

Promoting kindergarten children's creativity in the classroom environment in Jordan

Kholoud Dababneh^{a*}, Fathi M. Ihmeideh^a and Aieman A. Al-Omari^b

^aQueen Rania Faculty for Childhood, Hashemite University, Zarqa, Jordan; ^bFaculty of Educational Sciences, Hashemite University, Zarqa, Jordan

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This study aimed at investigating teachers' classroom practices, which either stimulate or inhibit the development of the creative environment of classrooms in Jordan, and determining the differences between practices according to educational level, experience level and type of teaching. The sample of the study consisted of 215 kindergarten teachers. A five-dimensional questionnaire consisting of 50 items was developed to achieve the study aims. The results revealed that the rating of teachers' practices that encourage creativity in children was satisfactory for the domains of physical environment and educational materials, lesson planning and creative instructional practices. In addition, teachers' rating lies in the category of 'good' for the domains of knowledge and awareness of creativity, and creative classroom climate. Moreover, the results showed that there were statistically significant differences due to the type of teaching in favour of the cooperative method, and due to the educational level in favour of postgraduates, while no statistically significant differences were found due to experience level. Based on the findings, appropriate recommendations were suggested.

Keywords: creative classrooms; kindergarten children; teachers' practices

Introduction

A growing body of research studies has demonstrated the essential role of schools in the development of imaginative and creative impetus among children, and reported that classroom environment either plays an essential role in the growth of creative ability among children or inhibits it (Alencar, 1993; Cropley, 1994; Csikszentmihalyi, 1997; Fleith, 2000; Fleith, Renzulli, & Westberg, 2002; Gentry, Rizza, & Owen, 2002; Runco & Albert, 1990; Sternberg & Lubart, 1999; Tan, 2001).

Researchers emphasised that if teachers adopt positive attitudes towards promoting creativity among children in the classroom, then they can positively affect their students' motivation (Amabile, 1986; Clark, 2004; Piirto, 1998; Runco, 1990), achievement, creativity, self-confidence and school attitudes, and can also positively influence children's later competencies (Davis & Rimm, 2004). Indeed, teachers need to apply many strategies that develop creative processes by combining ideas and modifying them in order to develop novel solutions to activities presented to students. These strategies include creative writing, open-ended activities and drawing, allowing

*Corresponding author. Email: Dababneh@hu.edu.jo

students to choose what they want to do in free time, developing arts centres, giving flexible directions to students, using tools to develop creativity like brainstorming sessions, and giving students a range of options to choose from to do their work (Davis, 2004; Sak, 2004).

In recent years, the Jordanian government has given a great deal of attention to the importance of developing children's creative abilities, and plans to develop creative educational programmes that aim to develop curriculum, teaching strategies and classroom environment in order to help in the growth of children's creative abilities. From 1980 till now, many programmes have been developed by the Ministry of Education (MoE) planning strategy. One of these is the government's five-year ERfKE programme (2003–2008) which has paid much attention to developing kindergarten and primary education in the Kingdom, and curriculums and training programmes that aim to develop teachers' teaching strategies to encourage the creative abilities among their students, enrich classroom environment and provide the students with several resources and materials. A recent report conducted by the MoE in early July 2008 revealed that there are many specific creative educational programmes in the Kingdom, in association with UNICEF and UNESCO institutions (MoE, 2008). These programmes include three schools for gifted and creative children, seven resource classrooms within regular schools and 17 pioneer centres for gifted and creative children, which all aim to develop creative abilities of children from various levels so that they are able to produce novel products on personal and societal levels in different fields according to each student's abilities (MoE, 2008).

Statement of the problem

Despite the increase in people's awareness of the importance of developing creative thinking and problem-solving among children, teachers follow certain teaching strategies that emphasise fostering knowledge, recall of information and reproduction (Fleith et al., 2002). In general, teachers' behaviour in the classroom reflects the lack of knowledge about the nature of creativity and how to teach to increase creativity in the classroom. Thus, it is important for teachers to know how they can prepare the classroom in order to promote growth and expression of children's creative abilities, and how to implement this.

Despite the importance of developing creativity among children in the classroom, and although some research has been done on teachers and most of it investigated teachers' attitudes towards the effect of creativity workshops (Fleith, 2000; Fryer & Collings, 1991; Gentry et al., 2002; Tan, 2001), these studies have not provided in-depth information about teachers' actual classroom practices to foster creativity among children. In addition, few attempts have been made to examine realistic teacher practices to enhance creativity in the classroom environment. Therefore, an investigation of teachers' practices that enhance the creative environment in the classroom might be helpful in increasing research productivity and developing children's creativity according to their abilities.

The purpose of the present study was to determine and investigate the practices teachers use in the classroom to foster students' creative thinking in middle Jordan, and to find the significant differences, if any, in creative classroom environments and domains among teachers that could exist due to the educational level, experience level and type of teaching. In contrast, the present programmes to develop classroom environment in order to enhance the growth of children's creative abilities are considered

organised, and need national planning at first to identify the range of teachers' practices of creativity in classroom environments.

Research questions

To achieve the purpose of the study, the following research questions were formulated:

- (1) To what extent do teachers promote creativity in their actual classroom practices according to the domains, namely, knowledge, lesson planning, educational materials, creative classroom climate and creative instructional practices?
- (2) Are there significant differences in the seven subscales of creativity level in the classroom environment among teachers that could be attributed to (i) educational level, (ii) experience level, and (iii) type of teaching?

