

Psychosocial Factors and Elementary Students' Creative Thinking in Thailand

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Abstract

This quantitative research was conducted to investigate the relationships between psychosocial factors [Learning Achievement (LA), Achievement Motivation (AM), Social Support from Family (SSFa), Social Support from Friends (SSFs), Social Support from School (SSS), Supportive Parenting Style (SPS), Reasoning Parenting Style (RPS) and Authoritarian Parenting Style (APS)], and students' creative thinking. The respondents consisted of 400 students randomly sampled from a population of 1st grade to 6th grade students in 10 municipal schools in Nakhon Ratchasima, Thailand. Data were gathered with the Torrance Tests of Creative Thinking and a questionnaire. The study noted that enhanced creative thinking could be achieved through SPS and RPS. On the contrary, APS showed a negative correlation at the 0.01 level of significance. The female mean score was higher than the male mean score. It was also found that SSS and AM could be used to predict and promote creative thinking levels among grade 1-6 students. It is prudent to iterate that, to cultivate creative thinking in students in grade 1 – 6 (especially for Thai kids), parents are encouraged to use SPS and RPS. Schools should educate parents on SPS and RPS, and engage students in activities that will make them think creatively.

Keywords: *Creative thinking, psychosocial factors, school engagement*

Introduction & Literature Review

The turn of the 19th century gave birth to the phrase 'to create' (Runco, 2008). Since then, creativity has gained great importance (Anwar, Aness, Khizar, Naseer & Muhammad, 2012). Professionals from all fields are becoming aware of its importance and the development of creative thinking (Kaufman & Baer, 2012). While there is no single agreed-upon definition of creativity, researchers from the field of psychology agree that creativity may be linked to a state of consciousness where images appear to a person through constructive thinking (Chen, 2008). Liu (2007) explained creativity as "an interpersonal and intrapersonal process by which original, high-quality and genuinely significant products are developed" (p. 293). Chan and Chan (2007) also explained creativity as "a state of being open to ideas and being willing to explore new things" (p. 181).

Nonetheless, in modern education, creative thinking differs completely from just new ideas; it now encompasses new ways of thinking and problem-solving (Kaufman & Sternberg, 2006). Since the late 1990s, enhancing creativity has become a global interest reflecting social, economic, and educational changes and the need to raise competitiveness in globalization activities (Shaheen, 2010). Creativity is now perceived in ways never seen before (Craft, 2013); it was once thought of as only an artistic quality, but now it has become sought after because it is considered by many as a necessary employment skill in a highly competitive and globalized world (Craft, Cremin & Burnard, 2008).

In contemporary education, psychosocial factors such as motivation, social interaction skills, and environmental support have been widely acknowledged as important for academic success (Clouder, Oliver & Tait, 2008; Lee & Shute, 2010). Although many educational policies and interventions stress the improvement of academic achievement, more comprehensive educational models have been proposed that describe a broader range of educational outcomes (Yuchalern, 2008). The goal of these models is to prepare children (by parents and schools) both for success in school and as life-long learners through the integration of academic learning and social-emotional development (Durlak, Weissberg, Dymnicki, Taylor & Schellinger, 2011; Merrell & Gueldner, 2010; Sparks, 2011).

In the context of education, perhaps the most valuable question to ask is whether or not creativity is fixed. Namely, creativity could be a construct that is static (i.e., a relatively stable trait), or it could be modifiable through development, formal schooling, or general life experiences. Consistent with this distinction, creativity has been conceptualized in terms of the magnitude or level of creative thinking one engages in, with only some levels able to be increased in response to external factors

(Csikszentmihalyi, 1996). Creativity can take the form of a more objective, or “Big-C”, or a more subjective “small-c”. Well-known inventions or famous works of arts would likely be associated with the former. The latter, small-c, in contrast, would denote everyday creativity that is likely found in everyone to some degree, and may be dependent upon area-specific content knowledge (Richards, 2007).

The difference between Big-C and small-c speaks to whether creativity derives in part from content knowledge. Research from various disciplines has explored instruction, experiences, and cognitive processes that play a role in building students’ abilities to think creatively. Content knowledge within a domain has been argued to be the foundation for creative thinking and innovation (Weisberg, 2006). According to this view, creative thinking cannot occur unless one has first mastered a body of content knowledge (Csikszentmihalyi, 1996).

