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Majmaea مجمعة Puzzle: An Interactive Strategy to Improve the Arabic Alphabet Knowledge and Sound Recognition of Alive Pupils

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Abstract

Recognizing the Arabic alphabet and its corresponding sounds can be challenging for Muslim learners in Arabic Language and Islamic Values Education (ALIVE) classes. This study aimed to determine the effectiveness of the Majmaea مجمعة Puzzle, an interactive strategy designed to enhance Arabic alphabet knowledge and sound recognition among Grade I to Grade III learners in the Arabic Literacy and Values Education program at NASA Elementary School during the academic year 2022-2023. Employing a single-subject experimental design, 31 selected pupils participated in the study, with assessments conducted through pre-tests and post-tests. Statistical analyses, including descriptive statistics and t-tests for dependent samples, were utilized to the data. The findings indicated that before the implementation of Majmaea Puzzle, learners exhibited a very low level of Arabic knowledge and sound recognition, with a mean score of 35%. Contributing factors included difficulties in phonological awareness and limited engagement with traditional teaching methods. Following the intervention, there was a significant improvement, with a post-test mean score of 81%, demonstrating that the interactive and contextualized nature of the Majmaea Puzzle effectively facilitated learning. The results suggest that incorporating interactive strategies like the Majmaea Puzzle can significantly improve the Arabic literacy of young learners. Hence, it is recommended that educators implement this approach to foster better engagement and proficiency in Arabic language skills.

Keywords: Majmaea Puzzle, alphabet recognition, sound recognition

Introduction

The Filipino community is characterized by its religious diversity, with Muslims comprising 6.4% (6,981,710 individuals) of the population, according to the 2020 Census of

the Philippine Statistics Authority. In Region XII, the Muslim population accounts for 15.8%, including 51,705 individuals in General Santos City. Nationwide, approximately one million Muslim pupils are enrolled in the basic education system, based on the most recent data from the Department of Education (DepEd Teachers' Support Program, 2018). Through the ALIVE initiative, 1,628 schools in 157 school divisions across the country's 17 regions actively integrate Arabic Language and Islamic Values Education into the curriculum.

In the country, there is an enabling policy environment that responds to the educational needs of the Muslim populace. In fact, Madrasah Education Program (MEP) in the Philippines was established under the 1987 Philippine Constitution and Republic Act No. 10533 (Enhanced Basic Education Act of 2013). This institutionalization aims to provide the Muslim learners with educational opportunities that respect their cultural context and unique needs. By integrating relevant content within the K to 12 Basic Education framework, the MEP enhances the learning experience for Muslim students. The program's policy guidelines of the program align with the existing Department of Education (DepEd) directives while introducing effective strategies for program development, implementation, and evaluation, fostering a stronger connection to students' cultural identity and educational aspirations.

Madrasah education in the Philippines is encountering several challenges, as highlighted by various studies. Marasigan (2022) noted that the Department of Education (DepEd) lacks adequate funding and technical support, while Solaiman identified key obstacles for Asatidz, including shortages of classroom supplies, textbooks, and instructional materials essential for effective teaching and learning in the ALIVE program. Similarly, Kabilito (2024) emphasized the broader issue of limited access to quality instructional materials, inadequate teacher training, and insufficient resources, which hinder the optimal use of these materials in enhancing student performance. These issues are further compounded by disparities in students' learning environments and technological infrastructure, exacerbating inequalities in educational outcomes.

Moreover, research by Mustaffa and Abd Rashid revealed that Asatidz often rely on traditional teaching methods due to a lack of pedagogical training, aligning with findings highlighting deficiencies in their instructional approaches. They recommended incorporating the development of instructional materials for the ALIVE curriculum into schools' Annual Implementation Plans. Additional studies, particularly by Moro educators from the University of Southern Mindanao, documented challenges in Muslim education, including insufficient learning materials, subpar teaching processes, and gaps in student assessment, particularly in the ARMM. These studies underscore the urgent need for targeted interventions to improve resources, teacher training, and curriculum development in madrasah education nationwide.

