



INTERNATIONAL JOURNAL OF
MODERN EDUCATION
(IJMOE)
www.ijmoe.com



TEACHERS' PERCEPTIONS ON BRAINSTORMING AND IMAGINATION TECHNIQUES IN ENHANCING CREATIVITY IN DRAWING AMONG PRESCHOOL STUDENTS

Christy Joseph¹, Tan Choon Keong^{2*}, Abdul Said Ambotang³

¹ Faculty of Psychology and Education, Universiti Malaysia Sabah, Malaysia.
Email: agathachristty@gmail.com

² Faculty of Psychology and Education, Universiti Malaysia Sabah, Malaysia.
Email: cktanums@gmail.com

³ Faculty of Psychology and Education, Universiti Malaysia Sabah, Malaysia.
Email: said@ums.edu.my

* Corresponding Author

Article Info:

Article history:

Received date: 20.06.2023

Revised date: 17.07.2023

Accepted date: 22.08.2023

Published date: 15.09.2023

To cite this document:

Joseph, C., Tan, C. K., & Ambotang, A. S. (2023). Teacher's Perceptions on Brainstorming Techniques and Imagination Techniques in Enhancing Creativity Among Preschool Students' Drawing. *International Journal of Modern Education*, 5 (18), 24-36.

DOI: 10.35631/IJMOE.518003

This work is licensed under [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)



Abstract:

Teachers' wisdom in selecting suitable teaching methods or techniques for students will influence the effectiveness of their instruction. Therefore, teachers need to develop teaching and learning strategies that are appropriate for students, particularly in fostering creativity in teaching and learning.

Purpose: The main objective of this study is to examine the effectiveness of teaching brainstorming and imagination techniques in enhancing creativity in drawing among preschool students from the perspective of teachers. **Methods:** Interview sessions were conducted involving four preschool teachers from two schools in the Kota Belud District, Sabah, Malaysia. **Results:** The findings of the study, the teachers believed that brainstorming and imagination techniques could successfully enhance the creativity in drawing for preschool students. **Conclusion:** The teaching module using the brainstorming and imagination techniques will help to overcome teachers' challenges and fulfils their needs to implement instruction that fosters creative skills in teaching.

Keywords:

Brainstorming; Imagination; Teachers Challenges; Teaching Methods; Creativity Techniques; Teaching Effectiveness; Teachers' Perspective, Creative Learning; Enhancing Creativity

Introduction

The effectiveness of teaching is closely associated with the creativity of individual teachers, not limited to lesson planning activities, but involving creativity during the teaching and learning process in the classroom (Mohamad & Mohamad Yassin, 2010). Teachers' instructional approaches greatly influence students' engagement in the classroom, especially how teachers provide explanations (Cremin, 2012; Mohammad; Hashim & Mohammad Yassin, 2011), and the use of uninteresting teaching aids (Fullan & Hargreaves, 1992). Therefore, new, and more creative teaching approaches need to be implemented in classroom practices to make them more engaging and enjoyable for students (Samsudin, Zainal, Razali & Noraini, 2013).

Previous studies have found issues in implementing creative teaching practices by both teachers and students. The problem lies in teachers' lack of clarity on how to incorporate creativity in their instruction due to their understanding or perception of creativity. Furthermore, education still plays a minimal role in fostering creativity in both teachers and students (Torrance, 1961; Dacey & Ripple, 1989; Boden, 1987; Sternberg, 1992; Mihalyi, 1990). Recognizing the constraints experienced in teachers' teaching creativity, the researcher had developed a teaching module on brainstorming and imagination techniques in teaching drawing to preschool students.

Although previous studies had stated the effectiveness of brainstorming and imagination techniques in enhancing students' creativity (Vygotsky, 1930; Alcock, 2007; Hedegaard, 2012; Garcia & Mukhopadhyay, 2019; Mohamad 2021), research on teachers' perspectives regarding the effectiveness of teaching using brainstorming and imagination techniques is still limited, especially in the preschool field related to creativity in drawing. Therefore, the aim of this study is to determine the perceptions of teachers using the brainstorming and imagination techniques in enhancing creativity in drawing among preschool students in Kota Belud, Sabah.

Literature Review

Teachers' Perspective on Creative Teaching

The study by Muhammad Syawal Amran et al. (2021) claimed that creativity in STEM learning for children is not adequately supported by teachers in the classroom due to a lack of preparedness, content knowledge, and skills. In this study, preschool teachers (n=22) were interviewed as they were the primary informants involved in STEM education. Semi-structured interviews were analysed using qualitative content analysis and coded qualitatively. The results showed several distinct themes identified by the participants when discussing the needs and challenges of implementing integrated creative skills in STEM education, as well as the most helpful support in overcoming them. The findings indicated a significant gap between knowledge of creativity and its implementation in STEM education. Participants also provided specific support needed to integrate creativity in STEM education. This research provided insights into the needs and challenges for professional preschool teachers by providing them with pedagogical modules and professional training to foster creativity in teaching STEM.

