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Suggestopedia Meets Multisensory Learning: A Synergistic Approach to Boosting Children's Creative Thinking and Expressive Language

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Abstract

Students must think creatively and communicate well. Students who fail to share their thoughts and discoveries may lack confidence and perform poorly in social situations. This study analyses how multisensory suggestopedia boosts student creativity and expressive language. This quantitative experiment uses non-equivalent control groups and explanations. This study featured 30 control and 30 experimental students. A sample of grade 1 elementary school students was chosen for the study. This study included questionnaires and observation checklists. A 12-item children's creative thinking questionnaire and an 8-item expressive language instrument were used in this study. This study tested normalcy and homogeneity. Data was further analyzed using SPSS with an independent sample t-test. Multimodal suggestopedia learning increased students' language and creative thinking, according to one study. Creative thinking and expressive language scores were high in the experimental group: 32.8 > 17.5 and 25.55 > 14.5. Additionally, each variable has a significance value of 0.000 < 0.05. The optimistic suggestions in Suggestopedia facilitate multisensory learning by engaging students' senses. Students' ability to think creatively and articulate their ideas has grown. Future students may benefit from Suggestopedia and other multisensory learning tools.

Introduction

Creativity and innovation require creative thinking (Yustina et al., 2022). These skills help primary school students solve simple problems from different perspectives, express themselves, gain confidence, and become more dynamic in facing future challenges (Leasa et al., 2021). Developing students' creative thinking skills is essential for their cognitive, social, and emotional development (Yumurtacı & Mede, 2021). Creative students can convey their thoughts more easily (Aini et al., 2020). Creative students are usually good communicators (Cormier et al., 2022).

According to Timss (Trends in International Mathematics and Science Study, Indonesian students' creativity is still low (Ismara et al., 2017). Creative thinking requires logic, which only 17% of Indonesian students fulfilled in 2015. According to research by Yayasan Plan International Indonesia in 2021, 70% of primary school students' creativity amid the COVID-19 epidemic is underdeveloped. The study involved 2,000 children aged 6-18 years from 20 provinces in Indonesia (https://plan-international.or.id). According to this survey, 83% of Indonesian children lack creative thinking skills.

Students with low creative thinking skills have difficulty in solving problems, innovating, adapting, expressing themselves, gaining confidence lacking creativity, suggestions, problem-solving options, and details (Eshet & Margaliot, 2022; Yafie et al., 2021). The low ability to convey thoughts can hinder students in expressing themselves (Kustiawan & Yafie, 2021). Students have low expression language skills because they cannot articulate what they think (Yildiz & Guler

Yildiz, 2021). Therefore, students' creative thinking and expressive language skills should be improved (Ulum et al., 2021).

Students need expressive language to communicate their thoughts, feelings, and ideas orally (Setianingsih et al., 2021). Students who understand expressive language can communicate, learn about the world, express themselves, and develop creative thinking skills (Leasa et al., 2021). Good language skills help children communicate with others (Pfeiffer, 2018). Modern students need expressive language skills to communicate, access educational opportunities and compete at the next level of schooling (Rosmala et al., 2021). Expressive language skills allow students to voice their perspectives and share fresh ideas (Kartikasari et al., 2022).

The problem that often occurs in developing students' expressive language is that students are less able to provide feedback in discussion forums. Students also cannot convey their ideas, cannot express their ideas using the right words, pronunciation is still stammering, and sentence structures are still difficult to understand (Yafie et al., 2021). Continued problems can cause students' communication skills to be hampered and students lose confidence in expressing themselves (Yafie et al., 2020). This is also supported by Yafie et al., (2020)'s research which states that students who do not have the ability to express language will have difficulty in adapting to the surrounding environment.