At NASA Elementary School in NASA Village, General Santos City, 31 out of 80 pupils enrolled in the ALIVE program struggled with Arabic literacy. An analysis of primary data from the 2022-2023 academic year revealed that 35% of Grade I to Grade III ALIVE pupils exhibited low proficiency in recognizing Arabic alphabet characters and their corresponding sounds. This highlights the urgent need to strengthen teachers' pedagogical knowledge on effective methods for teaching Arabic reading skills to young learners, particularly given the complex relationship between various Arabic dialects and Modern

Standard Arabic (MSA).

Research by Kwaik et al. (2018) underscores the importance of incorporating this knowledge into teaching curricula and instructional materials to help students learn Arabic letters and sounds effectively. Teachers must carefully plan the sequence of instruction, emphasizing connections and distinctions between colloquial Arabic and MSA. Without such deliberate planning, guiding learners through the transition from dialects to MSA becomes a significant challenge, further impeding their literacy development.

To respond to the challenge of enhancing Arabic literacy, the researchers developed an innovative tool called Majmaea (مجمعة) Puzzle. This interactive and visually engaging material is designed to simplify the recognition of Arabic letters and improve phonetic understanding, making learning more effective and enjoyable. Play-based learning, such as puzzles, has been shown to enhance phonological awareness, emotional development, and social skills by fostering cooperative play and active participation (Ljubetic & Maglica, 2020; Rambli et al., 2013). By combining educational value with enjoyment, the Majmaea Puzzle provides a holistic approach to Arabic literacy, addressing young learners' academic and developmental needs (Almutiri, 2022; Taha, 2013).

Literature Review

ALIVE Program

The "ALIVE" program is part of a higher program called the Madrasah Education Program (MEP). The MEP intends to provide every Muslim learner with a relevant and appropriate educational opportunity. The educational system has its own permeating sense of philosophy and policy. Additionally, the "ALIVE" program fosters harmony between Muslims and Christians in the Philippines. Intercultural cooperation and ethnic unity are the main goals for maintaining the nation's peaceful existence. It is a mechanism of providing education to the unreached children that is meaningful, relevant and culture sensitive for Muslim societies (Godoy, et. Al. 2008).

One way to achieve peace is through the ALIVE program. Fostering racial harmony between Christians and Muslims. The Philippines' key goals for maintaining peace in the nation are intercultural solidarity and a united nation. Beginning in 2005, the ALIVE program was included into the public system (Sannad 2015). Muslims do, in fact, possess the same intellectual and educational rights as other Filipino citizens, as well as the ability to actively engage in social, economic, and political endeavors inside the Republic of the Philippines.

The standard private Madrasah is a component of the Philippines education system through the issuance of DepEd Order No. 51, s.2004. It uses the prescribed Standard Curriculum for elementary public schools and can obtain government recognition and accreditation. In the public schools, the enriched curriculum mandates for the offering of Arabic language and Islamic values for Muslim students throughout its country in areas having Muslim population.

The Philippine government's educational policy is in line with the right to an education for all children. Regardless of their ethnicity, color, religion, or culture, all children have the right to a high-quality education (Godoy, et al. 2008). For this reason, the DepEd launched the ALIVE program to teach Muslim youngsters about their faith—particularly Islamic values—and the Arabic language of the Holy Qur'an (Sannad 2015)

Arabic is one of the most popular languages for students worldwide to learn for several reasons, such as studying for religious reasons, exploring Arabic literature, studying Arabic for specific reasons, etc. Harbi (2022) stated that Arabic language learning is an arguable subject, specifically when it comes to which the teacher should teach Arabic variation to the non-native Arabic learners, whether it is the literary form of Arabic, which is modern standard Arabic, or the colloquial variety that refers to the dialects spoken by the Arabic native speakers.

In its earliest phases, the Arabic language was relatively well protected from the forces of rapid change by the peninsular environment within which it developed. It is the best-preserved model of the Semitic languages. Its syntax and morphology—recorded and systematized as part of the massive research endeavor that followed the production of an authoritative version of the text of the Qua-an in the 7th century (although this date is a matter of controversy)—provide evidence of early features of the Semitic languages Allen (2023).

Teaching language is somehow difficult in some aspects, especially when the materials are not enough; hence, the difficulties can be resolved by providing materials for students to learn the language successfully. Moreover, teaching Arabic will be very successful when teachers integrate contextualized and interactive materials. The history of how the old generation taught Arabic can help us improve our teaching materials. On the other hand, without the use of technology, they taught using contextualized materials around them so that the child or student could relate to what they were learning.