Understanding teachers' sentiments and perspectives is a primary goal of educational research, especially in understanding the perspectives that can be applied in the classroom. Teachers' perspectives on creativity and how they can foster it have been explored in several studies, but there is a lack of research exploring teachers' perspectives on creativity in science classrooms.

Beliefs are personal perceptions that help individuals understand the world and themselves (Pajares, 1992). Beliefs are also considered connotations held by individuals about phenomena that mediate their interactions with contexts related to those phenomena (Pratt, 1992). As a result, teachers' beliefs are crucial. Many academics argue that teachers' practices, decisions, administrative styles, and assessments can be influenced by their beliefs (Pajares, 1992; Richardson, 1996; Thompson, 1992; Woolley, Benjamin, & Woolley, 2004). In other words, teachers may sometimes place their beliefs into their teaching practices (Shin & Koh, 2007). Pedagogical practices that foster creativity in science classrooms can be based on what science teachers believe about creativity. Alsaou (2015), for example, investigated eight case studies of science teachers and concluded that a teacher who believes that science is a static and uncreative subject typically constructs their practice around a teacher-centred approach. Meanwhile, science teachers who hold progressive beliefs about creativity use more student-centred approaches and encourage imaginative thinking.

Therefore, teachers' beliefs play an important role as their beliefs about creativity can facilitate or hinder students' creative thinking in the classroom (Beghetto, 2006). Previous research had shown that science teachers have a general understanding of creativity and can identify some key components of creativity. However, they appear to have naive beliefs regarding more in-depth issues related to creativity. For example, a study conducted by Liu and Lin (2014) examined the beliefs of 16 experienced science teachers about creativity. The study found that teachers could explain some pedagogies for teaching creativity in science classrooms and some characteristics of creative students. Lee and Kim (2005) also investigated science teachers' beliefs about creativity among teachers in a program for gifted students in South Korea. They found that teachers limited the meaning of creativity to high cognitive and intellectual abilities, and they overlooked the role of environmental factors in creative behaviour.

Hong and Kang (2010) found that science teachers held limited beliefs about creativity, concluding that teachers believed that problem-based learning and inquiry-based learning could foster creativity in science classrooms. However, researchers argued that teachers could not articulate their general beliefs. Overall, the reviewed studies found that teachers agreed that creativity could be fostered in science classrooms, but they held simplistic and insufficient beliefs about various aspects of creativity, fostering creative behaviours, and how to assess creativity in science classrooms.

Constraints Faced by Teachers in Nurturing Creativity

Scheffer et al. (2017) compiled a valuable list of ways to foster creativity; the suggestions include simple habits such as movement, taking risks, diverse experiences, meditation, or quiet time, carrying a notebook, working on scraps if necessary, disregarding norms, and collaborating. Hartley and Plucker (2014) contribute to the list by adding suggestions like providing suggestions, telling jokes, group discussions and projects, writing new ideas, solving puzzles, and creating something individually. Hartley and Plucker also state that there are many resources available for creative activities to be used in classrooms that are over 20 years old. If creativity is indeed an essential component of 21st-century learning (Collard & Looney, 2014), teachers need fresh ideas to enhance creativity in general education classrooms. When assessing the aspect of creativity in education, teachers' perceptions directly influence creative pedagogy in every classroom (Sharp, 2004). Zimmerman (2009) argues that creativity can be taught and identifies educational interventions that promote creative traits. These components include perseverance, imagination, reflection, and creating work with personal meaning. Other

concepts mentioned are problem-solving skills, curiosity, questioning, and divergent thinking, demonstrated by connecting to prior knowledge and experiences (Runco, 1999).

Advancement towards creative pedagogy requires educational leaders to develop an understanding of creativity and the creative process (Cho et al., 2017). Once creative pedagogy is established, teacher training can provide guidance for creative teaching and learning through current education courses and professional development (Cho et al., 2017; Lin, 2011). Creativity is a process or activity with useful outcomes (Craft, 2001; National Advisory Committee on Creative and Cultural Education, 1999; Ucus, 2018). The creative process may involve taking risks, persistence, observation, experimentation, and allowing for mistakes (Clarke & Cripps, 2012). Creative pedagogy includes teaching creatively, teaching to foster student creativity specifically, creative learning opportunities (Lin, 2011), and addressing individual students through inquiry-based learning and student-centred instruction (Clarke & Cripps, 2012).