Significance of the study

Developing creativity among children in schools contributes to the advancement in quality of life of children and to their society in the different fields of art, science, invention and literature. As a consequence to the contributions in building a creative environment, a more productive world has emerged that gives power to human beings. At present, a major emphasis has been placed on the importance of developing creativity among children at an early age, and on the key role of teachers' contribution to the growth of creativity among children within classrooms.

With an extensive review of previous research, it is clear that there is more need to investigate the extent to which teachers practice creating a creative environment in the classroom which aims to develop creativity among children. This investigation has both practical and theoretical implications. From the practical standpoint, developing creativity in the classroom environment is considered as one of the key factors that has a direct effect on promoting the development and expression of students' creative abilities; so, teachers can establish safe places for developing creative abilities among students in the classroom. Moreover, teachers play an essential role in the development and progress of creativity in the classroom (Clark, 2004). Thus, it is important to determine and investigate to what extent teachers help to encourage or inhibit creativity in the classroom environment, and develop the classroom environment in order to foster creativity among students. In this regard, findings of this study can help schools remove the barriers in the classroom environment that inhibit creativity and emphasise certain strategies and practices in the classroom environment which would enhance creativity. From the theoretical standpoint, there is a lack of research in this area (Fleith, 2000). Future research efforts should identify the level of teachers' practices and strategies used to enhance creativity in the classroom environment.

In addition, this study contributes to measure the extent to which teachers' practices aim to develop creativity among children in the classroom, and investigate the conditions in the classroom that contribute to develop the creative potential of children (Fleith, 2000). Therefore, this study contributes a number of indicators that can help administrators and teachers in the evaluation of the degree to which their practices foster the creative environment in the classroom, and provides them with positive

feedback in order to develop their practices and strategies of teaching for encouraging creativity among children.

Theoretical framework

Over the years, research studies have confirmed the fact that the word ‘creative’ is not restricted only to persons who have achieved creative eminence, but children with normal intelligence also have the potential to be creative to some degree in various styles (Davis, 2004). With organised training, this creative capability could increase and lead individuals to produce novel and useful ideas or things, if this is active with motivation. Insofar as a person has a high level of intelligence, creative personality traits, motivation and supportive environment, their product will be more creative, and can make their life and world a better place (Davis, 2004; Davis & Rimm, 2004).

Many researchers have tried to explain the creativity concept from varied perspectives. For instance, Davis (2004) and Sternberg (2003) view creativity as an attitude towards life, a way of living, growing, perceiving one’s world and not only a matter of thinking in a certain way; whereas Black (2003) describes creative persons as hard-working, dedicated, enthusiastic, intrinsically motivated to tackle and finish complicated tasks with self-confidence.

In this field, some studies have examined the relationship between classroom environment and students’ creativity, and emphasised the strong effect of favourable classroom environment and classroom discussions on developing or inhibiting the creative potential of children (Amabile, 1996; Csikszentmihalyi, 1996). For instance, Dudek, Strobel, and Runco (1993) investigated the influence of school environment on the creative ability of fifth- and sixth-grade students from 11 schools in Montreal using Torrance Tests of Creative Thinking. Results indicated that the environment of a school, the social dynamics prevailing in a classroom and interaction between students and teachers have a clear impact on the growth of students’ creative abilities.

Sternberg (1999) and Strom and Strom (2002) reported that teaching students to think creatively allows them to develop their creativity and to learn better. As Torrance (1983) found out, environment could enhance the creativity of the children by taking into account ‘both cognitive and emotional functioning, providing adequate structure and motivation, and giving opportunities for involvement, practice, and interaction with teachers and other children’ (pp. 132–133).

Because teachers are considered the key factor and play an essential role in encouraging and rewarding students’ novel ideas, unique perspectives and creative abilities (Beghetto, 2007; Sternberg & Grigorenko, 2004), it is important to develop their recognition about the importance to foster children’s creative abilities in the classroom, and develop positive responsiveness to the children’s unique personality, and interest (Fleith, 2000). For instance, many studies (Alencar, 1993; Cropley, 1994; Csikszentmihalyi, 1997; Fleith, 2000; Gentry et al., 2002; Runco & Albert, 1990; Sternberg & Lubart, 1999; Tan, 2001) emphasised that teacher classroom practices have crucial influence on the development of students’ creativity; they build classroom environments in which creativity flourishes by being responsive to unusual ideas, and by rewarding and fostering students’ creativity through instructional activities.

However, much research has focused on what teachers have to do to foster students’ creativity, and on characteristics of creative students. In this field, Sak

(2004) conducted a case study that aimed to explore a teacher's beliefs about creativity and giftedness and investigated the classroom practices of this teacher towards gifted students for 20 years. Seven semi-structured and two open observations were conducted with her. She believed that creative children are those who are 'free thinkers' and have 'imaginative intelligence'. In creative writing, she focused on implementing activities such as learning to write poetry, personal narratives, research reports and essays finding solutions to real-world problems, and mystery stories decorated with similes, metaphors and imaginative expressions. In reading, students analysed characters, problems, places and times in stories and novels, and then rewrote stories.

According to Davis and Rimm (2004), actualisation of creativity among children requires enriching school environments and establishing the conditions that lead to the expression of creativity, which include psychological safety, freedom, allowing disagreement and mistakes, and creating a variety of creative settings and activities in the learning environment. Sternberg and Williams (1996) added that teachers should give students more time for practising creative activities, reward creative ideas and products, encourage sensible risks, promote imagining other viewpoints and exploring the environment and questioning assumptions. Moreover, the classroom environment should provide opportunities to investigate ideas, encourage questions and self-expression, try out intuitive behaviours and explore, observe, analyse, infer and predict. Such environments must also include materials and experiences that involve cognitive, physical, affective and intuitive domains, giving sufficient time for free play. Runco (1990) and Starko (1995) added that teachers' practices should focus on supporting unusual ideas, and on providing freedom of thought and freedom of choice.