The ALIVE (Arabic Language and Islamic Values Education) program is part of the broader Madrasah Education Program (MEP) in the Philippines, aimed at providing culturally relevant educational opportunities for Muslim learners. Its primary goal is to promote harmony and intercultural cooperation between Muslims and Christians, which are essential for maintaining peace in the nation (Godoy et al., 2008). Since its integration into the public education system in 2005, the ALIVE program has focused on ensuring that Muslim students receive a high-quality education that includes instruction in Arabic language and Islamic values, thereby reinforcing their rights as Filipino citizens to engage fully in all aspects of societal life (Sannad, 2015).

The program employs a standard private Madrasah curriculum recognized by the Philippine government, aligning with policies that uphold the right to education for all children, regardless of their background (Godoy et al., 2008). While Arabic language instruction is crucial due to its cultural and religious significance, teaching challenges exist related to the availability of appropriate materials and methodologies. Effective strategies involve contextualized and interactive resources connecting with students' experiences. Preserving Arabic as a well-maintained model of Semitic languages highlights the need for high-quality language education (Allen, 2023; Harbi, 2022). Ultimately, the ALIVE program is vital for

improving educational access and fostering cultural appreciation among Muslim youth in the Philippines.

Puzzle

Puzzles are said to be a type of game that uses pieces of objects or pictures, and if they look at the type of material used, there are various types, some are made of cardboard, or can also be made of wood. Puzzles which are regarded as an educational material, support learning through playing; at the same time they make a positive contribution to the development of mental skills such as perception, recollection, resolution, making research, comparing, forming connections, watching over for details, visual distinction, envisioning, problem-solving, critical thinking, analysis, part-whole relationship, concentration, and observation (Aral, Kandir, & Can- Yaşar, 2002; Arslan, 2000; Chia, 2008; Çelik & Kök, 2007; Dodge & Colker, 1995).

While children complete the puzzles individually, they obtain some skills such as following the puzzle instructions, carrying out the activity for a certain time, and concentrating. Whereas group work puzzles allow children interact with each other and give them opportunities to do the puzzle cooperatively thus puzzles provide important attainments for their social development. Children doing the puzzle, joining the similar pieces together or trying to group the puzzle pieces according to their characteristics; ask questions and learn new and different words as they are listening to explanation carefully. These experiences help children develop age-appropriate vocabulary, start making grammatical sentences, and express themselves fluently and meaningfully. Besides children feel the joy and happiness of achieving a task while dealing with the puzzle; therefore, they present their emotions openly (Atalay & Aral, 2001; Dodge & Colker, 1995; Hurwitz, 2003; Oğuzkan, Tezcan, Tür, & Demiral, 1992). Conducted studies also showed that plays provided significant contribution to child's creativity (Chia, 2008), social-emotional development (Glassy and Romano, 2003; Glover-Gagnon and Nagle, 2004), physical development (Isenberg and Quisenberry, 2002), cognitive and language development (Owen- Blakemore & Centers, 2005).

Puzzles are effective instructional materials that supporting children's developmental areas (cognitive, language, psycho motor, social and emotional development), their creativity, interests and needs, and providing their learning while entertaining them (Atalay & Aral, 2001; Avcı, 1999; Sull, 2006). Therefore, educators and parents have to understand the importance of puzzles in children's development and education, and they are supposed to present puzzles to the child as educational materials. From this point of view this study intends to investigate the effect of puzzle prototype activities on preschoolers' developmental areas (cognitive, language, psychomotor, social and emotional development).

Puzzles serve as effective educational tools and developmental resources for children, facilitating learning through play while enhancing various mental skills such as perception, critical thinking, problem-solving, and concentration (Aral et al., 2002; Arslan, 2000). Made from materials like cardboard or wood, puzzles promote cognitive development by challenging children to recognize patterns and make connections. Additionally, they support language development by introducing new vocabulary and improving communication skills as children engage in discussions. Completing puzzles in group settings fosters social interaction and

teamwork, while also contributing to emotional growth and physical development through improved fine motor skills and hand-eye coordination (Isenberg & Quisenberry, 2002; Hurwitz, 2003).