Teachers face various obstacles in promoting creativity, ranging from a lack of knowledge to misconceptions about creativity and the creative process (Robinson, 2006; Ucus, 2018). Various studies indicate teachers' misconceptions about the characteristics of creative individuals (Beghetto, 2010a; Cho et al., 2017; Kampilis, 2010; Ucus, 2018). Teacher misconceptions, among other factors, are not the sole hindrance to fostering creativity. Cho et al. (2017) also mention factors such as limited student choice, creative suppression, compartmentalization, and high-stakes testing. The negative association with certain creative traits highlights the need for clear methods to foster creativity while maintaining a safe and positive working environment in the classroom (Beghetto & Kaufman, 2014). Additionally, Schacter, Thum, and Zifkin (2006) reported that American teachers rarely use methods that encourage creative thinking, especially in minority and low-achieving classrooms, indicating the potential benefits of research on creativity and social class. Sali and Akyol (2015) found that the most significant barrier to fostering creativity in elementary classrooms is the lack of teacher training in fostering creativity.

Methods

This study utilized interview instruments to obtain opinions from several participating teachers regarding the perceptions on the use of the brainstorming and imagination techniques. This aligns with what Brown and Dowling (1998) described, stating that interview methods consider what is untouched by quantitative studies, namely subjective views resulting from both intended and unintended consequences, emphasizing the production of meaning. The research subjects are the data sources that can provide relevant information regarding the research problem being investigated. The technique used to select research subjects is purposive sampling, chosen with specific considerations and objectives in mind (Sugiyono, 2015). The criteria determined by the researcher for research subjects are individuals involved in the activities being studied, who have knowledge and understanding of the relevant information pertaining to the research.

Sample

The study population consists of two schools with preschool classes in the Kota Belud district, Sabah. The research subjects consist of 4 preschool teachers. These preschool teachers were selected because they are from schools that implement teaching methods involving brainstorming and imagination techniques.

Instrument

The instrument used by the researcher in this study is individual interviews. Each interview takes approximately 30 minutes. The questions are divided into opening questions that ask respondents to provide their personal background, such as their place of work, teaching experience, and educational background. This is followed by opening questions about how they teach students to be creative in drawing. This followed by questions on their opinion on whether it is easy to teach students to be creative in drawing. Also asked was whether the brainstorming and imagination techniques can help to improve the creativity of preschool students in drawing. Finally, they were asked about their expectations for curriculum developers in the future.

Data Analysis

To answer the research question, the researcher conducted individual interviews with several preschool teachers who were using the experimental module on the brainstorming and imagination techniques. The interview sessions were recorded and transcribed into written form. After that, the analysed data were translated into table form.

Results and Discussion

Here is a summary table of the respondents' backgrounds, which consists of 4 female teachers involved in a school that implemented the brainstorming and imagination techniques treatment. Two of the teachers are from School A, while the other two respondents are from School B. Two teachers have three years of experience in teaching preschool students, while the other two teachers have 15 years. In terms of education, two teachers hold Bachelor's degrees, while the other two hold Master's degrees.

Table 1: Background of Teacher Respondents

Respondent	Sex	School	Teaching Experience	Educational Background
Teacher A	Female	SK B	3 Years	Bachelor's Degree
Teacher B	Female	SK B	3 Years	Bachelor's Degree
Teacher C	Female	SK A	15 Years	Master's Degree
Teacher D	Female	SK A	15 Years	Master's Degree

Table 2: Transcript of Interview with Teachers on Teaching Preschool Students How to Draw

	Teacher's Response	Code/Theme
Question	How do you teach students to draw in the context of Creativity and Aesthetics?	Buying books
Teacher A	"I am actually relatively new to teaching preschool, as this is only my third year. So, I purchase recommended teaching activity books and interpret what is required in the National Preschool Curriculum (KSPK) to ensure that it aligns with the teaching objectives and standards."	Interpreting the curriculum requirements
Teacher B	"I usually teach students to draw using existing objects, picture cards... I ask students to observe the picture or object and then	Material

	instruct them to replicate the drawing. However, the downside is that when students simply copy exactly what they see, it means there is no creativity involved."	Result
Teacher C	"I teach preschool students to draw in the Creativity and Aesthetics Strand by downloading materials from the internet. I also incorporate themes into drawing activities. If the internet connection is good, sometimes I show students how to draw using techniques from YouTube."	Themed material
Teacher D	"I purchase activity books available in the market to use when preparing teaching plans. It is easier for me as I can make copies and distribute them to students during the Creativity and Aesthetics Strand."	Material

Table 2 revealed that most teachers purchased reference materials available in the market for teaching drawing. This information provided a glimpse into the fact that teachers rely heavily on teaching materials available in the market. This situation may arise due to a lack of understanding of the preschool curriculum itself, as stated by Teacher A, "...I purchase recommendation books on teaching activities and interpret on my own what is required in the National Preschool Curriculum (KSPK) to ensure that it aligns with the teaching objectives and standards." The practice of purchasing materials available in the market also has a negative impact on students' creativity, as expressed by Teacher B, "...but the drawback is that when students imitate exactly what they see, it means no creativity is involved".

