif, 2013). In this study, they had both similar and different characteristics. Their status as teachers and students showed the homogenous characteristics of the group. Meanwhile, they were heterogeneous in terms of the level of education they were teaching, and the years of teaching experience they had. The heterogeneity allows the teachers to produce rich information, while their homogeneity facilitates rapport among them (McLafferty, 2004).

Data collection

Before collecting the data, a consent form was given to the teachers. It consisted of the consent form and background information related to their age, education history, and teaching experience. It is important to dig deeper and know the participants before getting involved in the study. It is also useful for the interpretation of the findings that might be influenced by the teachers' background. The primary data were collected from focus groups. This technique is designed to solicit information, perceptions, and attitudes from the participants who possess similar experiences of the phenomena under the study (Kelly, 2003). It was a guided interview because the first researcher acted as the facilitator. The facilitator is recommended to know the participants to build better rapport so the discussion can be more enjoyable and fluid (Kelly, 2003). The questions were adapted from the quantitative instruments by Ping et al. (2021) that were reconstructed into qualitative questions.

To validate the instruments, a pilot focus group was conducted using a convenience sample of two graduate students of the program who used to teach English and two English teachers in the field. The purpose was to test the consent form and the focus-group guides as well as to evaluate the quality of the questions and the length of time required to obtain meaningful information (McLafferty, 2004). The results indicated the following refinement. Since the consent form used Google Forms to collect the data, questions that required answers in the form of 'date' were changed into the format of the short essay answer to make it more accessible to different devices. Moreover, the questions regarding education history were revised by including the terms 'graduate' and 'undergraduate' to articulate the clarity of the questions.

As for the focus-group guides, there were initially seven questions comprising: one question about the reason, two questions to explore the content, and four questions regarding the activities of TPL. However, one question from the content and activity overlapped. Thus, they were simplified into one question and given at the end of the interview as the closing remark. Likewise, since the research focused on the MELE program, concrete examples such as the names of courses, webinars, workshops, etc. had to be mentioned before the beginning of the

questions, especially for the questions related to content and activity. Overall, the focus group required at least a 1-hour duration to obtain meaningful information.

Data analysis techniques

The focus groups were transcribed and analyzed using a constant comparison analysis (CCA). CCA was initially proposed by Glaser and Strauss in 1967 to generate a theory in the grounded study. Nonetheless, it can recently be utilized to generate a set of themes. CCA was used because there was more than one focus group analyzed in this study. It aims to gain saturation from data in general and across groups in particular (Leech & Onwuegbuzie, 2008). The procedures included three major steps (a) open coding to break the data into smaller chunks; (b) axial coding to group the codes into similar categories, and (c) selective coding to develop one or more themes that represent the content of each group. In these manners, the coding process was triangulated through three different categorizations.

Findings and Discussion

As data were analyzed and themes were identified, the variability of responses to the research question stood out. As a result, three major themes emerged, depicting the contributions of MELE to TPL. Initially, 135 codes, that emerged from the open coding analysis, were derived from the two focus groups. Then, in the axial coding, 6 themes were constructed with the reduction in the number of the codes, 59 in total. Finally, three major themes, as the umbrella representing both data, were constructed. They were (1) applying knowledge into practice, (2) transforming teaching through teachers' self-inquiry, and (3) improving knowledge, skills, and attitudes toward academic publication (see Table 2 for more details).

Table 2. The contributions of MELE to TPL

Themes	Codes
Applying knowledge to practice	Developing assessment tasks/test items based on the principle of Bloom's Taxonomy
	Developing syllabi and learning materials that reflect students, language, and institution needs and 21st-century demands
Transforming teaching through teachers' self-inquiry	Deepening knowledge through various workshops that are based on needs and cases
	Reading books or journal articles as additional references
	Utilizing social media for innovative teaching e.g., YouTube, Facebook, WhatsApp, Instagram, and the internet
	Joining organization for teachers' association
Improving knowledge, skills, and attitudes towards academic publication	Deepening knowledge and skills in scientific writing through scientific writing and publication workshops

Applying knowledge to practice

The first theme indicated that the knowledge gained during the study could be applied to their pedagogical practices. There was no doubt that all courses offered had benefits for academic and professional development. However, some of them had a direct positive impact on the process of teaching, especially the courses covering the issues of syllabus and materials development as well as English language assessment. The details will be more elucidated in the following paragraphs along with some focus-group excerpts.