Given their multifaceted benefits, puzzles are valuable instructional materials that cater to children's diverse developmental needs, providing an entertaining and educational experience (Atalay & Aral, 2001; Avcı, 1999). Educators and parents play a crucial role in recognizing the importance of puzzles and integrating them into educational and home activities. This study aims to explore the impact of puzzle prototype activities on preschoolers' developmental areas, highlighting the need for engaging educational materials that nurture well-rounded and capable children.

Arabic Alphabet Knowledge

Arabic is written in alphabetic systems with all consonants apart from three vowels. The position of the alphabet in the word makes most Arabic alphabets have more than one written form (Zidouri, 2010). Arabic is deeply orthographic, requiring beginners to read vocalized terms with shallow orthography, and those experienced can read UN-vowelized words with deep orthography (Abu-Rabia, 2007). These fully vowelized words are mainly used in children's books, the Quran, and children's poetry, where they learn how to use the specified phonologically with a simple writing system in which every phoneme is represented with its correct spelling (Fender, 2008).

The Arabic alphabets have twenty-eight basic letters (Abandah & Ansari, 2009). Every Arabic letter has multiple forms, depending on its position in the word, whether at the beginning, middle, or end. Each letter is drawn in an isolated form when written alone and illustrated in three other ways when connected to other letters in the word (Yassin et al., 2020). The letters change shape depending on their position in the word. Apart from having twenty-eight basic letters, Arabic has eighteen different shapes. With the help of diacritical marks, the eighteen shapes that make up the Arabic language express twenty-eight phonetic sounds. The same Arabic letter can form different sounds depending on the position of that particular letter in a word (Yassin et al., 2020). This is a unique Arabic letter characteristic that educators and teachers must emphasize when teaching new learners and other individuals interested in knowing the language.

Arabic is considered a diglossic language, meaning the language has a linguistic state with two forms of language that are used simultaneously. According to Poyas & Bawardi (2018), the fact that Arabic is a diglossic language affects the ability of new learners to read and write. However, teachers use various techniques to address these literacy challenges. One of these techniques includes focusing on letter-sound recognition at the early stages of education, precisely the preschool stage. By focusing on the strategy of letter-sound recognition, new learners can understand the unique features and characteristics of the Arabic language at an early age. Arabic language is distinctive and has some unique features. First, it is contextual without many punctuation marks (Saiegh-Haddad, 2003). When punctuation marks are used, they are placed differently on the word. For instance, Abu-Chacra (2017) advises that an Arabic comma is placed on top of the word, which is different from an English

comma at the end of the term. Secondly, unlike most languages, Arabic is written from right to left (Papadopoulos et al., 2014). Arabic is also written in cursive format, making it visually appealing (Zidouri, 2010). Third, the Arabic alphabets have three vowels that can be stressed differently to produce six, three long, and three short. Therefore, most Arabic alphabet is consonant (Papadopoulos et al., 2014). Arabic is written in alphabetic systems with all consonants apart from three vowels. The position of the alphabet in the word makes most Arabic alphabets have more than one written form (Zidouri, 2010).

Many Arabic letters, words, and expressions have no direct English counterpart. Arabic words can have multiple meanings, or, in some cases, words and phrases are simply untranslatable and need to be adapted for English. This can result in some ambiguity, challenges in preserving both style and tone, or multiple interpretations of the same text. In an article on Erikson, (2022) published a year ago, it was agreed that even the Arabic alphabet itself includes some sounds that do not have direct correlations in the English language. For example, "the sound" of the letter is thought to be unique to Arabic. In such cases, translators may need to combine English letters to attempt to create an equivalent sound.

Zidouri (2010), stated that Arabic is deeply orthographic, requiring beginners to read vowelized terms with shallow orthography and according to (Kwaik et al., 2018). Failure of teachers to carefully plan the order of teaching the language, as well as the connection and similarities between the dialects, makes it challenging to guide the learners. On the other hand, (Allen, 2023) defends the importance of learning Arabic, and that is how (Al-bayan, 2021) mentioned how the heterogeneous students help the learning process, especially on a religious subject, (Erikson, 2022) talked about the uniqueness of the Arabic language.