Table 3: Transcript of The Teacher Interviews Regarding Their Opinions on Teaching Preschool Students Creatively in Drawing

	Teacher's Response	Code/Theme
Question Teacher A	In your opinion, is it easy to teach students to be creative in drawing activities? "In my opinion, it is not easy to teach students to be creative in drawing activities. I cannot say that teaching students to be creatively artistic in painting is either easy or difficult... I have had students who were naturally very creative when drawing and guiding them was not so difficult because they could easily express their creative ideas in their artwork. However, students like these are rare to find. Most of the students I have taught require guidance until they are able to paint creatively on their own".	Students' Strengths
Teacher B	"I have been teaching in the preschool field for 14 years, so all this time I have been teaching students to draw based on the weekly themes. For example, if the theme for this week is vehicles, then I will teach the students to draw vehicles, and so on until we have covered all the themes within a year. It all depends on the themes".	Theme

Teacher C	"Teaching creativity in drawing is actually not easy because the existing skills of the students are not the same. So, this poses a challenge for teachers in teaching creative drawing, especially since we have students with disabilities enrolled in the preschool, holding OKU cards".	Students' Strengths
Teacher D	"Although I mentioned earlier that I purchase many books from the market to facilitate my lesson planning, when comparing the content of these workbooks with the activities in the teacher's guide, most of the books in the market only encourage students to colour beautifully, while the activities in the teacher's guide focus more on encouraging students to think, create, explore materials, and draw freely".	Material

Table 3 reported the teachers' opinions regarding whether it is easy to teach students to be creative in drawing. Most teachers emphasized the importance of students' existing skills, which play a significant role in their ability to engage in creative drawing, as stated by Teacher A, "...most of the students I have taught require guidance until they can independently draw creatively." This view is supported by Teacher B, who mentioned that "...students' existing skills vary, posing a challenge for teachers in teaching creative painting." An interesting finding from the interviews was that the commercially available books actually do not encourage students' creativity but rather focus on training them to colour beautifully, as expressed by Teacher D, "...most books in the market only encourage students to colour beautifully, while teacher-led activities focus more on encouraging students to think, create, explore materials, and paint freely".

Table 4: Transcript of Teacher Interviews on Enhancing the Creativity of Preschool Students in Drawing

	Teacher's Response	Code/Theme
Question	Can the brainstorming technique / imagination technique model help enhance the creativity of students in drawing?	
Teacher A	"I have been serving as a preschool teacher for approximately three years. I find that this model is very beneficial, and it greatly facilitates my teaching activities, especially for new teachers like me, as it serves as a guide to teach students to be more creative in painting".	Effectiveness of Model - simplify/guide
Teacher B	"I believe that this model is indeed very helpful to me because it provides clear guidelines on how to conduct certain activities. The suggested materials to be used are also easily accessible, which makes it even more convenient".	Effectiveness of Model Material
Teacher C	"Yes, this model has been very helpful in nurturing the creative interests of my students. It is engaging because most of the time the students are not confined to the classroom. They have the opportunity to choose and gather materials on their own, engaging their senses such as sight and touch. This can affect their emotions positively, making them more joyful, confident, and creative in their work. I can feel the excitement of the	Material Effectiveness of Model Emotion

	students when they eagerly ask about the art activities planned for the next day".	
Teacher D	"To be honest, this creativity model has been extremely helpful in my teaching and has significantly enhanced the creativity of my students. After completing all the activities in the creativity model, I can observe a noticeable improvement in the students' creativity. For example, previously the students would only draw simple sketches, but after engaging in the suggested activities in the model, the students have become more creative in their artwork, and the objects they draw are more diverse and distinct".	Effectiveness of Model

Table 4 found that the model on the brainstorming and imagination techniques had successfully enhanced the creativity of preschool students in drawing, as stated by Teacher A, "This model is excellent and greatly facilitates me in conducting teaching activities, especially for new teachers like me, as a guide to teaching students to be more creative in drawing." In addition, this model is clear in terms of implementation methods, as mentioned by Teacher B, "This model contains clear guidelines on how to conduct each activity." The activities in this model are also engaging and not boring, as stated by Teacher C, "This model is interesting because most of the time the students are not confined to the classroom. They have the opportunity to gather and choose their own materials to use. It involves multiple senses such as sight and touch, and it can influence the students' emotions to feel more joyful, courageous, and creative in their work. I can feel the excitement of the students when they are engaged in the activities in this model, and they eagerly ask about the art activities they will do the next day." The effectiveness of this model can also be seen in the students' artwork, as mentioned by Teacher D, "After completing all the activities in the creativity model, I can see a significant improvement in the students' creativity. For example, previously the students only made simple sketches, but after completing the suggested activities in the model, the students became more creative in their drawings, and the objects they depicted became more diverse and clearer".