It was found that three courses benefited the teachers the most. Two of them were closely related to the syllabus and materials development, called English Language Teaching and Technology (ELTT) and English Curriculum and Materials Development (ECAMD). The findings signified apparent reasons for this. For non-formal and private higher education institutions, many aspects from syllabi to learning materials were to be developed by either the teachers, curriculum developers, or both based on different needs. On the other hand, it is known that for formal state education, e.g., junior and senior high schools, many aspects have been regulated by the Ministry of Education and Culture, such as through graduate competence standards (No. 20/2016), content standards (No. 21/2016), process standards (No. 22/2016), and core and basic competence standards (No. 37/2018); Yet, teachers are still required to develop lesson plans accordingly (No. 14/2019). Although some e-books have been provided, the decision to select additional textbooks is also further regulated (No. 8/2016) (Permendikbud, 2013, 2016a, 2016b, 2016c, 2018, 2019). Because of these needs, they must be equipped with the basic knowledge and skills to fulfill their duty.

> Excerpt 1
> *What I found useful was Study Pack… I didn't know about CEFR, but I do now. It slightly opens up my perspective*. -Mr. Majid
> Excerpt 2
> *I'm more into ELTT, the one with ICT integration. It's in semester 1, isn't it? As we're currently in the 21st-century era, I can directly implement the materials (with ICT) to the students. I had learned about the CEFR principles from the lecturer before developing the materials. I also had to be creative so the students wouldn't feel bored.* -Ms. Ilsa
> Excerpt 3
> *There was a new extracurricular activity at my school that didn't exist before. The school gave me and my colleague a mandate to teach there, so we had to make a new syllabus …. I believe sooner or later, the materials from ECAMD (need analysis and syllabus design) will be useful for my professional work.* -Ms. Indri

Further, ELTT and ECAMD courses have contributed to deepening their understanding of basic knowledge of developing syllabi and learning materials. Excerpts 1 and 2 showed that the teachers were facilitated with the ability to develop lesson plans focusing on different language skills along with a study pack (learning materials). In addition to the study pack, after the teachers had learned that the materials should be designed by considering the learning objectives, they also eventually realized that they had to follow the Common European Framework of Reference (CEFR) which is an international standard for describing language ability (Council of Europe, 2022). It means that the student's language proficiency

level was another indicator to be taken into account. Since ELTT focused on technology, ICT integration was another equally important point to consider, especially to conform with the 21st-century demands. In excerpt 3, they were equipped with the skills of a more complex process such as developing a syllabus for one particular program, designing lesson plans for one semester, and developing language materials appropriately. The skills were useful because they were used in the development of curricular activities at the participant's school. It can be seen that these courses are interrelated and allow teachers to see the connection between the skills they have learned and real-life teaching purposes.

The second issue that was frequently encountered concentrated on the assessment process. It is in line with a previous study reporting that assessment tends to be neglected because it is the last part of educational practices that seem to be insignificant (Fulcher, 2012). Meanwhile, in reality, students' progress and achievement, learning objectives, and program evaluation cannot be measured without appropriate assessment instruments (Brown & Abeywickrama, 2018). Excerpts 4 and 5 showed that the challenges were indeed evident. Teachers were required to develop appropriate test items for mid and final exam purposes based on the demands of their institutions. Thus, the course of Language Assessment brought to light the skills to properly select valid and credible assessment instruments as well as to design and develop appropriate ones. The highlighted principle that they could practically implement was the development and organization of the test items from easy to difficult, following Bloom's Taxonomy principles.

> Excerpt 4
> *The useful one was Language Assessment, such as how to arrange test items from the easiest to the most difficult ones.*
> *I usually made my test items for mid-semester exams, so it must be arranged based on that principle.* -Mr. Dendra
> Excerpt 5
> *(It's) the assessment part because I was given a project in my workplace to develop mid- and final exam questions. Well, the knowledge is pretty useful here.* -Ms. Elsa

In conclusion, creating a syllabus for one particular program, designing lesson plans, and developing learning materials entail a complex process that requires teachers' conceptualizations of their knowledge base for teaching. Such conceptualization influences the quality of teachers' teaching and learning process. Moreover, to ensure the achievement of the learning objectives, designing an assessment plan cannot be neglected. Assessment instruments and processes have to be carefully designed to ensure the effectiveness and coherence of the whole procedure.