Accordingly, when teachers encourage children to experiment with novel ideas and be 'mentally playful' – including taking risks in their thoughts and actions – they will provide these children with opportunity to be more creative and productive persons (Clark, 2004). Renzulli (1998) added that fluency, flexibility and originality of thought, openness to experience and new ideas, high levels of energy, optimism, and a commitment to excellence, as 'starting materials' for teachers who seek to facilitate creativity in their classrooms. Similarly, Annarella (1999) suggested that teachers should encourage students to stretch their world, by focusing their values on openness to the child's experiences and intrinsic worth.

However, despite the importance of developing creativity among children in the classroom, Alencar (1993) reported that most classroom environments discouraged students' creativity. Moreover, Gentry et al. (2002) reported that students perceived little freedom of choice in their classrooms, and Sak (2004) found that most teachers do not favour creative behaviours, which include, as Cropley (1994) summarises, 'impulsive, nonconformist, disorganised, adventurous, and imaginative behaviours'. Teachers also ignore teaching creative thinking skills probably because they do not know how to foster creativity, do not understand the nature of creativity and do not have relevant training to be competent in fostering students' creative thinking in their classrooms (Sternberg, 2003).

Unfortunately, many teachers were not interested in receiving novel ideas (Beghetto, 2007). This negative practice may be due to novel ideas not being anticipated ideas, and often teachers ignore or reject them. For instance, Kennedy (2005) showed that teachers in usual situations reject students' unexpected ideas, this rejection leads to trouble in the cultivation of creative thinking. Similarly, Amabile (1989)

cited that external rewards, pressure to achieve, restricted choices, rote learning, frequent failures, evaluation and lack of opportunity are often undermining factors that can destroy and hinder creativity in the classroom.

According to Sak (2004), there is little research concern about creativity in the classroom for gifted children and creativity in regular classrooms. However, Rash and Miller (2000) found in this field that teachers recognised the importance of process skills and used several teaching models, like Bloom's Taxonomy of Educational Objectives, Enrichment Triad, Taba Teaching Strategies Program and Creative Problem Solving Model (Maker & Nielson, 1995). Bain, Bourgeois, and Pappas (2003) reported that although most teachers of the gifted students were aware of such teaching models, they rarely used them in their teaching.

In summary, previous findings reinforce the idea that the classroom environment with all its components should include training on a variety of creative thinking tasks. It is also found that the creativity construct includes cognitive and affective components (Davis, 2004; Fleith et al., 2002). Indeed, we can conclude from the several studies about creative environment in the classroom that all students must develop their attitudes to be creative persons (Black, 2003). In addition, teachers have to teach in a way that encourages the growth of children's creative abilities and rewards creative behaviour; also children can learn to make certain kinds of decisions that will enhance their creativity. Because creativity can appear in different kinds and levels among children, it is important that teachers reward all kinds and levels of creativity. Teachers must also prepare the classroom in order to allow both students and teachers to feel free to study and explore important curriculum topics with rigour but without restraints. In such creative classrooms, teachers are mindful of state and local standards, but they approach required topics with a playful enthusiasm that inspires students to learn and prompts them to think deeply, pose questions, pursue 'big ideas' from many perspectives and allows them to show their understanding of essential curriculum concepts in their own ways.

Methodology

Participants

The target population of this study consisted of all kindergarten teachers enrolled in all public and private kindergartens in Amman (the capital and largest city in Jordan). A list of teachers was obtained from the MoE to determine the population frame of the study. According to the list, the target population was 713 teachers in 600 public and private kindergartens. The study sample was randomly selected from 215 kindergartens; all teachers in the selected kindergartens filled and answered the questionnaire. Consequently, 215 teachers were involved in the present study. The sample represents approximately 50% of the target population who taught during the first semester of the academic year 2008–2009. Table 1 shows the demographic data of the sample.

Instrumentation

To achieve the study objectives, the researchers developed 'Creative Environment in Classrooms' survey questionnaire to investigate teacher practices which enhance creativity in the classroom environment, by following the steps detailed below:

Table 1. Demographic data of the study sample.

Experience	Education level	Type of teaching		Total
		Cooperative teaching	Traditional teaching	
Less than 6 years	University level	12	70	82
	Postgraduate	7	3	10
	Total	19	73	92
6–10 years	University level	4	55	59
	Postgraduate	6	4	10
	Total	10	59	69
More than 10 years	University level	0	21	21
	Postgraduate	8	25	33
	Total	8	46	54
Total	University level	16	146	162
	Postgraduate	21	32	53
	Total	37	178	215

Step 1: Reviewing the theoretical and experimental literature

The researchers made a comprehensive review of the theoretical and experimental literature concerning creative environment in the classroom (Clark, 2004; Davis, 2004; Osborn, 2006; Sawyer, 2006). Based on this review, the researchers identified the sections of the study instrument and distributed items on it.

This study instrument comprised 55 items in the primary frame which were rated using a five-point Likert-type scale that ranged as follows: 1: 'very poor'; 2: 'poor'; 3: 'satisfactory'; 4: 'good' and 5: 'outstanding'. Practices have five domains as follows: (1) Knowledge and awareness of creative potential; (2) Lesson planning; (3) Educational materials; (4) Creative classroom climate and teachers' attitudes; and (5) Creative instructional practices.