Table 5: Transcript Results of Interviews with Teachers Regarding Their Expectations for Future Preschool Curriculum Developers

	Teacher's Response	Code/Theme
Question	"What are your expectations for future preschool curriculum developers?"	
Teacher A	"I hope that future preschool curriculum developers, in collaboration with the Ministry of Education Malaysia, will provide more exposure and information about the preschool curriculum to preschool teachers. For example, in terms of student assessment, there should be a greater focus on assessing creativity rather than solely emphasizing cognitive assessment. If creativity assessment is included, it should be more comprehensive and not limited to competitions such as colouring contests. Creativity in students should be nurtured in a way that goes beyond just being skilled at colouring. The first step towards cultivating creative students in all aspects is to ensure that teachers themselves have the skills and knowledge	Curriculum is unclear Teachers as creative researchers

	to conduct research, enabling them to be creative in addressing any challenges that may arise in the classroom when working with students."	
Teacher B	"I hope that preschool curriculum developers will be more sensitive in shaping the preschool curriculum, particularly in enhancing the creativity of preschool students, not only in art activities but across all domains. This should consider the school's context, the backgrounds of the students, and the advancements in internet technology that exist today."	Students' Strengths
Teacher C	"I hope that preschool curriculum developers will provide clearer explanations of the concept of creativity along with suggested activities that can help me teach more creatively, not only in the domain of creativity and aesthetics but across all domains taught in preschool."	Curriculum is unclear
Teacher D	"For the aspect of creativity, there should be a dedicated book to assist teachers in planning teaching activities that align with the meaning of 'creative.' I also hope that the book contains activities that expose students to creative environments and activities, similar to the provided model."	Curriculum is unclear

Table 5 reported some constraints and suggestions from teachers, particularly regarding the preschool curriculum itself. One of the constraints mentioned was the lack of clarity in the term "creative" itself, as mentioned by Teacher C: "...I hope that the preschool curriculum developers will provide clearer explanations about the meaning of creativity along with suggested activities..." Currently, teachers often interpret the meaning of creativity in the preschool curriculum on their own, and the assessment of student skills tends to focus more on cognitive assessments, as expressed by Teacher A: "...for example, the assessment of preschool students mostly focuses on cognitive aspects and lacks emphasis on assessing creativity. If creativity assessment is conducted, it is often limited and leans towards competitions, such as colouring contests. As a result, students' creativity is indirectly tailored to excel only in colouring skills...". Therefore, creative drawing development was not included. Perhaps it is time for the curriculum developers to create a dedicated book that includes various activity suggestions that nurture and encourage students' creativity, as suggested by Teacher D: "...for the creativity aspect, a special book should be created to assist teachers in planning teaching activities that truly align with the meaning of 'creative.' I also hope that the book contains activities that expose students to creative environments and activities, similar to the modules provided by teachers". The summary of the interview is illustrated in Diagram 1.