However, content knowledge by itself is unlikely to be sufficient to support creative thinking; creativity also requires the ability to apply knowledge in flexible ways that go beyond the context in which the knowledge was acquired. This additional ability can be specified by considering two alternative kinds of expertise: “routine expertise” and “adaptive expertise” (Hatano & Inagaki, 1986).

Routine expertise requires knowledge of specific information that allows one to efficiently perform a task according to a well-defined procedure. Adaptive expertise, in contrast, requires this foundation and an understanding of why procedures work, how to modify them, and how to invent new ones (Hatano, 1982). Adaptive experts’ deep understanding of procedures allows them to find patterns in information that supports adaptation and application of knowledge in novel situations (Ericsson, 1998; Schwartz, Bransford, & Sears, 2005). Moreover, Crawford and Brophy (2006) suggest it is adaptive expertise that engages the problem-solving processes that allow people, and in particular experts, to keep adapting to novel circumstances. Evidence of this comes from Weisberg (2006), who examined case studies of artists, scientists, and inventors, and concluded that expertise—built from content knowledge—influences one’s ability to solve problems creatively. Thus, creativity is driven by deep understandings and representations within a domain that allow one to use knowledge and information in new ways.

A middle ground would suggest that creativity has multiple components, some derived from content knowledge, and others more general (Plucker & Beghetto, 2004). Creativity has also been shown to be modifiable in ways that are equally evident but more transient. That is, one’s ability to think creatively and to produce a creative output can be amplified in response to particular circumstances, resulting in short-lived yet significant effects. Here we consider effects on creativity of factors that can potentially be manipulated in a classroom setting: a) collaboration, b) exposure to ideas of others, and c) evaluation of ideas.

In relation to the study area, the position of creativity as a key concept at the heart of educational reform in Thailand (Rojanapanich & Pimpa, 2011) is a reflection of the importance assigned to it by educational institutions worldwide. This emphasis on creativity is driven primarily by the need to develop knowledge-based and creative economies (Sternberg, 1998; Seltzer & Bentley, 1999; Craft, 2001; McGoldrick, 2002), as countries increasingly seek to move up the value chain. Despite creativity’s position as a central tenet of international educational policy, the term itself is vague and unclear (Negus & Pickering, 2004). Students are, in general terms, positive about the opportunities for creativity; the Thai government needs to do more to encourage creativity in education. However, one of the major problems facing Thai students is poor academic achievement, partly because all students are promoted to the next grade level irrespective of their scores in examinations (Bunnag, 2010). The current emphasis on rote learning does not stress analytical skills and creative thinking, and does not help students assume positions in the workplace (Bunnag, 2010; Hallinger & Lee, 2011).

Emphasis on the value of innovation and creativity in education is a relatively new concept in Thai society (Pimpa, 2011). Although the National Education Act (NEA) of 1999 in Thailand has highlighted the importance of creativity and self-development in education, no clear roadmap was provided on how these concepts would be promoted. The research question for this study was

whether psychosocial factors (LA, AM, SSFa, SSFs, SSS, SPS, RPS, and APS) affected the creativity of the students. The specific objectives of this study were as follow: 1) to investigate the relationships between psychosocial factors and creative thinking; 2) to compare the students' average scores on creative thinking by gender, and 3) to predict the creative thinking of students as it relates to learning achievement (LA), AM, social supports, and parenting.

Methodology and Methods

Research Method. In this study, participants answered questions administered through Torrance Tests of Creative Thinking and questionnaires (Jackson, Oliver, Shaw & Wisdom, 2007).

Research Respondents. The research respondents consisted of 400 grades 1 to 6 students enrolled in the first semester of the 2015/2016 academic year in 10 municipal schools in Nakhon Ratchasima, Thailand. The sample size was determined by using the sample determination table from The Research Advisors (2006); approximately 15-30% of the schools' total population (2,610).