In 2019, the Language Centre of the Ministry of Education and Culture found that 40% of students lacked expressive language skills. The study involved 1,500 children in grades 1-6 from 5 provinces in Indonesia (https://badanbahasa.kemdikbud.go.id/). Students with poor expressive language skills have difficulty in expressing their thoughts and feelings, become less confident in speaking, and avoid discussion forums (Abbeduto et al., 2023). According to Hidayat et al., (2018), a less flexible curriculum, lack of time for play and exploration, lack of acceptance of diverse ways of thinking, and demands to meet academic standards can inhibit students' creative thinking and expressive language development. In addition, students struggle to solve complex or unusual situations (Yayuk et al., 2020). Lack of variety in teaching approaches reduces students' creative thinking and expressive language abilities (Yustina et al., 2022). Children can overcome difficulties, be creative and adapt to change with creativity (Acuna Agudelo et al., 2020). Children can overcome difficulties, create, and adapt to change with creativity (Acuna Agudelo et al., 2020).

Therefore, teachers should teach students creative thinking and expressive language. Children can gain self-expression and self-confidence through creativity (Hammershøj, 2021). Creative thinking helps children communicate new ideas and build expressive language skills. Effective tactics can enhance children's inventiveness and expressive language. As Suggestopedia Meets Multisensory Learning combines positive suggestion and multisensory learning, this method may be optimal for developing these skills (Astutik, 2019). To help children learn, this method emphasises positive suggestion and relaxation through hearing, sight, touch, smell, and taste.

Teachers often tell students to read and listen to learn (Waluyo et al., 2018). Such activities can distract students and make them inaccessible to students with learning disabilities (Widyana et al., 2020). Of course, not all senses can be utilised in every session. If possible, multisensory learning will make education more engaging and inclusive. Multisensory learning is one of the main ways teachers can change their methods of teaching to provide students with varied learning experiences (Wu et al., 2022). If educators want all children to reach and exceed benchmarks, they must be able to adapt the way education is delivered.

Suggestopedia Meets Multisensory Learning encourages creativity and expression so that it can improve students' creativity and language skills. Students will get used to learning with different methods. This research shows how Suggestopedia and Multisensory Learning can enhance students' creative thinking and expressive language. This knowledge will help educators, parents, and practitioners to create more interesting and innovative primary school

learning techniques. This research can also fill the void of educational literature on the use of these strategies in primary school students.

Previous research related to creative thinking skills was conducted by Cahyani et al., (2020) but this research only focused on physical and exploratory activities such as Outbound Training. Other research related to creative thinking showed that the main variables studied were only related to education-based technology applications and interactive storybooks. Because of this, we wanted to investigate the impact of suggestopedia on students' creative thinking and language skills through multimodal learning.

Methods

Experimental methods are central to this study. The purpose of this experiment is to learn whether or not combining Suggestopedia with multisensory learning helps kids develop their imagination and communication skills. We employ a non-equivalent control group design in which one group serves as the norm and the other serves as the experimental group in our explanatory study. Suggestopedia-based learning will be provided to the control group, whereas Suggestopedia learning combined with Multisensory Learning will be provided to the experimental group.

Table 1. Non-equivalent control group design

Group	Pre-test	Training	Post-test
Experiment Group (Suggestopedia meets Multisensory Learning)	O1	X	O2
Control Group (Suggestopedia)	O3	-	O4

This study involved 30 students categorised into the control class and 30 students categorised into the experimental class. Students in first grade were specifically targeted for inclusion in the research sample using a purposive sampling strategy. Data collection in this study was carried out using questionnaires and observation checklists. The instruments used in this study are children's creative thinking questionnaire which adopts from Yildiz & Guler Yildiz, (2021) as many as 4 aspects with 12 items and expressive language instruments from the Ministry of Education and Culture of elementary school in 2013 as many as 8 items. Suggestopedia learning with Multisensory Learning was conducted for 3 weeks. The pre test and post test in this study used Multisensory Learning which utilises all of the students' senses, namely visual, auditory, kinesthetic, tactile and Gustatory and Olfactory. The normality test with the Kolmogorov Smirnov Statistic and the homogeneity test with the Levene Statistic are part of the testing procedure for Suggestopedia with Multisensory Learning to Enhance Students' Creative Thinking Ability and Expressive Language. Additionally, the collected data were evaluated using an independent sample t-test in SPSS (Statistical Package for the Social Sciences).