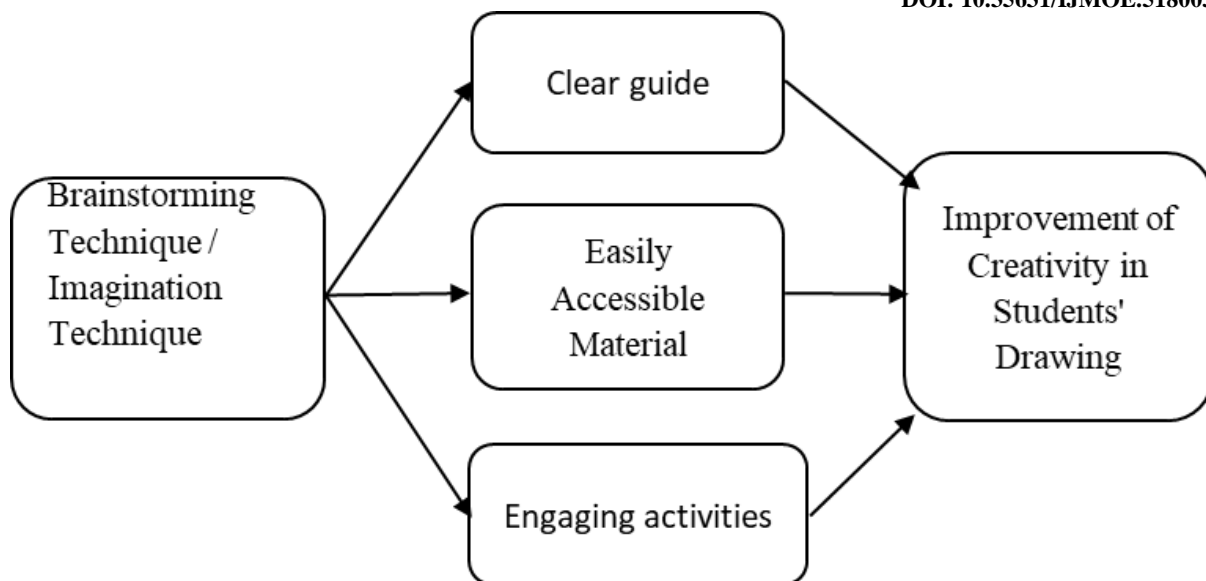


Diagram 1: Summary of The Interview Findings on Teachers' Perception on Enhancing Creativity Via the Brainstorming and Imagination Techniques

Conclusion

Based on the findings of interviews with preschool teachers involved in teaching using the brainstorming and imagination techniques, it was found that this module is effective in enhancing the creativity of preschool students in drawing. This is attributed to several factors. Firstly, the module provides clear teaching guidance. Secondly, the suggested teaching materials are easily accessible and cost-effective, as most of the materials recommended for the activities are recyclable. Additionally, the suggested activities are diverse, interesting, and engage almost all sensory aspects of the students.

There are four factors that have been identified to contribute to the development of preschoolers' creativity through the teaching practices of teachers. First, children's creativity can be nurtured through quality teaching practices such as the preparation of a good lesson plan, the use of induction sets, the diversity of teaching methods, the use of teaching aids and teaching assessments. Second, in terms of teaching level, children's creativity can be nurtured by adjusting the quality and quantity of learning according to the level of children's ability. Thirdly, incentives such as praise and gift-giving practiced by teachers can stimulate the development of children's creativity. Fourth, the nurturing of children's creativity depends on the allocation of time, which is the teaching time allocated to the teacher and the children's learning hours. These four factors should be given attention in order to improve teachers' teaching practices towards developing children's creativity (Mokhlis, 2019).

The Rusdin & Ali study (2019) states that providing teaching modules may be able to overcome issues related to some problems in implementing 21st century learning such as time constraints, lack of knowledge and the burden of external tasks not related to teaching and learning. This module should be practical and user-friendly where teachers can use the proposed activities immediately, whenever they need. In addition, the teacher can adapt and modify the proposed activities to new activities and make them meaningful for the lesson.

This research module indirectly helped to address the challenges faced by teachers and their needs to implement teaching methods that foster creative skills. Therefore, this module serves

as an initiative to assist teachers in tackling the challenges they encounter. It integrates creative skills into holistic teaching approaches for drawing. Moreover, the creativity module systematically encompasses creative skills and provides a clear description of the complete implementation process, making it easier for preschool teachers to benefit from it. The creativity assessment scores taught and applied by the teachers involved in teaching the module also indirectly guide teachers in evaluating their teaching practices in the classroom. This study is in line with the findings of Muhammad Syawal et al. (2021), which also emphasized the need to create teaching modules that integrate creative skills in STEM education at the preschool level.

Acknowledgments

We thank the respondents who are preschool teachers in Kota Belud, Sabah for participating in this research.