Sound Recognition

In Arabic linguistics, sound plays a crucial role in shaping the meaning of words. Phonemes, the smallest linguistic units, are integral to this process. In Arabic, a single word can have different meanings depending on the phonemes used, highlighting the significance of sound in language comprehension (Khitam, 2019). Arabic letters present a unique complexity, necessitating a reliance on visual processing over morphological analysis (Almutiri, 2022). The intricate orthographical features of Arabic script contribute to a visual load that can slow down phonological processing. The phonological similarities among Arabic letters compound this complexity. Learners must become adept at recognizing word connections and understanding dot positioning, as the same letter can have different forms based on its position within a word (Taha, 2013).

There exists a great relationship between sound and Arabic words. Sound is one of the smallest linguistic units. However, the unit greatly impacts the meaning of different words. For this reason, a single word with different phonemes produces different meanings. Arabic words use specific phonemes to produce meaning (Khitam, 2019).

Sound recognition in Arabic emphasizes the critical role of phonemes, the smallest units of sound – in determining word meanings. In Arabic, a single word may have various interpretations based on the phonemes used, highlighting the significance of sound

comprehension for effective language learning (Khitam, 2019). However, the complexity of the Arabic script, characterized by its visual intricacies and phonological similarities among letters, presents challenges for learners. Mastering Arabic requires recognising word connections and understanding the positioning of dots within letters (Almutiri, 2022; Taha, 2013).

Use of Puzzle in Improving Alphabet Knowledge and Sound Recognition

Puzzle reading effectively promotes communication via reading since it allows for true conversation (Rees, 2019). It is an effective technique to study reading content using a cooperative learning style, through this way of teaching learners, they've given opportunities to talk and share ideas as it is a cooperative learning style.

Games like puzzle can be found to give practice in all skill and components of language and can be used for different types of communication. Learning vocabulary and phonemes through games are effective in helping students to improve building their skills. To assess the effectiveness of learning vocabulary through games in the classroom, it is important to find out whether learners benefit from such experience. Moreover, it is crucial to see whether games can be effective in helping learners feel more comfortable and interested in the subject of vocabulary (Lubis & Sari, 2021).

Learning to read through games such as puzzles can create fun learning for the children, and they will learn more when they are having fun in the learning process. Providing fun and interactive learning could attract the interest of younger children, hence improving teaching and learning (Rambli et al., 2013). Thus, play-based learning can help children in their emotional and academic development. The study by Ljubetic and Maglica (2020) described how children's play contributes to social and emotional development, which helps children to have friends through participation in the play process with each other. Play teaches rules, social roles, relationships, and how to anticipate other people's behaviors.

The effectiveness of using puzzles to improve sound recognition skills in Arabic highlights the significant connection between sound and meaning in the language. Phonemes, which are the smallest units of sound, critically influence the meanings of Arabic words, with variations in phonemic arrangements leading to different interpretations (Khitam, 2019). The complexity of Arabic letters necessitates visual processing, as learners must master recognizing word connections and dot positioning, since the same letter can appear in various forms depending on its placement (Almutiri, 2022; Taha, 2013). Puzzles provide an interactive and engaging method for students to enhance their phonological awareness, facilitating vocabulary and phoneme recognition within a cooperative learning framework (Rees, 2019; Lubis & Sari, 2021).

Puzzles in improving alphabet knowledge and sound recognition emphasize the benefits of interactive teaching methods in increasing student engagement and information retention, particularly in learning Arabic. Interactive approaches that encourage active participation stimulate critical thinking and analytical skills and make the learning process enjoyable (Senthamarai, 2018). Puzzles are particularly effective in this context, as they help students develop language skills by facilitating word and phrase formation, thereby enhancing problem-

solving abilities (Zamani et al., 2021). Additionally, concentrating on letter-sound recognition, especially at the preschool level, enables new learners to understand the distinctive features of the Arabic language without the constraints of rigid grammatical rules (Poyas & Bawardi, 2018; Taha-Thomure, 2008).