Result

3.1. Descriptive Statistic

Descriptive analysis was conducted to describe the results of Pretest and posttest tests conducted on creative thinking variables. The results of this test aim to determine whether there is a difference in the value that has previously been given intervention to students in the form of learning using suggestopedia. The test results can be seen in table 2 below.

Table 2. Results of Pretest-posttest Children's Creative Thinking in the Control Group

No	Children's Creative Thinking	Control (Suggestopedia)				
		n	Pretest		Posttest		Gain
			Mean	Stdev	Mean	Stdev	
1	Fluency	30	54.0	7.8	72.0	8.3	18.0
2	Flexibility		62.0	6.3	75.0	7.9	13.0

No	Children's Creative Thinking	Control (Suggestopedia)				
		n	Pretest		Posttest		Gain
			Mean	Stdev	Mean	Stdev	
3	Elaboration		58.0	9.2	77.0	10.2	19.0
4	Originality		48.0	8.1	68.0	9.3	20.0
Total			55.5	7.9	73.0	8.9	17.5

Table 2. Results of Pretest-posttest Children's Creative Thinking in the Control Group

Based on the results of data exposure in table 2, it shows an increase in the value of the Children's Creative Thinking variable. It can be seen from the average pretest score of 55.5 rose to 73.0. Children's Creative Thinking increased by 17.5 points after students followed the learning with suggestopedia method. This result demonstrates that when pupils are taught using the traditional suggestopedia method, there is a substantial improvement in the children's creative thinking.

Similar testing was also carried out on the experimental group, namely the group given an intervention in the form of suggestopedia meets multisensory learning. The test results in the experimental group can be seen in table 5 below.

Table 3. Results of Pretest-posttest Children's Creative Thinking in Experiment Group

No	Children's Creative Thinking	Experiment (Suggestopedia + Multisensory)				
		n	Pretest		Posttest		Gain
			Mean	Stdev	Mean	Stdev	
1	Fluency	30	57.0	6.5	83.4	9.2	26.4
2	Flexibility		59.0	7.8	90.2	10.1	31.2
3	Elaboration		49.0	9.2	87.1	8.9	38.1
4	Originality		44.0	7.3	79.5	9.2	35.5
Total			52.3	7.7	85.1	9.4	32.8

Based on the results of data exposure in table 3, it shows an increase in the value of the Children's Creative Thinking variable. It can be seen from the average pretest score of 52.3 increased to 85.1. Children's Creative Thinking increased by 32.8 points after the students followed the learning with Suggestopedia Method with Multisensory Learning. This finding shows that there is a significant increase in Children's Creative Thinking after students follow the learning with Suggestopedia Method with Multisensory Learning.
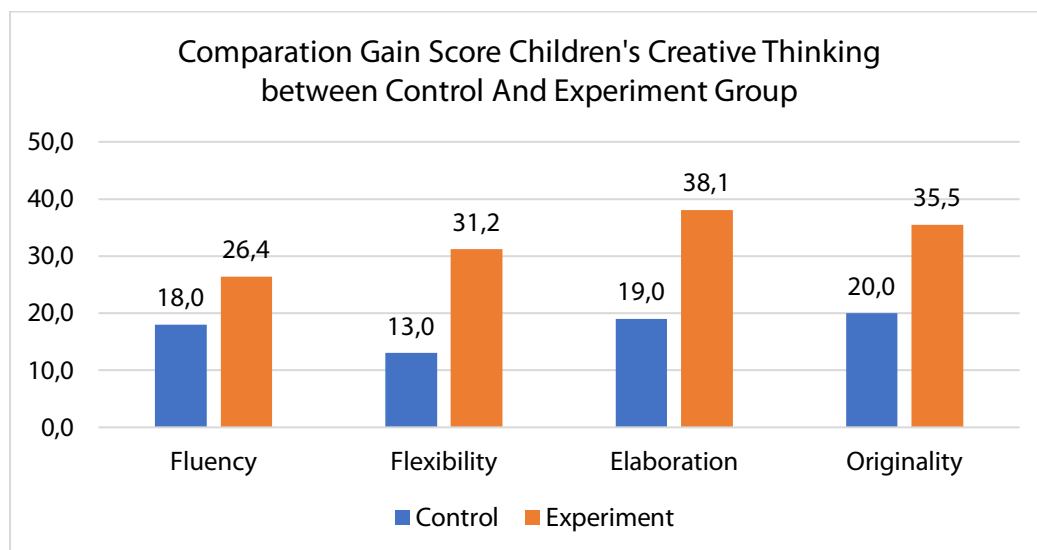