References

- Alcock, S. (2007). Playing with rules around routines: Children making meal times meaningful and enjoyable, *International Journal of Research and Development*, 27(3), 281–294.
- Alsahou, H. (2015). Teachers' beliefs about creativity and practices for fostering creativity in science classroom in the State of Kuwait, *published PhD thesis*, University of Exeter.
- Alsahou, H. J., & Alsammari, A. S. (2019). Beliefs about Scientific Creativity Held by Pre-Service Science Teachers in the State of Kuwait. *International Education Studies*, 12(10), 37-49.
- Amran, M. S., Zain, S. M., Jamaludin, K. A., & Surat, S. (2021). Thinking About Behavior: Perspective on Meta-Behavior in Education. *Frontiers in psychology*, 12, 727116. <https://doi.org/10.3389/fpsyg.2021.727116>.
- Beghetto, R. A. (2010a). Creativity in the classroom. In J. C. Kaufman & R. J. Sternberg (Eds.), *The Cambridge handbook of creativity* (pp. 447-466). Cambridge University Press.
- Beghetto, R. A., & Kaufman, J. C. (2014). Classroom Contexts for Creativity. *High Ability Studies*, 25, 53-69. <https://doi.org/10.1080/13598139.2014.905247>
- Boden, M. (1990). *The Creative Mind: Myths and Mechanisms*. Weidenfield & Nicolson.
- Boden, M.A. 1987. *Artificial Intelligence and Natural Man*. London: MIT Press; New York: Basic Books, 1987. 2nd eds., expanded
- Brown. A and P. Dowling. (1998). *Doing research/reading research: A mode of anthology of current practice*. Cambridge: Cambridge University Press.
- Cho, H. F., Pemberton, C. L., & Ray, B. (2017). An exploration of the existence, value, and importance of creativity education. *Current Issues in Education*, 20(1). <http://cie.asu.edu/ojs/index.php/cieatasu/Arcticle/view/1537>
- Clarke, A., & Cripps, P. (2012). Fostering creativity: A multiple intelligences approach to designing learning in undergraduate fine art. *International Journal of Art & Design Education*, 31(2), 113-126. 10.1111/j.1476-8070.2012.01736.x
- Collard, P., & Looney, J. (2014). Nurturing creativity in education. *European Journal of Education*, 49(1), 348-364. 10.1111/ejed.12090
- Craft, A. (2001). *An analysis of research and literature on creativity education*. A report prepared for Qualifications and Curriculum Authority.
- Cremin, T. (2012). Creative Teachers for Creative Learners: Implications for Teacher Education Programme. *The Standing Conference on Teacher Edu. North and South. 10th Annual Conference. 11-12 Oct 2012*, Radisson Blu Farham Estate Hotel Cavan.
- Csikszentmihalyi, Mihaly. (1990). *Flow: The Psychology of Optimal Experience*.

- Dacey, J. (1989). *Fundamentals of creative thinking*. Lexington, Massachusetts: D. C. Heath and Company. Dacey & Ripple, 1989
- Fullan, M., & Hargreaves, A. (1992). *Teacher Development and Educational Change*. Falmer Press.
- Garcia, J. G., & Mukhopadhyay, T. P. (2019). The Role and Efficacy of Creative Imagination in Concept Formation: A Study of Variables for Children in Primary School. *Education Science*, 9, 175.
- Hartley, K. A., & Plucker, J. A., (2014). Teacher use of creativity-enhancing activities in Chinese and American elementary classrooms. *Creativity Research Journal*, 26(4), 389-399.
- Hedegaard, Mariane. (2012). *Analyzing Children's Learning and Development in Everyday Settings from a Cultural-Historical Wholeness Approach*. Mind, Culture, and Activity. 19. 10.1080/10749039.2012.665560.
- Hong, M., Kang, NH. (2010) South Korean and The Us Secondary School Science Teachers' Conceptions Of Creativity and Teaching for Creativity. *International Journal of Science and Math Education*, 8, 821–843 (2010). <https://doi.org/10.1007/s10763-009-9188-5>
- Kampylis, P. (2010). *Fostering creative thinking–The role of primary teachers: Jyväskylä Studies in Computing*. Finland: University of Jyväskylä.
- Lee, E. A., & Kim, K. H. (2005). Korean Science Teachers' Understanding of Creativity in Gifted Education. *The Journal of Secondary Gifted Education*, 2(3), 98-105. <https://doi.org/10.4219/jsge-2005-476>
- Lin, Y. S. (2011). Fostering creativity through education: A conceptual framework of creative pedagogy. *Creative Education*, 2(3), 149-155. 10.1016/j.tsc.2010.09.005
- Liu, S., & Lin, H. (2014). Primary Teachers' beliefs about Scientific Creativity in the Classroom Context. *International Journal of Science Education*, 36(10), 1551-1567, <https://doi.org/10.1080/09500693.2013.868619>.
- Mohammad, N., & Mohamad Yasin, R. (2010). Amalan Pengajaran Guru dalam Reka Bentuk dan Teknologi: Tinjauan dari perspektif pelajar tingkatan satu pelbagai elektif. In *Seminar Antarabangsa Pendidikan Kepelbagaian Pelajar*. Hotel Equatorial, Bangi.
- Mohammad, N., Hashim, T. A., & Mohammad Yasin, R. (2011). Amalan Pengajaran Dalam Reka Bentuk Dan Teknologi (RBT): Pengaplikasian Model Proses Kreatif Terarah Dalam Kurikulum Standard Sekolah Rendah (KSSR). *Prosiding Persidangan Kebangsaan Penyelidikan dan Inovasi dalam Pendidikan dan Latihan Yeknik dan Vokasional (CIE-TVT 2011) 16-17 November 2011, Hotel Naza Talya Pulau Pinang, (November)*, 236– 240.
- Mohamad, N. M. (2021). Cabaran Pedagogi Norma Baharu di Kolej Universiti Islam Perlis (Kuips) Ketika Pandemik Wabak Koronavirus Covid19. *Jurnal Pengajian Islam*, 243-254.
- Mokhlis, S. (2019). Pemupukan Kreativiti Kanak-Kanak: Kajian Kes Amalan Pengajaran Kreativiti di Sebuah Tadika Islam: Nurturing Creativity in Young Children: A Case Study of the Practice of Teaching for Creativity in an Islamic Kindergarten. *ATTARBAWIY: Malaysian Online Journal of Education*, 3(1), 34-48.
- Pajares, M. F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research*, 62(3), 307-332. <https://doi.org/10.2307/1170741>
- Pratt, D. (1992). Conceptions of teaching. *Adult Education Quarterly*, 42(4), 203-220. <https://doi.org/10.1177/074171369204200401>