Step 2: Achieving primary indicators for items

The initial draft of the study instrument was written in English, and then translated into Arabic as the respondents were native speakers of Arabic and most of them did not have adequate knowledge of English. The only Arabic version of the study instrument was pilot-tested on a group of 10 faculty members in the fields of special education and early childhood education at several Jordanian universities. It was also pilot-tested on six kindergartens chosen from the study population outside the original study sample. Changes recommended by the validation panel and those identified as needed during the pilot test were used to modify the instrument by omitting, adding or rephrasing items, bringing down the number of items from 55 to 50, distributed on the previous five subscales measured.

Correcting the scale

The scale used in rating the participant teachers' performance is a five-point scale (1–5). Since value 3 formed the half of this scale, the half degree ranged between 2.5

and 3.49, representing mean degree on the scale and lying in the category of 'Satisfactory'. So, we identified two categories lower than this category and two categories higher than this category, as follows:

- 'Outstanding' category ranges between 4.01 and 5;
- 'Good' category ranges between 3.50 and 4;
- 'Poor' category ranges between 1.75 and 2.49; and
- 'Very poor' category ranges between 1 and 1.74.

Validity and reliability

To ensure the validity of the study instrument, the researchers presented enough logical validity; moreover, they ensured the validity of instrument according to the procedures indicated in the first and second steps. Furthermore, the reliability of the instrument (CEC) was computed by calculating Cronbach's alpha coefficient for each domain. As a result, the internal consistency ratings were 0.80 for Knowledge and awareness of creative potential; 0.75 for Lesson planning; 0.76 for Educational materials; 0.74 for Creative classroom climate and teachers' attitudes; and 0.74 for Creative instructional practices. These results mean that the reliability coefficients were satisfactory for the purpose of the study.

Data collection

The questionnaire, which had been validated and tested for its reliability, was distributed to a group of 10 teachers in five kindergartens, in order to have a preliminary judgement of the questionnaire items and to clarify their meaning, so that it would be possible to carry out necessary changes in order to make items more effective. The participants were asked to respond to the questionnaire and to express their opinions and reactions. The span of time the participants were involved in responding to the questionnaire was noted as well. At the same time, a demographic questionnaire was developed to collect general background information about the sample. The teachers were requested to provide general background information on their academic level, teaching experience and classroom arrangements. The participants were asked to respond to the questionnaire and to express the practices they follow in their classrooms in relation to creative practice. The span of time the participants were involved in responding to the questionnaire was noted as well.

Data analysis

The survey questionnaire was analysed quantitatively utilising the Statistical Package for the Social Sciences. The data collected were analysed and then expressed via means and standard deviations in order to respond to study questions. A three-way multivariate analysis of variance (MANOVA) was used as the main statistical technique in the present study to determine any statistically significant differences among teachers with regard to their educational level, experience level and type of teaching. This statistical technique was used due to the assumption that there is relation between teachers' degrees on the five domains because all these domains are about teachers' practices in the classroom that promote creativity among children. In this field, according to Stevens (1996), if there is more than one dependent variable, and if there

is a logical relation between these variables, or in case there is a theoretical framework connecting these variables, then it is a more useful procedure to compare the study group variables by using multi-analysis, which means integrating the variance of each dependent variable into a joint variance.

Results and discussion

Results pertaining to the first research question

'To what degree do teachers promote creativity in their actual classroom practices?'

Means and standard deviations were used to answer this question for each one of the five major domains of creative classroom environment as shown in Table 2.

Table 2 shows the participant teachers' performance on the five major domains of creative environment in the classroom as revealed using the rating scale (CEC). The scale used in rating the participant teachers' performance is a five-point scale (1–5) – '1' represents very poor practices and '5' represents outstanding practices appropriate to develop creativity among children in the classroom. As can be seen in Table 2, the mean scores achieved on the five domains of teachers' creative skills by the teachers participating in the study ranged between 3.23 and 3.66 out of 5.

The participant teachers' ratings lie in the category of 'satisfactory' for the domains of educational materials, lesson planning and creative instructional practices with mean scores of 3.23, 3.46 and 3.48, respectively. In addition, teachers' ratings lie in the category of 'good' for the domains of knowledge and awareness of creative potential and creative classroom climate, with mean scores of 3.53 and 3.66, respectively. Such findings might mean that teachers have to work a little harder to reach the outstanding category for the teachers' knowledge and awareness of creative potential and creative classroom climate domains, and the good category for educational materials, lesson planning and creative instructional practices domains.

With regard to the standard deviations, Table 2 shows that the ratings of participants' performance were close and similar with respect to the domains of creative classroom climate, lesson planning, creative instructional practices, and knowledge and awareness (0.45, 0.47, 0.50, 0.50 and 0.52, respectively). This is not the case for educational materials domain, where standard deviations were higher, 0.64. This implies that most of the training programmes in both cases – at pre-service in the university and during services in workplace – focus usually on how teachers develop a safe environment for students, lesson planning and presentation, creative instructional practices during lesson presentation, and awareness of students' ability. When supervisors evaluate teachers' performance in the classroom, they focus on how teachers prepare the lesson, including lesson objectives, procedures and evaluation, how teachers deal with students and to what extent teachers develop a creative environment that aims to develop children's abilities in general.

In contrast, materials available in the classroom could vary in government and private schools, both of which represent the study sample. In addition, this difference in teachers' performance on this domain could be due to the type of teaching they practice in their classrooms. In the traditional type, the materials and equipment teachers need to explain the lesson are different from the materials used in the classrooms being taught cooperatively.