Figure 1. Comparison of Gain Score children's Creative Thinking

Figure 1 demonstrates an improvement in the creative thinking variable amongst young people. Given the suggestopedia method's emphasis on multimodal learning, the children in the experimental group show a considerable improvement in several measures of creative learning compared to those in the control group. The control group testing on expressive language variable was given intervention through suggestopedia learning. The test results on expressive language variables are described in table 6 below.

Table 4. Pretest-posttest Expressive Language Results in the Control Group

No	Expressive Language	Control (Suggestopedia)					
		n	Pretest		Posttest		Gain
			Mean	Stdev	Mean	Stdev	
1	Pragmatic Abilities	30	64.0	8.8	79.0	7.9	15.0
2	Linguistic Abilities		59.0	7.2	73.0	7.2	14.0
Total			61.5	8.0	76.0	7.6	14.5

The value of the Expressive Language variable rises as a result of data exposure, as seen in table 4. The average increase from the pre-test score of 61.5 to the post-test score of 76.0 is clear. After incorporating the suggestopedia approach into their education, students saw a 14.5 point improvement in their Expressive Language score. This result demonstrates that students' Expressive Language improves dramatically after engaging in traditional suggestopedia-based instruction. Experimental group testing on expressive language variables was given intervention through suggestopedia Meet Multisensory learning. The test results on expressive language variables are described in table 5 below.

Table 5. Results of Pretest-Posttest Expressive Language in the Experiment Group

No	Expressive Language	Experiment (Suggestopedia + Multisensory)					
		n	Pretest		Posttest		Gain
			Mean	Stdev	Mean	Stdev	
1	Pragmatic Abilities	30	67.0	7.5	89.3	9.7	22.3
2	Linguistic Abilities		55.0	7.1	83.8	9.1	28.8
Total			61.0	7.3	86.6	9.4	25.55

Table 5 demonstrates an increase in the value of the Expressive Language variable as a result of data exposure. The average post-test score of 86.6 shows a dramatic improvement over the pre-test average of 61.0. Students saw a 25.55 point improvement in their Expressive Language after using the Suggestopedia Method of Multisensory Learning. This result demonstrates that when students follow the Suggestopedia Method of Multisensory Learning, they significantly improve their Expressive Language skills.
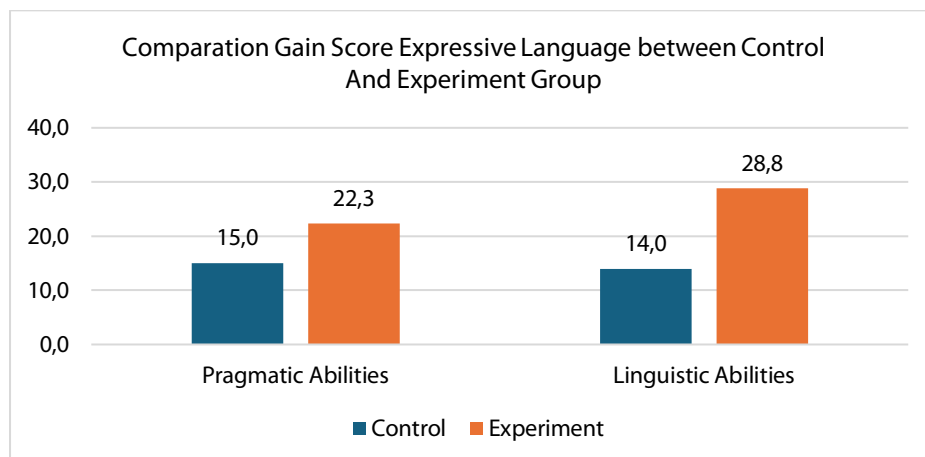
Figure 2. Comparison of Expressive Language Gain Score