Transforming teaching through teachers' self-inquiry

Although the teachers enrolled in the study program for a number of reasons, including but not limited to knowledge infusion, the result indicated that the classroom educational practices were not the only environment in which learning took place and were not necessarily sufficient. They found their ways of taking advantage of activities outside of the class as ways to transform their teaching.

Therefore, the second theme showed teachers' self-inquiry in terms of figuring out new ideas and methodologies, testing them, and revising their perceptions of teaching and learning (Canh, 2004). They also showed the process of learning how to learn, how to solve problems, and how to use reflection and self-assessment (Chuprina & Zaher, 2011). Table 3 shows the activities they willingly participated, in that have helped them grow in terms of deepening their knowledge of the pedagogical understanding focusing on language teaching methodology and innovative learning media.

The findings indicated that the process of the inquiry was driven because of personal reasons. The activities included joining workshops and reading books. As the following excerpts 6 to 8 showed, the workshops they participated in were based on the necessity of their classroom situation, their interest, and the practicality of the workshops. Practical workshops could be easily linked to the teachers' experiences in the classroom. Had the workshops not presented the materials that were needed, they would have become insignificant to them. Therefore, despite all available workshops organized by the faculty, they would not be compelling for teachers if their needs or interests were not fulfilled. Additionally, some workshops were also facilitated by the English Teacher Forum (*Musyawarah Guru Mata Pelajaran* [MGMP]) specifically for the practical topics that were required in the classroom, e.g., developing test items. However, although workshops were attended on top of the primary classroom activities, they were still not adequate for their classroom transformation process. Thus, excerpt 9 showed that reading books were also needed to deepen their understanding of the topics of their interest.

> Excerpt 6
> *My reason for joining workshops was because of my needs and personal interests. I would look for the one I need. If it didn't fit, I wouldn't participate. If I don't like linguistics, for instance, then I won't register. (It is) based on my needs.* -Ms. Dian
> Excerpt 7
> *...as speakers, they gave more practical materials. Let's say, there were one or two cases that were closely related to what I experienced. Then, I could implement everything right away - well not everything, but I got an overview of what I had to do if I faced the issues of students, let's say, whose camera was off all the time and didn't give any responses. In my opinion, a webinar with such practical materials is really useful. I've participated in such a workshop.* -Ms. Elsa
> Excerpt 8
> *At school, there was an MGMP (English Teacher Forum). I was provided with a workshop about how to develop test items.* -Mr. Dendra
> Excerpt 9
> *Another self-development activity, it's reading books….* -Mr. Majid

It can be inferred that teachers have received input from various endeavors. Despite all the theoretical and practical knowledge that they have learned, classroom problems were indeed unavoidable. Therefore, other practical ways were discovered to help them solve the issues. One of them was through the use of social media and the internet (see excerpts 10 to 13).

Social media, e.g., YouTube, Instagram, Telegram, and WhatsApp, have significantly contributed to the teaching-learning transformation. First and foremost, on top of providing various topics, YouTube was also one of the social media apps that could be easily accessed in any place and at any moment. As for Instagram, it has provided teachers with features that could improve their educational practices such as educational hacks, educational reels, and the like. Even if they were not active Instagram users, they could still use it for other purposes. Nonetheless, the teaching tips on this app were not presented by Indonesians, thereby, leaving them with the need to adapt the information based on their contextual situations. Moreover, it is impressive to see how WhatsApp and Telegram could be utilized to connect teachers in joining professional teacher associations, such as the English for Specific Purposes (EPS) group. It suggests that more association groups can be discovered to improve teachers' professionalism in the aspects of their needs and interests.

> Excerpt 10
> *The easiest and the most flexible one is to look for innovations and tutorials on YouTube.* -Ms. Andita
> Excerpt 11
> *I agree with the use of YouTube because it helps to find information a lot easier…* -Mr. Dendra
> Excerpt 12
> *Instagram is the same. I usually watch education hacks so I can get many ideas. Although the Instagram reel is only one minute, it teaches me how to teach. I'm not an active Instagram user, but I am using it to find useful information. Thus, I followed a lot of educational hacks on how to teach kids. However, most of the teachers are Caucasians, not Indonesians* -Ms. Dian
> Excerpt 13
> *…I happened to join several groups on Telegram and WhatsApp. I joined the ESP (English for Specific Purposes) Teachers group on WhatsApp too…* -Mr. Majid

The findings demonstrate that they have become effectively independent in solving the issues in their educational process. Although the MELE program has provided them with access to many beneficial workshops, it does not necessarily provide them with direct solutions. It implies that many other ways have been utilized for problem-solving purposes. If one proposed solution does not work, they are likely able to undergo another cycle or find different ways to find solutions. Most importantly, they have already got the skills that are required to find the information for the sake of improving the quality of teaching for student learning.