With regard to Creative Classroom Climate domain, Table 2 shows that the mean score of participant teachers' performance, who have a postgraduate degree

Table 2. Means and standard deviations of five domains of 'Creative Environment in the Classroom' questionnaire according to the study variables.

Domains	Experience	Education level	Cooperative teaching		Traditional teaching		Total	
			Mean	SD	Mean	SD	Mean	SD
Creative climate and teachers' attitude	Less than 6 years	University level	3.79	0.41	3.53	0.38	3.66	0.39
		Postgraduate	4.21	0.29	3.25	0.45	3.73	0.56
		Total	4.00	0.42	3.39	0.38	3.70	0.42
	6–10 years	University level	3.43	0.37	3.57	0.46	3.50	0.45
		Postgraduate	4.37	0.20	3.83	0.52	4.10	0.44
		Total	3.90	0.55	3.70	0.47	3.80	0.49
	More than 10 years	University level	3.60	0.40	3.77	0.43	3.65	0.43
		Postgraduate	4.17	0.33	3.62	0.42	3.90	0.46
		Total	3.85	0.33	3.70	0.43	3.85	0.45
	Total	University level	3.61	0.42	3.63	0.43	3.62	0.43
		Postgraduate	4.25	0.29	3.57	0.44	3.91	0.50
		Total	3.99	0.44	3.60	0.43	3.66	0.45
Knowledge and awareness of creative potential	Less than 6 years	University level	3.79	0.49	3.43	0.44	3.48	0.47
		Postgraduate	4.10	0.38	3.25	0.37	3.80	0.54
		Total	3.94	0.11	3.34	0.14	3.64	0.10
	6–10 years	University level	3.31	0.60	3.39	0.51	3.35	0.51
		Postgraduate	4.35	0.19	3.65	0.41	4.00	0.44
		Total	3.83	0.15	3.52	0.12	3.67	0.09
	More than 10 years	University level	3.70	0.55	3.51	0.55	3.60	0.60
		Postgraduate	4.10	0.43	3.54	0.45	3.68	0.50
		Total	3.90	0.54	3.52	0.70	3.72	0.07
	Total	University level	3.67	0.35	3.44	0.48	3.48	0.06

Table 2. (Continued).

Domains	Experience	Education level	Cooperative teaching		Traditional teaching		Total	
			Mean	SD	Mean	SD	Mean	SD
Creative instructional practices	Less than 6 years	Postgraduate	4.19	0.45	3.48	0.44	3.83	0.52
		Total	3.93	0.51	3.46	0.48	3.53	0.52
		University level	3.62	0.39	3.39	0.47	3.50	0.46
	6–10 years	Postgraduate	4.17	0.33	3.32	0.31	3.75	0.51
		Total	3.90	0.45	3.35	0.46	3.63	0.49
		University level	3.27	0.21	3.27	0.42	3.27	0.42
	More than 10 years	Postgraduate	4.08	0.36	3.65	0.57	3.86	0.48
		Total	3.67	0.51	3.46	0.44	3.57	0.48
		University level	3.50	0.68	3.64	0.60	3.60	0.58
	Total	Postgraduate	4.00	0.35	3.49	0.39	3.75	0.43
		Total	3.75	0.35	3.57	0.55	3.71	0.54
		University level	3.44	0.38	3.43	0.50	3.44	0.49
Lesson planning	Less than 6 years	Postgraduate	4.08	0.33	3.49	0.40	3.79	0.47
		Total	3.83	0.45	3.46	0.48	3.48	0.50
		University level	3.70	0.34	3.34	0.42	3.52	0.42
	6–10 years	Postgraduate	4.13	0.27	3.13	0.32	3.63	0.55
		Total	3.92	0.37	3.24	0.42	3.58	0.45
		University level	3.43	0.30	3.33	0.48	3.38	0.47
	More than 10 years	Postgraduate	4.18	0.34	3.63	0.51	3.90	0.42
		Total	3.80	0.44	3.48	0.48	3.64	0.51
		University level	3.60	0.50	3.46	0.46	3.50	0.49
	Total	Postgraduate	4.04	0.27	3.43	0.36	3.73	0.42
		Total	3.80	0.27	3.44	0.42	3.64	0.45

Table 2. (Continued).

Domains	Experience	Education level	Cooperative teaching		Traditional teaching		Total	
			Mean	SD	Mean	SD	Mean	SD
Physical environment and educational materials	Total	University level	3.56	0.34	3.38	0.45	3.45	0.45
		Postgraduate	4.12	0.24	3.40	0.38	3.76	0.47
		Total	3.90	0.37	3.39	0.44	3.46	0.47
	Less than 6 years	University level	3.36	0.56	3.02	0.59	3.19	0.59
		Postgraduate	4.01	0.59	3.36	0.41	3.69	0.61
		Total	3.69	0.64	3.19	0.58	3.44	0.64
	6–10 years	University level	3.50	0.43	3.10	0.63	3.30	0.63
		Postgraduate	4.26	0.23	3.55	0.66	3.90	0.56
		Total	3.88	0.50	3.32	0.64	3.60	0.68
	More than 10 years	University level	3.40	0.57	3.09	0.58	3.09	0.55
		Postgraduate	4.00	0.44	3.30	0.49	3.65	0.56
		Total	3.70	0.44	3.10	0.53	3.46	0.59
	Total	University level	3.43	0.53	3.07	0.60	3.22	0.60
		Postgraduate	4.09	0.45	3.40	0.49	3.75	0.60
		Total	3.83	0.58	3.24	0.59	3.23	0.64

with experience less than six years and practice cooperative teaching, is equal to 4.21 with 0.29 SD, which represented the higher mean. At the same time, participant teachers' performance who have a postgraduate degree with experience of less than six years and teach according to traditional methods scored the lowest mean of 3.25 with 0.45 SD. Regarding Knowledge and Awareness domain, Table 2 shows that the mean score of participant teachers' performance, who have a postgraduate degree with experience of between 6 and 10 years and who practice cooperative teaching, is equal to 4.35 with 0.19 SD, which represented the higher mean. At the same time, participant teachers' performance who have a postgraduate degree with experience of less than six years and teach according to traditional methods scored the lowest mean of 3.25 with 0.37 SD.