Furthermore, incorporating puzzles and interactive learning techniques can effectively tackle students' challenges in reading and writing Arabic. These methods promote active learning, which enhances critical thinking and communication skills, ultimately leading to a more effective and enjoyable educational experience (Nirmal et al., 2020). By integrating puzzle-based learning, which is known for its interactive and learner-centered approach, educators can create engaging environments that cater to diverse learning styles (Knapp et al., 2022). Ultimately, the use of puzzles in Arabic literacy instruction not only improves sound recognition and alphabet knowledge but also fosters collaboration and interpersonal skills among students, enriching their overall learning journey (Snell, 2019)

Research Method

This study employed a single-subject experimental research design to determine the effectiveness of Majmaea (مجمعة) puzzle as an interactive instructional material for teaching Arabic alphabet knowledge and sound recognition within the ALIVE program at NASA Elementary School. The study aimed to determine the contribution of the intervention to the learning outcomes by comparing the test results before and after the intervention.

During the launch of the 1st Arabic Language & Islamic Values Education (ALIVE) Program in the school 80 students officially enrolled in the program. Of these, thirty-one (31) pupils who were officially enrolled at NASA Elementary School during the School Year 2022-2023 were involved in this study. Students who were selected in this research were included regardless of age, gender, or grade level. They were observed to demonstrate low proficiency in recognizing the Arabic alphabet and sounds before the intervention. recognizing Arabic alphabet and sounds. They were chosen regardless of their age, gender, ethnic affiliation, and grade level.

The instrument used in this study was a thirty (30) item test. The test consisted of three parts. Part I assesssed the students' ability to provide sound of letters with short and long vowels. Part II tested the ability of the learners to name the Arabic alphabet. The last part assessed the ability of the students to read and pronounce the Arabic alphabet. The test was validated and pilot-tested obtaining a reliability of 0.88 Guttman Split-Half Coefficient.

Moreover, this study employed both descriptive and inferential statistics in data analysis. Specifically, descriptive statistics such as frequency distribution, percentages and weighted mean were utilized to describe the level of Arabic knowledge and sound recognition skills of ALIVE pupils. The scale below, adapted from DepEd Order No. 8 s. 2015, was employed to describe the level of listening comprehension proficiency:

The scale, with its corresponding range and description, was used to comprehensively assess the students' listening comprehension skills.

Numerical Range Description Verbal Interpretation

92-100 Outstanding	Very High	
86-91	Very Satisfactory	High
80-85	Satisfactory	Average
74-79	Fairly Satisfactory	Low
73 and below	Did Not Meet Expectations	Very Low

For inferential statistics, the t-test for independent samples was employed to assess the effectiveness of Majmea puzzle as an intervention tool for improving Arabic knowledge and Sound Recognition skills in ALIVE. Furthermore, an analysis was conducted to determine if there was a significant difference between the pre-test and post-test scores of the single subject sampling. All tests were tested at a significant level of 0.05.

Result and Discussion

Table 1

Arabic Alphabet Knowledge and Sound Recognition before Implementing Majmea مجمعةPuzzle

Numerical Range (%)	frequency (f)	Percent %	Description	Verbal Interpretation
92-100	0	0.00	Outstanding	Very High Level
86-91	0	0.00	Very Satisfactory	High Level
80-85	3	9.68	Satisfactory	Average Level
74-79	0	0.00	Fair Satisfactory	Low Level
73 and below	28	90,32	Did not meet Expectations	Very low Level
Mean	35%		**Did Not Meet Expectations**	**Very Low Level**

N= 31

Table 1 presents the level of Arabic knowledge and sound recognition among the ALIVE pupils before the implementation of the Majmea Puzzle in a single subject, based on the pre-test assessment. According to the table, three (3) pupils scored between 80-85%, while twenty-eight (28) pupils scored below 73%. This indicates that 9.68% of the pupils have an average level of listening comprehension, while 90.32% have a very low level of listening comprehension. None of the pupils achieved a very high, very satisfactory, or fair satisfactory level before the use of the Majmea Puzzle.

Generally, the Arabic knowledge and sound recognition of the pupils, which demonstrated insufficient understanding before the implementation of the Majmea Puzzle Intervention, garnered a total weighted mean of 35%, interpreted as "did not meet expectations."

This indicates that the pupils had a very low level of Arabic knowledge and sound recognition before applying the Majmea Puzzle. The results show that the pupils commonly struggled to recognize Arabic letters, sounds, and words.