Research Instrument. The Torrance Test of Creativity Thinking (TTCT) was designed to identify and evaluate creative thinking. The discriminant index was 0.35 to 0.73, and the difficulty and easiness index was 0.35-0.76, indicating that the test used met the standard indices for cognitive measurement. It was made up of three parts: Fluency, Flexibility and Originality. Each of the parts involved a writing exercise. *Fluency* – The researcher set and underlined certain statements. The students were made to tell a story related to the underlined words, as much as they could within the allotted time. *Flexibility* – The students were given a situation and asked to predict what they will do. They were asked to give as many predictions as they could within a time frame. *Originality* – Several problems or events were set. Then, the students were requested to think of ways to solve the problems with the other students and to produce as many unique ideas as possible within the allotted time.

The questionnaire had five parts, which are as follows: 1) Student's Profile; 2) Learning Achievement (LA); 3) Achievement Motivation (AM) with 0.89 measure of reliability as developed by Pudtaseat (2008) based on McClelland Theory; 4) Social Support Measure. The measure of social support from family (SSFa), friends, and school had a reliability of 0.87; and 5) Parenting Measure: this section had 3 categories (Supportive Parenting Style (SPS), Authoritarian Parenting Style (APS), and Reasoning Parenting Style (RPS). Each category had 10 questions, with a total of 30 items. The measure included both positive and negative statements. Each sentence had five options/choices (Likert scale rating, see Table 2). All the 400 TTCT and questionnaires were returned and filled out properly. This resulted in a 100% return rate.

The 1st grade to 6th grade students completed the TTCT and responded to the questionnaire by themselves. In the event that any student did not understand the question, a teacher or co-tutor provided the Thai version. To verify the authenticity and integrity of the measurements, scoring was done by the researchers through the analysis of the students' response to the writing tasks. The scoring given by the researchers was done based on a defined criterion (see Table 2). The data were then statistically analyzed and tested. The perceptions were analyzed with means and standard deviations (SDs). The different groups were analyzed with t-test (for two groups), Pearson's (r) correlation was used to analyze the significant relationships that existed between variables and groups, and finally, multiple regression analysis was used to study how the students' creative thinking is influenced by psychosocial factors. Reliability was checked using Cronbach Coefficient Alpha Method.

Table 1 below provides an overview of the profile of the respondents. The sample consisted of 53.50% males and 46.50% females. Samples were randomly drawn from grade 1, 2, 3, 4, 5, and 6 in these percentages 17.0%, 17.0%, 17.0%, 16.5%, 16.5%, and 16.0%, respectively.

Table 1. Profile of Respondents

Profile		Frequency	Percentage
Gender:	Male	214	53.5
	Female	186	46.5
	Total	400	100
Grade:	1	68	17.0
	2	68	17.0
	3	68	17.0
	4	66	16.5
	5	66	16.5
	6	64	16.0
	Total	400	100

Findings

It was observed from the findings (see Table 2) that variables such as Learning Achievement (LA), Achievement Motivation (AM), Social Support from Family (SSFa), Social Support from Friends (SSFr), Social Support from School (SSS), Supportive Parenting Style (SPS), and Reasoning Parenting Style (RPS) had average means of 3.23, 47.79, 75.79, 65.56, 75.75, 38.97 and 33.93, respectively. This implies that these psychosocial factors: AM, SSFa, SSFr, SSS, SPS and RPS were rated high among students, except for Authoritarian Parenting Style (APS) and Learning Achievement, which were rated as low and good, respectively. From the results, it can be inferred that students from the municipal schools benefited from high psychosocial factors provided by their schools and families. A similar finding was reported by Steinmayr and Spinath (2009).

The overall mean for creative thinking (fluency, flexibility and originality) as determined from the TTCT was 49.31. This may reflect an average level of creative thinking skill. Comparing the individual effects of the psychosocial factors, it was observed that 'low' APS and 'good' LA related with average creative thinking in grade 1-6 students. On the other hand, 'high' AM, Social Support, RPS, and SPS related to 'average' creative thinking. Creativity is recognized as one of the three generic skills to be developed in education, and several general principles for developing creativity are suggested in curriculum documents (Cheng, 2010).

The findings revealed that a low-level influence of APS resulted in an average creative thinking among the students. It seems reasonable to say that even with a low APS, students' creative thinking ability was not affected severely. This result could be because of the nature of APS. Very often in APS, children are compelled to obey rules and regulations at home (Craft, Cremin & Burnard, 2008). This puts children in a position that makes them unproductive, and to simply do the minimum to avoid being penalized (Nejad, Jenaabadi, Ghafarshuja, & Heydaribisafar, 2015).