Based on Figure 2, it can be seen that there is an increase in the Expressive Language variable. This is because the experimental group was given the intervention of suggestopedia method using multisensory learning, so that the aspects of Pragmatic abilities and linguistic abilities on Expressive Language tend to increase significantly compared to the control group.

3.2. Normality Test

In order to determine if the independent variable and the dependent variable follow normal or deviant distribution patterns, a normality test is conducted. The Kolmogorov Smirnov test is used to check for normality, and if the significance level is above 5% (or 0.05), it indicates that the data is regularly distributed. Data is considered to be non-normally distributed if the significance level is less than 5% (or 0.05). Data normality testing on children's creative thinking variables can be seen in table 8 below.

Table 6. Normality Test Results on Children's Creative Thinking

No	Children's Creative Thinking	Control			Experiment		
		Kolmogorov Smirnov	Asymp. Sig	Explanation	Kolmogorov Smirnov	Asymp. Sig	Explanation
1	Fluency	0.213	0.085	Normal	0.277	0.129	Normal
2	Flexibility	0.332	0.068	Normal	0.311	0.087	Normal
3	Elaboration	0.286	0.087	Normal	0.287	0.112	Normal
4	Originality	0.329	0.069	Normal	0.276	0.110	Normal

Table 6 shows that all characteristics of children's creative thinking passed the normality test, indicating that their scores are significantly above the 0.05 threshold. Children's imaginative capacities have been shown to exhibit a normal distribution across all variables. Normality testing was also carried out on students' expressive language variables. The results of data normality testing can be seen in table 9 below.

Table 7. Normality test results on Expressive Language

No	Expressive Language	Control			Experiment		
		Kolmogorov Smirnov	Asymp. Sig	Expla-nation	Kolmogorov Smirnov	Asymp. Sig	Expla-nation
1	Pragmatic Abilities	0.435	0.113	Normal	0.245	0.145	Normal
2	Linguistic Abilities	0.399	0.121	Normal	0.311	0.056	Normal

In table 7, we can see that the normalcy test for all dimensions of expressive language was statistically significant (p0.05). All variables related to Thinking using expressive language follow a normal distribution, as demonstrated above.

3.3. Homogenity Test

To ascertain whether or not the population variance matches the test parameters, a homogeneity test is performed. If the p-value is more than 0.05, then we can conclude that the group's variance is constant (homogeneous). In this study, we utilise the statistical levena test to check if our data on children's creative thinking and expressive language are consistent with one another.

Table 8. Homogeneity test results on Children's Creative Thinking

No	Children's Creative Thinking	Levene Statistic	Asymp. Sig	Explanation
1	Fluency	0,535	0,644	Homogenous
2	Flexibility	0,411	0,548	Homogenous
3	Elaboration	0,542	0,343	Homogenous
4	Originality	0,475	0,454	Homogenous

The Children's Creative Thinking variable in table 10 shows no significant change in variance between samples, as determined by the levena test, with a significance value of > 0.05. This suggests that there is little to no difference in the sample variance across members of the group.