Before the intervention, pupils in the ALIVE program were struggling to remember the names of the letters, not because they don't know the letters, but because they become confused by letters with similar sounds. In many cases, this occurs with letters in the middle of the alphabet, such as (ف, غ, ظ, ض, ط), which they find difficult to remember. This makes reading these letters challenging and often leads to a "tongue-twister" effect. Additionally, when producing the sounds of Arabic letters, pupils struggle with difficulty memorising sounds, especially when several letters share similar sounds. For example, the Arabic letters (س, ش, ص) all produce similar sounds, as do (ت, ط), (ح, ه, خ), (ز, ظ), (د, ذ, ض), and so on. It was also observed that pupils tend to memorize the Arabic alphabet through rhymes, which increases their chances of producing the correct sounds, especially when they sing along with their peers. However, they face difficulties when trying to memorize the alphabet alone. While the melody of the song helps them recall the sounds, producing the sounds independently remains challenging.

Research emphasizes the importance of phonological awareness in literacy development, particularly in language acquisition. The difficulties faced by the pupils in the pre-test reflect a lack of phonological awareness, particularly with similar-sounding letters. Paivio's Dual Coding Theory (1986) suggests that using verbal and visual learning stimuli can improve memory retention. Incorporating songs and rhymes into the memorization process could serve as a dual-coding approach that supports sound production and recognition, as indicated by the pupils' preference for learning through song. In addition, the difficulties with sound recognition among active pupils in Arabic are significant. Developing phonological awareness, including sound recognition, is crucial for reading and writing in any language. Active pupils may struggle to recognize and manipulate Arabic sounds, such as distinguishing between similar sounds or blending and segmenting sounds within words. Ronda (2020) supports these findings, emphasizing the importance of teacher interventions that engage students in the learning process to improve their phonemic awareness.

Table 2.

Arabic Alphabet Knowledge and Sound Recognition after Implementing Majmea مجمعةPuzzle

Numerical Range (%)	frequency (f)	Percent (%)	Description	Verbal Interpretation
92-100	3	9.68	Outstanding	Very High Level
86-91	8	25,81	Very Satisfactory	High Level
80-85	9	29.03	Satisfactory	Average Level
74-79	3	9.68	Fairy Satisfactory	Low Level
73 and below	8	25.81	Did not Meet Expectations	Very Low Level
Mean Descriptive	**81%**	**Satisfactory**		**Average Level**

N= 31

Table 2 presents the Arabic knowledge and sound recognition level among the ALIVE pupils with insufficient knowledge after the Majmea Puzzle implementation. The findings indicate that, three (3) pupils (9.68%) obtained 92–100%, eight (8) pupils (25.81%) got 86–91%, Nine (9) pupils (29.03%) got 80–85%, and three (3) pupils (9.68%) got 74–79. Lastly, eight (8) pupils (25.81%) got 73 or below. It means that in 9.68% have very high level of Arabic knowledge and sound recognition skills, 25.81% have high level of Arabic knowledge and sound recognition skills, 29.03% have average level of Arabic knowledge and sound recognition skills, 9.68% have low level of Arabic knowledge and sound recognition skills, lastly 25.81% have did not meet expectations. The mean of 81% is described as average.

Following the result of the post-test, it shows that many students can identify and recognise Arabic letters and sounds, with only a few struggling to do so because the letter produces a sound similar to another Arabic letter. Pupils who can read Arabic words may struggle with letters that contain tashdid and tanwin because they cannot arrange the sound of the word, and some have difficulties distinguishing the function of tanwin and tashdid on each letter or how to utilize it on letters.

Overall, the Arabic alphabet knowledge and sound recognition of the ALIVE pupils, following the implementation of the Majmea Puzzle, acquired a weighted mean of 81%, which was deemed "Satisfactory." This indicates that, after the intervention, the ALIVE pupils' Arabic knowledge and sound recognition increased significantly. The substantial improvement in pupils' knowledge of Arabic and sound recognition can be attributed to the contextualized intervention provided by the Majmea Puzzle, which encourages students to recognize Arabic sounds, letters, and words.