The results of the comparison of the three aspects of the creative thinking variable are given in Table 3. It was noticed that the overall means for Fluency, Flexibility and Originality were 15.52 for males and 17.36 for females. This means that the students' creative thinking is generally average. It was also observed that though both male and female creative thinking scores were average, the female mean score (52.07) was a little higher than the male mean score (46.55). Contrary to this observation, it was earlier reported that children tend to be more creative in lower grade levels than higher grade levels (Steinmayr & Spinath, 2009). The difference is yet to be studied.

Statistically, both Flexibility and Originality were significant, but Fluency was not at 0.05. It could be inferred that a significant relation exists between Flexibility, Originality and Creative Thinking at this level. Highlighting the relationship between these variables, it could be mentioned that any variation in Flexibility and or Originality will have some effect on Creative Thinking (Pianta, 2011). At 0.001, only Flexibility seemed to show a statistically significant relationship with Creative Thinking. This parallels other studies that have outlined features related to Flexibility (Karpova, Marcketti & Barker, 2011), such as playfulness (Kangas, 2010), collaboration (Craft, Cremin & Burnard, 2008),

Table 2. Means and Standard Deviations of the Psychosocial Factors and Creative Thinking

Variables	Grade 1		Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Average		Descriptive Rating
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD	
LA	3.24	0.18	3.22	0.19	3.22	0.15	3.24	0.13	3.25	0.14	3.21	0.16	3.23	0.11	Good
AM	42.19	0.35	43.31	0.38	44.27	0.40	51.31	0.35	52.27	0.38	53.39	0.34	47.79	0.33	High
SSFa	70.36	0.59	71.53	0.61	71.92	0.60	79.66	0.58	80.05	0.62	81.22	0.64	75.79	0.58	High
SSFr	59.60	0.71	60.73	0.69	62.35	0.66	68.77	0.70	70.39	0.72	71.52	0.67	65.56	0.66	High
SSS	71.39	0.68	72.27	0.65	73.23	0.67	78.27	0.63	79.23	0.66	80.11	0.64	75.75	0.53	High
SPS	33.45	0.31	34.19	0.25	36.34	0.22	41.60	0.21	43.75	0.25	44.49	0.22	38.97	0.21	High
RPS	30.95	0.33	31.92	0.32	32.17	0.34	35.69	0.31	35.94	0.33	36.91	0.31	33.93	0.31	High
APS	13.38	0.32	13.84	0.34	14.52	0.32	16.68	0.33	17.36	0.31	17.82	0.32	15.60	0.31	Low
Fluency	22.11	0.88	23.30	0.87	24.65	0.86	27.01	0.86	28.36	0.87	29.52	0.86	25.83	0.86	
Flexibility	6.49	0.71	6.85	0.69	7.22	0.68	10.76	0.70	11.33	0.73	11.49	0.69	8.99	0.67	
Originality	11.51	0.84	12.28	0.85	12.70	0.88	16.28	0.83	16.70	0.82	17.47	0.81	14.49	0.81	
Creative Thinking	45.86	.64	46.67	.62	47.61	.65	51.01	.63	51.95	.66	52.76	.65	49.31	.62	Average

Scales:

Learning Achievement

3.50 – 4.00 = Very Good
 3.00 – 3.49 = Good
 2.50 – 2.29 = Quite Good
 2.00 – 2.49 = Fair
 Less than 2.00 = Poor

Achievement Motivation

55 – 65 = Highest
 45 – 54 = High
 35 – 44 = Average
 24 – 34 = Low
 13 – 23 = Lowest

Social Support

80 – 100 = Highest
 60 – 79 = High
 40 – 59 = Average
 20 – 39 = Low
 Less than 20 = Lowest

Parenting Style

40 – 50 = Highest
 30 – 39 = High
 20 – 29 = Average
 10 – 19 = Low
 Less than 10 = Lowest

Creative Thinking

118 – 155 = Highest
 82 – 117 = High
 45 – 81 = Average
 8 – 44 = Low
 Less than 8 = Lowest

development of imagination and possibility thinking (Craft, Cremin, Burnard, Dragovic, & Chappell, 2012), and supportive/resourceful learning (Craft, Cremin, & Burnard, 2008). These studies emphasize Flexibility as a force in creative thinking.