It could be noticed from the results that the above two domains in general lie in the category of 'good' practices with mean scores of 3.66 and 3.53, respectively, which means that teachers have a good awareness and consciousness of creative characteristics of the students. This awareness could help teachers accept students' abilities and individual differences between them, and also help students to express themselves in ways which play a key role in motivating teachers to adopt positive attitudes and to create a rich environment that aims to develop creativity among students.

This result might be attributed to the fact that most of the training programmes of teachers either at university or during services emphasise the importance of being supportive, to accept students and encourage them, and there are many programmes that the MoE in Jordan applied in schools in cooperation with UNICEF and UNESCO institutions, and the Queen Rania Institution of 'My School' Project and Queen Rania Al-Abdullah Award for Distinguished Teacher, which all aim to develop a safe classroom environment to encourage students' creativity.

This result is similar to the findings of the majority of previous research in this area (Sak, 2004) which indicated that a classroom environment that accepts unusual ideas and implements many activities to foster creativity is supposed to have a crucial influence on developing creativity. Fleith et al. (2002) agreed with these findings when they emphasised a psychologically safe environment as a key factor to create a classroom environment that promotes creativity. Also, these results are similar to the findings of the majority of previous research in this field which indicated that when teachers adopt a positive attitude they help in promoting creativity among children and affect their motivation positively (Amabile, 1986; Black, 2003; Mumford, 1999; Piirto, 1998).

With regard to the Creative Instructional Practices domain, Table 2 shows that the mean score of participant teachers' performance, who have a postgraduate degree with experience of less than six years and who teach cooperatively, is equal to 4.17 with 0.33 SD, which represented the higher mean. Participant teachers' performance who have a postgraduate degree with experience of between 6 and 10 years and teach according to traditional and cooperative methods scored the lowest mean of 3.27 with 0.42 and 0.21 SD, respectively. Regarding Lesson Planning domain, Table 2 shows that the mean score of participant teachers' performance, who have a postgraduate degree with experience of between 6 and 10 years and who practice cooperative teaching, is equal to 4.18 with 0.34 SD, which represented the higher mean. At the same time, participant teachers' performance who have a postgraduate degree with experience of less than six years and teach according to traditional methods scored the lowest mean of 3.13 with 0.32 SD.

With regard to enriching the Physical Environment and Educational Materials domain, Table 2 shows that the mean score of participant teachers' performance, who have a postgraduate degree with experience of 6–10 years and follow the method of cooperative teaching, is equal to 4.26 with 0.23 SD, which represented the highest mean. At the same time, participant teachers' performance who have a postgraduate degree with experience of less than six years and teach according to traditional methods scored the lowest mean of 3.02 with 0.58 SD.

The above results could be due to the fact that the Jordanian educational system asks teachers to finish the assigned textbook at a specific time. So, they only use the teaching materials available in the teacher's guide book, and teachers do not have enough time to employ the information they learned in the process of teaching students. Also, this result could be due to the fact that most of our teachers' strategies and practices focus on developing students' ability to recall the information they learned, in lecture style available in curriculum, and there is little focus on practising the information they learn, and generalising it to other situations. Such a system and the short time available to teachers to practise creativity is considered one of the important factors that could inhibit developing creative environment in the classroom. This justification is supported by Sak (2004), Mumford (1998) and Black (2003) who reported many strategies needed to develop creativity, including creative drama, imitative activities and open-ended programmes.

Moreover, the classroom equipment and resources are limited and not all the classrooms in kindergartens have a rich physical environment, according to MoE reports (2008). So, they do not have the opportunity to involve students in choosing the goals and activities they will perform, or allow enough free time to students in order to practise activities they tend to do according to their abilities and interest and to engage students in cooperative learning, exploration and research, and individual instruction due to the vast curriculum they cover in most time. Fleith et al. (2002) pointed out the educational characteristics which are considered barriers to the development of creativity in the classroom environment; these include lack of time available to present the lesson and to provide students with an opportunity to practise the curriculum activities and employ the skills they learn in a creative way.

Results pertaining to the second research question

'Are there significant differences in the seven subscales of creativity level in classroom environment among teachers that could be attributed to a number of variables?'

To answer the above question, MANOVA was utilised to test if there were any statistically significant differences in the ratings of participant teachers' performance in developing a creative environment in the classroom that could be ascribed to their level of experience, education and type of teaching.

Table 3 shows that test results indicated the existence of statistically significant differences in the ratings of teachers' performance with respect to the five domains that can be attributed to their level of education and type of teaching. On the other hand, there was no statistically significant effect for the experience level and interaction between each of the study variables. An analysis of variance (ANOVA) followed the MANOVA to test each individual domain separately, to determine if there were any statistically significant differences that could be attributed to experience level, educational level and type of teaching, or the interaction between these variables.