- Putman, V. L., & Paulus, P. B. (2009). Brainstorming, brainstorming rules and decision making. *Journal of Creative Behaviour*, 43(1), 23-39.
- Richardson, V. (1996). The role of attitudes and beliefs in learning to teach. In J. Sikula (Ed.), *Handbook of research on teacher education* (pp. 102-119). New York: Simon and Schuster Macmillan.
- Robinson, K. (2006). *Do schools kill creativity? TED Talks*. https://www.ted.com/talks/ken_robinson_says_schools_kill_creativity/up-next?language=en
- Runco, M. A. (1999). Divergent thinking. In *Encyclopaedia of Creativity*, Vol. (1) (pp. 577-582). Academic Press.
- Rusdin, N. M., & Ali, S. R. (2019, November). Amalan dan cabaran pelaksanaan pembelajaran abad ke-21. In *International Conference on Islamic Civilization and Technology Management* (pp. 87-105).
- Sali, G., & Akyol A. K. (2015). Creativity of preschool and elementary school teachers and their students. *Perceptual & Motor Skills: Learning and Memory*, 121(3), 759-765. 10.2466/22.pms.121c27x2
- Samsudin, M. Z., Zainal, A., Razali, H., & Noraini, K. (2013). Melestari Program TVET Berdasarkan Kreativiti Guru. *Persidangan Pendidikan (Penyelidikan dan Inovasi) Dalam Pendidikan Dan Latihan Teknikal Dan Vokasional (CiE-TVET 2013)*.
- Schacter, J., Thum, Y. M., & Zifkin, D. (2006). How much does creative teaching enhance elementary school students' achievement? *Journal of Creative Behaviour*, 40(1), 47-72.
- Scheffer, M., Baas, M., & Bjordam, T. K. (2017). Teaching originality? Common habits behind creative production in science and arts. *Ecology and Society*, 22(2). 10.5751/es-09258-220229
- Sharp, C. (2004). Developing young children's creativity: What can be learned from research? *Topics*, 32, 5-12
- Shin, S., & Koh, M. (2007). A cross-cultural study of teachers' beliefs and strategies on classroom behavior management in urban American and Korean school systems. *Education and Urban Society*, 39(2), 286-309. <https://doi.org/10.1177/0013124506295280> (Shin & Koh, 2007).
- Sternberg, R. J., & Wagner, R. K. (1992). *Thinking styles inventory*, Unpublished test. Yale: Yale University.
- Sugiyono, (2015), *Metode Penelitian dan Pengembangan Research and Development*, Alfabeta, Bandung.
- Thompson, A. (1992). Teachers' beliefs and conceptions: A synthesis of the research. In D. Grouws (Ed.), *Handbook of research on mathematics teaching and learning* (pp. 127-146). New York: Macmillan.
- Torrance, Ellis Paul. (1961). *Guiding Creative Talent*. Englewood Cliffs, NJ: Prentice- Hall.
- Ucus, S. (2018). Exploring creativity in social studies education for elementary grades: Teachers' opinions and interpretations. *Journal of Education and Learning*, 7(2), 111-125. 10.5539/jel.v7n2p111
- Vygotsky, L. S. (2004). Imagination and creativity in childhood. *Journal of Russian and East European Psychology*, 42(1), 7-97.
- Woolley, S. L., Benjamin, W. J. J., & Woolley, A. W. (2004). Construct validity of a self-report measure of teacher beliefs related to constructivist and traditional approaches to teaching and learning. *Educational and Psychological Measurement*, 64, 319-331. <https://doi.org/10.1177/0013164403261189>
- Zimmerman, E. (2009). Reconceptualizing the role of creativity in art education theory and practice. *Studies in Art Education*, 50(4), 382-399. 10.1080/00393541.2009.11518783