Table 3. Comparison of the Creative Thinking Average Scores of the Students by Gender

Creative Thinking	Male Students		Female Students		t	p-value
	\bar{X}	SD	\bar{X}	SD		
Fluency	25.31	0.89	26.35	0.84	1.48	0.139
Flexibility	8.02	0.61	9.96	0.73	5.50	0.000**
Originality	13.22	0.87	15.76	0.76	2.37	0.018*
Total	46.55	0.75	52.07	0.73	2.98	0.003**
Overall	15.52		17.36			

Code: *p < 0.05, **p < 0.01, ***p < 0.001

Scale

118 – 155 = Highest

82 – 117 = High

45 – 81 = Moderate

8 – 44 = Low

Less than 8 = Lowest

From Table 4, all the psychosocial factors indicated a positive relationship with creative thinking except for APS. At 0.01, a very significant relationship was observed to exist between the psychosocial factors and creative thinking. Invariably, an increase or a decrease in any of those factors is likely to have a positive or negative impact on creative thinking. On the other hand, this was not so for APS at 0.01. APS seemed to have a negative relationship with creative thinking at this level. This means that when APS is increased, creative thinking will decrease. This might not be the case at 0.05 level of significance as explained earlier.

It is important to note that APS will not enhance creative thinking, as parents, or any guardians for that matter, who exert too much authoritarian control over their children may restrict their ability to think independently or imaginatively. Craft (2013) claims that pedagogical principles that foster a supportive environment through effective strategies and prioritize children's autonomy bring creative thinking. According to the researcher, this involves maintaining three principles: 1) standing back, 2) profiling learner agency, and 3) creating time and space help to encourage the children's questioning and active engagement in learning by passing the decision making and the responsibility for learning back to the child. In short, these practices are interrelated and are salient elements in building children's creative thinking and engagement (Karpova, Marcketti & Barker, 2011).

Table 4. Analysis of the Relationship between Creative Thinking and the Psychosocial Factors

Variables	Creative Thinking
Learning Achievement (LA)	0.183**
Achievement Motivation (AM)	0.244**
Social Support from Families (SSFa)	0.160**
Social Support from Friends (SSFr)	0.214**
Social Support from School (SSS)	0.317**
Supportive Parenting Style (SPS)	0.193**
Reasoning Parenting Style (RPS)	0.131**
Authoritarian Parenting Style (APS)	-0.41

**p-value < 0.01

Correlation and multiple regression analysis were carried out to predict the relationships that could exist between the psychosocial factors and creative thinking among the sample. It appeared that SSS and AM could foretell the creative thinking of students at a statistical significance of 0.01 by 10.80 percent. The male's SSFr and achievement could also foretell the creativity of males at a statistical significance of 0.01 by 10.40 percent. Similarly, in females, it appeared that SSS is a variable that can predict creative thinking at a significant level of 0.01 by 8.80 percent. This result mirrors a similar finding by Kaufman, Niu, Sexton & Cole (2010). The researcher also noticed similar differences in the creative thinking ability between male and female respondents. The details of the multiple regression analysis are presented in Table 5 below.

Table 5. Multiple Regression Step-wise Model for Predicting Creative Thinking

11	Predictor Variables	R	R ²	Adjusted R ²	b	S.E _{est}	β	t	Sig
Male	SSFr	0.291	0.085	0.080	0.354	0.085	0.281	4.185**	0.000
	LA	0.336	0.113	0.104	0.4556	1.830	0.167	2.490**	0.014
Female	SSS	0.305	0.093	0.088	0.561	0.124	0.305	4.507**	0.000
Total	SSS	0.317	0.101	0.098	0.448	0.092	0.260	4.860**	0.000
	AM	0.335	0.113	0.108	0.345	0.149	0.124	2.316**	0.021