Table 3. The results of multivariate (MANOVA) analysis: the effect of educational level, teaching experience, teaching type, and interaction between them on the ratings of participant teachers in developing creativity in the classroom educational environment.

Source	Wilks' Lambda value	<i>f</i>	Hypothesis <i>df</i>	Sig.
Education level	0.925	3.264	5.000	0.007*
Experience	0.968	0.656	10.000	0.766
Type of teaching	0.874	5.778	5.000	0.000*
Education level × Experience	0.948	1.077	10.000	0.379
Education level × Type of teaching	0.951	2.067	5.000	0.071
Experience × Type of teaching	0.967	0.687	10.000	0.737
Education level × Experience × Type of teaching	0.993	0.285	5.000	0.921

*Significant at the $p < 0.01$ level.

Table 4 displays the results of the one-way ANOVA test for the effect of the educational level, type of teaching, and interaction between variables on the teachers' knowledge and awareness of children's creative potential.

As shown in Table 4, there was a statistically significant main effect for the educational level ($f = 9.36$, $p < 0.01$), in favour of postgraduate teachers (3.83), compared to the university-level teachers (3.48). In addition, there was a statistically significant effect for the type of teaching ($f = 17.16$, $p < 0.01$), in favour of cooperative teaching (3.93), compared to the traditional method (3.46) (see Table 2 for mean scores).

As shown in Table 5, there was a statistically significant main effect for the educational level on teachers' practice of lesson planning ($f = 8.160$, $p < 0.01$), in favour of postgraduate teachers (3.76), compared to the university-level teachers

Table 4. ANOVA test results for the effect of education level, type of teaching and interaction between them on the domain of teachers' knowledge and awareness of children's creative potential.

Source	Type III sum of squares	<i>df</i>	Mean square	<i>f</i>	Sig.
Education level	2.100	1	2.100	9.361	0.003*
Type of teaching	3.851	1	3.851	17.166	0.000*
Total	2745.266	215			

*Significant at the $p < 0.01$ level.

Table 5. The results of ANOVA test for the effect of the education level, type of teaching and interaction between them on teachers' ability of lesson planning on the children's creative abilities.

Source	Type III sum of squares	<i>df</i>	Mean square	<i>f</i>	Sig.
Education level	1.454	1	1.454	8.160	0.005*
Total	2629.486	215			

*Significant at the $p < 0.01$ level.

Table 6. The results of ANOVA test for the effect of the education level, type of teaching and interaction between them on teachers' ability to manage educational materials to enhance the children's creative abilities.

Source	Type III sum of squares	df	Mean square	<i>f</i>	Sig.
Education level	4.644	1	4.644	14.024	0.000*
Type of teaching	6.056	1	6.056	18.290	0.000*
Total	2333.030	215			

*Significant at the $p < 0.01$ level.

(3.45). In addition, there was a statistically significant effect for the type of teaching ($f = 27.009$, $p < 0.01$), in favour of cooperative teaching (3.90), compared to the traditional method (3.39).

As shown in Table 6, there was a statistically significant main effect for the educational level on teachers' use of educational materials ($f = 14.02$, $p < 0.01$), in favour of postgraduate teachers (3.75), compared to the university-level teachers (3.22). In addition, there was a statistically significant effect for the type of teaching ($f = 18.29$, $p < 0.01$), in favour of cooperative teaching (3.83), compared to the traditional method (3.24).

As shown in Table 7, there was a statistically significant main effect for the interaction between educational level and type of teaching ($f = 8.98$, $p < 0.01$). The results of different paired interactions are graphed and illustrated in Figure 1. The graph confirms that teachers with the university-level degree slightly outperform teachers with a postgraduate degree in the traditional type of teaching. In contrast, teachers with a postgraduate degree slightly outperform teachers with the university-level degree in the cooperative method of teaching; hence, the graph reveals that the interaction between educational level and type of teaching is significant.

Table 7 shows that there was a statistically significant main effect for the educational level on teachers' practice of developing creative classroom climate ($f = 8.224$, $p < 0.01$), in favour of postgraduates (3.91), compared to the university-level teachers (3.62). In addition, there was a statistically significant effect for the type of teaching ($f = 17.53$, $p < 0.01$), in favour of cooperative teaching (3.99), compared to the traditional method (3.60).

As shown in Table 8, there was a statistically significant main effect for the educational level on teachers' use of creative instructional practices ($f = 9.073$, $p < 0.01$), in favour of postgraduates (3.79), compared to the university-level teachers (3.44). In

Table 7. The results of ANOVA test for the effect of the education level, type of teaching and interaction between them on teachers' ability to provide creative climate to promote the children's creative abilities.

Source	Type III sum of squares	df	Mean square	<i>f</i>	Sig.
Education level	1.409	1	1.409	8.224	0.005*
Type of teaching	3.006	1	3.006	17.538	0.000*
Education level × Type of teaching	1.540	1	1.540	8.982	0.003*
Total	2932.914	215			

*Significant at the $p < 0.01$ level.