Improving knowledge, skills, and attitudes towards academic publication

In addition to the teaching-learning process, the courses have also contributed to improving teachers' knowledge, skills, and attitudes towards academic publication. As scholars, they were encouraged to conduct small-scale research as part of their investigation concerning the issues in ELT. Although the thesis was the biggest picture of all, small-scale research projects have been emphasized since the first semester of the program. Research is important in the graduate program because it promotes the process of shaping future experts in the field by obtaining

new knowledge, solving theoretical and practical problems, self-inquiry, and self-realization (Ruchina et al., 2015). Because of these situations, many publications workshops were provided by the faculty and university to improve their academic writing skills.

Excerpts 14 to 16 reported that in addition to the program courses and workshops related to teaching, many also joined publication or academic writing workshops. The reasons for joining such events varied from personal interest, and university to working requirements. Through these workshops, they were facilitated with the skills to find research gaps including their novelty, select credible journals, decide on research procedures, and even complete the article as a whole. Moreover, the importance of research can also be seen in how the workshops were promoted by the lecturer at the faculty and university levels.

> Excerpt 14
> *I sometimes participated in the workshops that were shared by Mrs Ana and that's because of my personal interest. The topics were mostly about writing articles, research, and the like. The last time I participated in a workshop was the one whose speaker was a researcher from Gadjah Mada University.* -Mr. Majid
> Excerpt 15
> *During my Master's study, the workshops and trainings that I participated in were about publications…*
> *…most of them discussed how to select a journal, how to find a research gap through several sites, the procedure, etc.* -Ms. Andita
> Excerpt 16
> *Then, for scientific writing, the material was coincidentally similar to the class I had to teach, paper presentation. Thus, I learned something so I could teach others.* -Ms. Elsa

The findings demonstrate that the requirements of conducting small-scale research projects were one of the reasons that have encouraged them to willingly participate in academic writing workshops and learn from them. Additionally, the available workshops were also beneficial to deepening the understanding of those who are interested in scientific writing and need it for professional purposes.

Discussion

The findings have shown that the teachers had different reasons underlying the decision to continue their studies while working as English teachers. The causes included (a) personal reasons, e.g., internal motivation, the need for personal knowledge infusion through an effective environment, and failed plans, as well as (b) external reasons, viz., parents' encouragement, work requirements, supportive working environment, and the needs to fulfill social demands for better career opportunities. These results are in line with the reasons reported by Ping et al. (2021) and can be categorized into three including personal ambition, external requirements, and professional reasons.

They also have revealed to answer the research question in two ways. The contributions of the MELE program to TPL are closely related to improving teachers' professionalism in teaching and their skills in academic writing. The improvement of their teaching professionalism is related to the content area of

professional identity (Ping et al., 2021). As future educators, they understand their workload and find ways to keep up with the changes within. As for their skills in academic writing, it can also be associated with the content area of research and reflection (Ping et al., 2021). They are expected to develop research profiles, conduct small-scale research, and improve their teaching practices.

These are also in line with the MELE program exit objectives. Upon the completion of the program, graduates of the program are expected to be able to (a) develop English as a Foreign Language (EFL) education in response to the current trends including EFL teaching and learning, curriculum, materials, and media; (b) develop professional performance reflected in the depth and breadth of analysis and the comprehensiveness of problem-solving; and (c) solve EFL education problems through research using inter-/multi-disciplinary perspectives (Pendidikan Bahasa Inggris Universitas Negeri Yogyakarta, 2022). Therefore, the improvement of the teachers is the reflection of the program's exit objectives.