According to the researchers, the Majmea Puzzle helps improve students' knowledge and sound recognition because it tailors instructional strategies and interventions. Supporting this, Mulyana and Nurcahyani (2022) state that a puzzle is an interactive strategy that involves an image or object broken into several parts, not yet fully assembled into its complete form. By playing with puzzles, children can develop their problem-solving skills and intelligence. When used in teaching, puzzles engage learners, making the topic more interesting and the learning process more enjoyable. Puzzles require patience and perseverance, which are key qualities for students to develop.

In contrast, Maza, Escuer, Rosello, and Moreno (2021) discovered that, to enhance students' phonological awareness, they were given the opportunity to participate in a contextualized game that involved solving phonological awareness problems using puzzles or other objects. As a result, their phonological awareness improved.

Table 3

Effectiveness of Majmaea Puzzle on Arabic alphabet knowledge and Sound recognition of the Alive Pupils

Test	t-value	p-value	Remarks
Pretest	-12.330	0.00	Significant
Post-Test			

Table 3 shows the differences in Arabic alphabet and sound recognition before and after the implementation of the Majmaea Puzzle. The results reveal a significant improvement in the ALIVE pupils' Arabic knowledge and sound recognition, supported by a t-value of -12.330 and a p-value of 0.00. These findings suggest that the Majmaea Puzzle considerably positively impacted the pupils' abilities.

The significant t-value indicates that the difference between pre-test and post-test scores is not only statistically significant but also meaningful in terms of student improvement. The higher average scores after the intervention highlight that the Majmaea Puzzle effectively addressed the learning gaps. The p-value of 0.00 further validates these results, indicating that the observed difference is unlikely to have occurred by chance, thus confirming the effectiveness of the intervention.

The improved learning outcomes observed with the Majmaea Puzzle can be attributed to several key factors in its design and educational approach. The intervention created a more engaging and interactive environment for pupils by integrating play and collaboration into the learning process. Through puzzles, students were able to engage with Arabic language concepts in a multi-sensory way, enhancing memory retention and sound recognition. Additionally, the collaborative nature of the activity allowed pupils to work together, fostering social learning where students could support and motivate each other, reinforcing their understanding of the material.

The structured design of the Majmaea Puzzle likely contributed to incremental learning, where Arabic letters and sounds were introduced systematically. This approach allowed students to build on previously acquired knowledge, practice challenging sounds, and recognize patterns in letters. The observed improvement suggests that pupils memorised letters and grasped their corresponding sounds, leading to enhanced comprehension and fluency in Arabic. This outcome aligns with research on effective language learning strategies, suggesting that this structured, puzzle-based approach addressed specific challenges students faced prior to the intervention.

The effectiveness of the Majmaea Puzzle intervention is also supported by theoretical research by Antonova and Bontchev (2019), which highlights the positive impact of puzzle games on learning and motivation. Puzzle-type games are easily adaptable to different educational contexts, making them an ideal tool for teachers to customize lessons to meet the specific needs of their students. In the case of Majmaea Puzzle, the content could be tailored to

address the unique challenges ALIVE pupils faced in Arabic language acquisition. Furthermore, the puzzle format encourages peer interaction, teamwork, and problem-solving, enhancing academic learning and social skills, creating a positive and supportive classroom environment conducive to effective learning.

Conclusion

Based on the findings, the following are the conclusions:

1. The ALIVE pupils have low alphabet knowledge and sound recognition before implementing Majmaea Puzzle.
2. The ALIVE pupils have average alphabet knowledge and sound recognition after implementing the Majmaea Puzzle.
3. The Majmaea puzzle effectively improved the alphabet knowledge and sound recognition of the ALIVE pupils.

Recommendations

Following the findings and insights derived from this study, the researchers propose the following recommendations to enhance educational practices related to the Majmaea مجمعة Puzzle:

1. School administrations can encourage the ALIVE teachers to utilize the Majmaea مجمعة Puzzle in improving the alphabet knowledge and sound recognition of the learners.
2. Teachers can consider the Majmaea مجمعة Puzzle in the delivery of teaching-learning aimed at improving student learning outcomes.
3. Future researchers are encouraged to pursue a study on the effectiveness of digitized Majmaea مجمعة Puzzle.

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