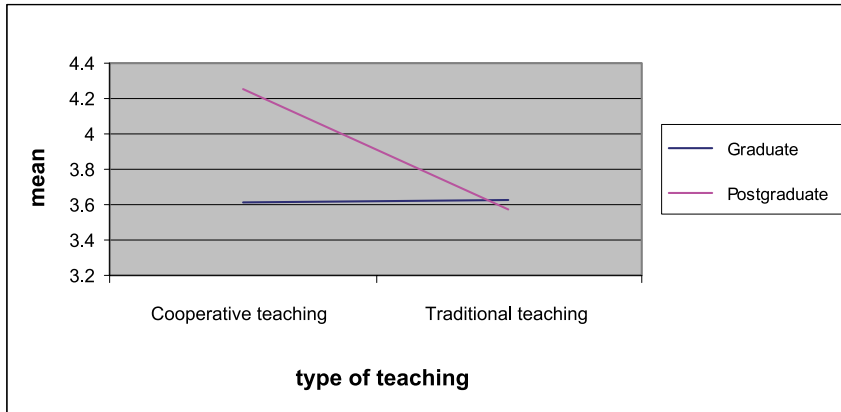


Figure 1. The results of interaction between type of teaching and educational level on creative classroom environment domain.

addition, there was a statistically significant effect for the type of teaching ($f = 13.056$, $p < 0.01$), in favour of cooperative teaching (3.83), compared to the traditional method (3.46).

The results of ANOVA showed statistically significant differences that could be due to the participant teachers' educational level in favour of postgraduates, for all domains. The interpretation of such findings implies that teachers with postgraduate degrees usually have specialisations in the educational field regardless of their specialisation at university level compared to teachers with university-level degrees who have graduated in several subjects, such as child education, science, English, Arabic and so on. A few teachers with a graduate degree have the opportunity to learn about how to develop creativity in childhood, when developing lesson planning, preparing classroom environment, using creative tools and strategies that aim to develop creativity. On the other hand, the result of ANOVA also showed statistically significant differences that could be ascribed to the participant teachers' type of teaching, being in favour of the cooperative method. This result could be due to the fact that cooperative learning encourages students to discover and depend on themselves when they gain knowledge, and not to depend all the time on teachers because students are forced to research and seek solutions to the open-ended problems presented to the group they belong to, in which every member has a role in solving the problem. This result is similar to the finding of the Tan (2001) study, which indicated that teaching children

Table 8. The results of ANOVA test for the effect of the education level, type of teaching and interaction between them on teachers' use of instructional creative practices to enhance the children's creative abilities.

Source	Type III sum of squares	df	Mean square	f	Sig.
Education level	1.933	1	1.933	9.073	0.003*
Type of teaching	2.781	1	2.781	13.056	0.000*
Total	2660.831	215			

*Significant at the $p < 0.01$ level.

by using cooperative methods is considered an essential factor for developing creativity among children.

The results of ANOVA reveal that there were no statistically significant differences among teachers' practices that contribute to developing creative environment in the classroom that are attributable to their experiences. This means that teachers, regardless of their experience levels, share the same practices in the classroom that develop students' creativity. This could be attributed to the fact that most teachers' qualification does not prepare them to develop creativity among children and to prepare the classroom environment in order to develop students' creative potential.

From previous analysis and discussion, we can conclude that those teachers who participated in the present study have a good tendency and motivation to develop a creative environment in the classroom but their knowledge and practices need to be reinforced by formal creativity training to make them more professional in order to develop children's creative potential in the classroom.

Conclusions and recommendation

The results of the present study indicate that teachers' practices for developing a creative classroom environment lie in the category between satisfactory and good practices, which means that teachers have the foundation to develop a creative classroom environment. Based on the study findings and in order to encourage teachers to develop their practices to develop a creative environment in the classroom in Jordanian kindergartens, it is recommended that pre-service training courses for developing creativity in childhood, creative play practices and creative curriculum should be considered, and should become an essential component of the university training programme in several education fields in general, and in the child education programme in particular. Also, in-service training courses on creativity should be taken into account. In such courses teachers have to be trained on how to develop positive attitudes towards developing creativity among children, how to develop a creative environment, how to prepare and plan for creative lessons, how to develop creative skills within curricula content, and be trained in tools and strategies that aim to develop creative abilities.

Indeed, the creative environment in the classroom is a new field in the Jordanian educational system, and yet teachers do not know the roles and levels they should develop in their classrooms. Hence, it is necessary to encourage teachers and students to practise and adopt this trend, by providing them with consultation, guidance and training.

We can conclude that teachers need to avoid some behaviours and practices that could inhibit a creative environment, by not avoiding students' ideas, not being tolerant to mistakes, not believing that there is one correct answer, and not using a large number of worksheets. Also, teachers have to apply many strategies and activities when they teach to develop creative process by combining ideas and modifying them in order to help students to develop novel solutions, including creative writing, open-ended activities, allowing students to choose activities in free time, developing arts centres, giving students flexible directions and employing creativity tools like brainstorming sessions in curriculum. The study encourages teachers to develop interest and awareness of their essential role in developing students' creative potential, and take responsibilities, along with the educational system, for developing their students' creativity.

Notes on contributors

Kholoud Dababneh is an assistant professor and vice dean of Queen Rania Faculty for Childhood, Hashemite University, Jordan. Previously she worked as head of the Childhood Education Department. Her research interests in special education include gifted and talented students, creativity, early intervention, inclusive schools, learning disability, parental involvement and students with disabilities.

Fathi M. Ihmeideh is an assistant professor of early childhood education in the Department of Childhood Education at Hashemite University, Jordan. He is currently the chair of the Childhood Education Department. His research interests include emergent literacy, literacy instruction, kindergarten teacher training and early childhood technology.

Aieman A. Al-Omari is an assistant professor and vice dean of the Faculty of Educational Sciences, Hashemite University, Jordan. He earned his PhD from Washington State University, USA, in 2005. His research interests include higher education administration, students' affairs and leadership.

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