a=3.319 S.E_{est}= 17.46069

**p-value < 0.01

Discussion

The results of this study indicated that the learning achievement, achievement motivation, social support from family, social support from friends, social support from school, supportive parenting style, and reasoning parenting style are at a high level, while authoritarian parenting style and creative thinking are at a moderate level. In terms of gender, female students and male students had a different average score of creative thinking. Female students had a higher average score of creative thinking than male students, with statistical significance at the 0.01 level. Analysis in each dimension found that female students and male students had average scores of creative thinking in terms of flexibility, with different significant levels at 0.001, and originality had a statistically significant difference at 0.05. However, there was no statistically significant difference on fluency. The female students had an average score of creative thinking in all aspects higher than the male students. A plausible explanation for this is perhaps during childhood, female students are able to develop their creative thinking by playing games, mimicking fictional imagination; as a result, female students have a higher creative level than male students did. The findings of this research were in accordance with a research study by Baran and Endogan (2009), in that the creative level of female students was higher than that of male students', with a statistical significance of 0.01.

In terms of motivation, our study indicated that the relationship between creative thinking and achievement motivation is positively related to creative thinking, because those with high achievement motivation normally venture out to do things without any instructions from anyone. This corresponds to an element of creative thinking – originality. What this reflects is how a person's idea does not duplicate that of another person, and such persons are also accepting with maneuverability and flexibility.

Furthermore, the relationship between creative thinking and learning achievement indicated a positive correlation. This has been observed in other studies, such as that by Anwar et al. (2012) and Anprasert (2000). Anprasert's (2000) study also showed similar results, where the three elements of creative thinking discussed were all positively correlated. These elements were also measured within the context of support from students' social circles, namely their family, friends, and school.

It can be concluded that a person will only be able to develop creative thinking through a supportive social circle or community (Phuwipadawat, 1994; Smith, 1998). This is observed through the results that indicated how supportive parenting style and reasoning parenting style are positively

correlated with creative thinking. On the contrary, authoritarian parenting style is negatively correlated with creative thinking. What can be gleaned from this is that children who are raised with supportive or reasoning parenting styles will have a greater potential for higher levels of creative thinking. However, the authoritarian parenting style may hinder the positive development of creative thinking (see Chaimongkol, 1994).

Implications

From the findings of this study, there are several pedagogical implications that municipal schools should consider observing, and if possible, implementing. First, social support from school and achievement motivation are important variables for creative thinking. Schools should provide avenues where students are positively challenged to do well in their academic studies and supported by a caring school community. Second, school students' expressions should be varied. It has been acknowledged that creativity reflects a person's ability to think on his or her own; thus, a school should recognize this type of output and identify ways in which individual expression can benefit students' learning progress, as well as the school's academic environment. Third, teachers may consider including more learning opportunities where students are allowed self-initiated activities. While there may be educational objectives, cultural constraints, or societal expectations for teachers to refrain from activities that may diverge from the core curriculum, some creative space should be nurtured, especially if the national aspiration is for students to achieve academic success through creativity. Finally, parents and the community can also be involved by exemplifying creative thinking attitudes in the home.

Conclusions

In summary, it was found that psychosocial factors like Learning Achievement, Achievement Motivation, Social Support From Family, friends and schools, as well as supportive and Reasoning Parenting Styles have a direct positive correlation with creative thinking in grade 1-6 students. On the contrary, Authoritarian Parenting Style did not have any positive correlation with the development of creative thinking at 0.01 level of significance. Female students and male students did not possess the same level of creative ability. The female students on average, showed a higher score for creative thinking in all aspects, than their male counterparts. Finally, it appeared from the multiple regression analysis that the Social Support from School and Achievement Motivation could predict the creative thinking of students, especially for students in grade 1-6. From this study, it is recommended that both SSS and AM are cultivated among students to enhance students' creative thinking abilities. Municipal schools should organize challenging activities that give students the opportunity to think creatively. Since supportive and RPSs positively correlated with creative thinking, municipal schools should encourage parents to raise their children with love and build good relationships among the family members. Parents should create a home environment whereby students are offered challenging tasks so they could think creatively. Educational policy must target specific policies to foster creativity with input from all stakeholders. Teachers should recognize, encourage and reward the behaviors that enhance creativity. It is suggested that future research focus on creative thinking of other grade levels. Creative thinking among males and females could be studied as well.

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