Throughout the program, there are at least two courses that are directly beneficial for the teachers. First of all, the advantages of the two courses are related to the improved teaching practices. It is proven by the skills, e.g., designing a syllabus, developing lesson plans and learning materials, and designing assessment instruments, that can be immediately implemented in diverse educational situations their contexts. It shows that the courses offer contextual and meaningful learning experiences that are important for long-term retention (Brown & Lee, 2015). Then, teachers' professionalism is promoted in a way that they focus on building their capacity to understand subject matter and pedagogy and guide the development of student learning (Borko et al., 2010). Therefore, it is important to design a process that promotes teachers' professionalism in a practical, experiential, theoretical, and inspirational manner to help them have more knowledge in ELT, and have increased practice in using the skills (Prabjandee & Fang, 2022).

The improved teaching practices through the program courses are related to the content area of the knowledge base (Ping et al., 2021). The knowledge base includes, but is not limited to, pedagogical content knowledge, knowledge of curriculum design, and curriculum materials. Understanding these aspects will be practical for the teachers' profession as their base knowledge and their work at school.

Moreover, it is shown that they attempted to find solutions to classroom problems through the use of social media, the internet, workshops, books, and the like. It demonstrates that graduate school encourages students to be involved in self-inquiry outside of the classroom context because the answer to every problem cannot be necessarily found in the MELE classes. Conducting self-study is proven to be one of the popular and effective ways to improve teachers' professionalism (Ping et al., 2021) Moreover, the core of TPL is about "teacher learning, learning how to learn, and transforming their knowledge into practice for the benefit of their students' growth" (Avalos, 2011, p. 10). It indicates that one of the reasons for TPL occurred because of classroom challenges that hinder the process of teaching. It then requires students to be the agents of change for educational transformation (Bowden, 2014), who get involved cognitively and emotionally to re-examine their beliefs and enact some alternatives for the changes (Avalos, 2011). These changes can improve instructional practice (Akiba, 2012) and facilitate students with high-quality learning experiences.

Furthermore, the program study requires them to conduct small-scale research that stimulates them to participate in research-related professional development such as academic writing workshops. Teachers can be assisted in such practice by researching, evaluating, and identifying teachers' and students' professional needs about the needs of the institutions (Kabilan & Veratharaju, 2013). Therefore, the need for research is promoted because it builds up their passion for inquiry, updates their knowledge, develops their intellectual potential, and provides tools to tackle educational problems with creativity and confidence (Ruchina et al., 2015). The successful outcomes of their TPL can be identified from the development of research skills, e.g., critical thinking, creativity, reasoning abilities, increased awareness of educational practices, renewed enthusiasm for teaching, and continued commitment to professional development (Kabilan & Veratharaju, 2013). In short, teachers' professional growth is achieved through examining their teaching practices systematically and gaining increased experience.

Despite the findings, this study has some limitations. Firstly, since this study incorporates a small number of participants for the focus groups, the generalization of the findings of the study must be carefully drawn. Therefore, it is recommended that further research is conducted with a bigger number of participants; thus, researchers can get richer data and more triangulation processes to validate the findings. Moreover, the teachers' current work experience varied from teaching junior to non-formal education. Further study can aim at investigating those who are teaching at the same educational levels. Different methods, data collection, and analysis methods can also be used. Despite the limitations of the study, it is hoped that more courses at the graduate level can provide teachers with more practical experiences that they can directly contribute to student learning.

Conclusion

The present study confirms that the MELE program has contributed to TPL, especially in teachers' improved teaching practices. Despite the case, important findings need to be highlighted. In the TPL process, teachers need more than just fact-based knowledge, but also learn about content and pedagogy, and then implement theory into practice. They also must take on new roles in which they are key actors in directing and arranging their learning processes that contribute to professional development. All professional activities, from courses of the program, workshops, and research, to self-inquiry practices that have been undertaken, are vigorously connected to the demands for continuous improvement of teaching practices which in turn fosters quality teaching for student growth.

These findings have significant implications for students with single and dual roles as well as lecturers of the programs. Regarding the teachers' dual roles, supervision can be given to conduct a mini research project, especially in solving problems they are currently experiencing in the classrooms. Confusion is indeed inevitable when it comes to deciding educational issues to be investigated. Thus, encouraging teachers to think of their classrooms' problems can give more contextual and empirical evidence to be solved. Moreover, these dual roles can be favorable circumstances for students with a single role. Working collaboratively, especially at the beginning of working on a research paper, is a great opportunity not only to develop their research skills but also to gain more experience in creating high-quality learning.

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