Table 9. Results of homogeneity test results on expressive language

No	Expressive Language	Levene Statistic	Asymp. Sig	Explanation
1	Pragmatic Abilities	0.342	0.644	Homogenous
2	Linguistic Abilities	0.432	0.548	Homogenous

It may be concluded that there is no variation in variance across samples in the group because the statistical levena test on the Expressive Language variable in table 11 yields a significant value of > 0.05. This shows that the group has consistent (homogeneous) sample variation

3.4. Hypothesis Test

In this study, both a control group and an experimental group were subjected to suggestopedia combined with multimodal learning. The purpose of this study is to compare the effects of a suggestopedia method intervention with multimodal learning on children's variables of creative thinking and expressive language.

Table 10. T-test results on Children's Creative Thinking

No	Children's Creative Thinking	t-statistic	t-table	Sig	Explanation
1	Fluency	2.546	2.000	0.00	Significant
2	Flexibility	2.769	2.000	0.00	Significant
3	Elaboration	2.778	2.000	0.00	Significant
4	Originality	2.678	2.000	0.00	Significant
	Overall	2.871	2.000	0.00	Significant

Table 12 demonstrates that the overall dimension of the Children's Creative Thinking variable in the paired sample t-test reveals a t-count value of 2.871 > 2.042 and a significance value of 0.000 0.05, supporting the hypothesis that this difference is statistically significant. This evidence shows that when students combine suggestopedia with other forms of sensory learning, they significantly improve their creative thinking. Testing using the t test is also done on the expressive language variable. the test results can be seen in table 13 below.

Table 11. T-test Results on Expressive Language

No	Expressive Language	t-statistic	t-table	Sig	Explanation
1	Pragmatic Abilities	2.876	2.000	0.00	Significant
2	Linguistic Abilities	3.221	2.000	0.00	Significant
	Overall	3.321	2.000	0.00	Significant

Table 11 reveals that the t-count for the overall dimension of the Expressive Language variable in the paired sample t test is 3.321> 2.042, with a significance level of 0.000 0.05, based on the data exposure. This result shows that students' Expressive Language improves dramatically when they combine suggestopedia with multimodal instruction.

Discussion

Storytelling represents using stories as a communication tool to convey various knowledge. Telling or transmitting a report becomes a means of entertainment and increases the likelihood of knowledge acquisition (S. Ramdhani et al., 2019). Storytelling provides children with experiences and learning opportunities to support their understanding, and using the storytelling method can help children understand various multicultural differences and group learning. Four aspects form the basis of storytelling for children. First, remember a more comprehensive main message when discussing a previously-read story. Second, adopting characters or roles children are familiar with when storytelling—third, placing the story in the correct sequence. Fourth, using media when retelling a story.

4.1. The Effect of Suggestopedia Meets Multisensory Learning on Children's Creative Thinking

The findings of the study demonstrate that the combination of suggestopedia and multimodal learning significantly improves children's creative thinking. The experimental group, who received the intervention, showed a 32.8 point increase in their pretest average compared to the control group, which showed a decrease to 17.5. Reason being, compared to the control group, children in the experimental group show a considerable improvement in areas such as fluency, flexibility, elaboration, and originality in their creative learning after receiving an intervention based on the suggestopedia approach of multimodal learning. In addition, students' creative thinking capacity significantly improved following intervention using the suggestopedia strategy with multisensory learning (t-count = 2.871 > 2.042, significance = 0.000 < 0.05). This study is relevant to the research conducted by Cuturi et al., (2022), which emphasises that the analytical skills of elementary school students are developed when doing multisensory learning-based learning. However, in the study, Cuturi emphasised on improving students' ability to analyse in mathematics learning. Another study conducted by Laksana et al., (2022) revealed the same thing, namely the improvement of critical thinking skills after being given an intervention in the form of multisensory learning, but in the study, the author focused on education in higher education. Thus, multisensory learning is a learning innovation to improve students' creative thinking skills.

According to the results of this research, a multisensory classroom is an effective setting in which to foster kids' imaginative capacities. Students can strengthen their capacity for original thought by using Suggestopedia and other multimodal approaches to education. The suggestopedia method is influential in improving children's creative thinking skills because it combines music, imagination, and visualisation in a relaxed learning environment. With stress reduction, emphasis on deep understanding, and increased motivation and confidence, this

method stimulates children to create creative thoughts, connect the material to their experiences, and use language with specialised methods. However, the results can also be affected by the context and proper implementation and can be enhanced by the incorporation of diverse learning methods.

The Suggestopedia learning method utilises positive suggestion to increase student motivation and retention (Kharismawati & Susanto, 2018). Multisensory learning uses various senses to help students understand learning materials (Junilasari et al., 2017). Suggestopedia with multisensory learning is an effective learning alternative to improve students' creative thinking skills because it provides positive suggestions during the learning process so that it can stimulate students' various senses. Through the application of this learning, students become more open to new ideas, dare to try new things and students are able to integrate information from various sources.

4.2. The Effect of Suggestopedia with Multisensory Learning on Expressive Language

The results of this study show that an intervention combining suggestopedia and multimodal learning leads to an improvement in kids' expressive language skills in elementary school. The mean of the experimental group, at 25.55, is higher than the mean of the control group, at 14.5, lending credence to this discovery. Furthermore, the t-count value of 3.321 > 2.042 and the significance value of 0.000 < 0.05 can be seen in the figurative language. Thus, through suggestopedia learning with multisensory learning, students' expressive language skills can increase significantly. Other studies conducted by Staden & Purcell, (2016) and Schlesinger & Gray, (2017) stated that there was an increase in students' spelling ability after being given intervention through multisensory learning.

However, van Staden, Staden & Purcell, (2016) focused on second language improvement while Schlesinger & Gray, (2017) provided multisensory learning intervention on dyslexia disorder. Research has shown that Suggestopedia which emphasises reducing students' anxiety can have a positive impact on confident speaking. When students feel relaxed and comfortable, they are more likely to speak and use their language without fear or inhibition . On the other hand, Multisensory Learning has been found to be effective in activating different parts of the brain involved in language comprehension (Wang & Zeng, 2022). This suggests that the involvement of more than one sense, such as visual, auditory and kinesthetic, allows the brain to better process and assimilate information. Neurological research shows that the use of multiple senses in learning can facilitate deeper understanding of language (Velasco & Obrist, 2021).

Therefore, through Suggestopedia with Multisensory Learning, students can get a positive and relaxed environment so that it can reduce students' anxiety, where students' anxiety in learning activities becomes a big obstacle in speaking confidently. Multisensory learning involves various senses in the learning process, such as using images, sounds, and physical activities, which can stimulate various parts of the brain involved in language comprehension and expression. Students who feel comfortable, sensory stimulated, and given positive suggestions have higher confidence in speaking and expressing themselves. Thus, this learning can improve the expressive language skills of primary school students.

Conclusion

The study's findings suggest that pupils' ability to think creatively and express themselves through language improves dramatically. Students in the experimental group scored significantly higher than the comparison group on measures of creative thinking (32.8>17.5) and expressive language (25.55>14.5), indicating positive results from the present investigation. This is further confirmed by the fact that each variable has a positive effect and a significance value of 0.000 < 0.05. Suggestopedia makes use of giving positive suggestions to students so that by utilising multisensory learning as the learning environment, students' various senses can be stimulated optimally. Thus, the implementation of suggestopedia learning with multisensory learning can improve students' creative thinking and expressive language skills. Further

researchers are expected to explore the suggestopedia method with multisensory associated with improving skills in the digital era.

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