

An Exploratory Study on Perceptions of Creative Teaching and Roles among Singapore's Early Childhood Educators

Siew-Eng Lim¹ and Ai-Girl Tan^{2*}

¹National Institute of Education, Nanyang Technological University, Singapore

²National Institute of Education, Nanyang Technological University, Singapore

*Corresponding author

Abstract.

An exploratory study was conducted which aimed to find out Singapore's early childhood educators' views on creative teaching and educator roles. Two research questions were posed: What are early childhood educators' views on creative teaching? What are their views on educator roles? A total of 35 early childhood educators participated in the study. They filled out a questionnaire, which comprised two measures: Perceived competencies of creative teaching and perceived educator roles. The perceived competencies of creative teaching scale comprised 49 items and the perceived educator roles scale comprised 54 items. For the two measures, a 9-Likert scale was used with indicators: 1 being "extremely not competent" or "extremely not important", 9 being "extremely competent" or "extremely important". Using SPSS, reliability, factor, correlational, and cluster analyses were performed on data collected from the questionnaire. The findings suggested that early childhood educators in the study perceived relatively highly their competencies in creative teaching and they highly rated their multiple teacher roles for creative teaching.

Keywords: Singapore, early childhood educators, perceived creative teaching competencies, perceived roles

1. Introduction

Teaching is a creative endeavor. In teaching (*jiao* 教) learning (*xue* 学) occurs. Learning is creative. In learning a person gains new skills and knowledge that are useful for life. Jerome Bruner (1979), an eminent psychologist, viewed creative teaching as teaching that opens a wide range of possibilities of learning and development. Accordingly, the teacher should not only transmit information by rote learning, but also should facilitate the learning process through self-discovery and exploration. Furthermore, a teacher should provide children the information they need, without organizing for them. Curriculum should help the process of discovery learning (Bruner, 1979). Bruner (1979) emphasized that a good teacher would design lessons that help children discover the relationships among multiple pieces of information.

3rd World Conference on Teaching and Education

03-05 September 2021

Prague, Czech Republic



In line with Bruner's (1979) view, Anna Craft, a creativity researcher in the field of education referred creative teaching as forms of teaching that are intended to develop young people's own creative thinking or behavior (Jeffrey & Craft, 2004). Together with her colleague and collaborator, Bob Jeffrey, Craft regarded creative teaching as 'using imaginative approaches to make learning more interesting and effective' (Jerry & Craft, 2004, p. 77). Tan (1998) argued that "creative teaching that is interesting and challenging can motivate pupils' learning." Tan went on to claim that teachers who adopt multiple roles enable themselves to be flexible and open to engage children in various types of activities. Teachers construct strategies, transform space, and alter classroom learning environments. They translate pedagogical content knowledge and lead students to engage in peer interactions and interaction with the teachers. Positive classroom interactions support creative teaching and learning. (Tan, 1999a). Tan (2006) argued that creative teaching occurs when a teacher combines existing knowledge in some novel form to get useful results in terms of facilitating student learning. Creative teaching may be either planned before the act of teaching or invented as a response to the demands of the learning situation.

In our study, creative teaching is conceptualized within the interactive systems of the teacher and the learners and across the interactive systems in schools and social institutions (Csikszentmihalyi, 2008). There are multiple components of creative teaching. Environments of learning includes the socio-cultural technological, economic, and curricular (Tan, 1999b) aspects of learning. Other components of creative teaching are teacher competencies in designing lessons, in managing behavior, assessing, as well as in motivating learning and innovating pedagogies (Tan, 2006), and roles of teachers (Tan, 1999b).

The opportunity to transform children's creative potential into actuality varies from culture to culture (Csikszentmihalyi, 2008). For the past years, in Singapore early childhood education has received attention and support from the policy makers. There are two frameworks that guide all preschools to develop quality curriculum for young children. First, a curriculum framework for kindergarten aged 4 years to 6 years, Nurturing Early Learners (NEL, MOE, 2012), was launched in 2002 and revised in 2012. It was adopted by Singapore's early childhood educators to develop children's reasoning and thinking skills, encourage active learning through experiential learning and experimenting, and facilitate sense of wonder and curiosity support children. Early childhood education has hoped to nurture competent, active and curious learners. In 2010, the Early Years Development Framework (EYDF) for aged 3 years and below was initiated by the then Ministry of Community Development, Youth and Sports (MCYS) later renamed Ministry of Social and Family Development (ECDA, 2017). The EYDF was developed with reference to evidence in neuroscience research, child development theories, early childhood education, programmes for infant and toddlers and good practices. This framework states what young children need to acquire and to experience and how they can build a strong knowledge base for future development and learning.

NEL highlights constructing positive and nurturing learning environments to foster holistic and creativity development of children. Principles of NEL *iTeach*, guide creativity facilitation for both teachers and learners integrating learning experiences of children in different contexts (including indoor and outdoor environments, home and school, among peers). Teachers are facilitators of learning (MOE, 2012) who plan, design, implement and reflect on

current lesson to make improvement for the future lesson. In 2017, Prime Minister (PM) Lee Hsien Loong announced ways to strengthen the early childhood sector by giving every child a good start in life and by providing support to families with young children (ECDA, 2018). Building on the plan outlined by the Prime Minister at the 2017 National Day Rally, the Ministry of Social and Family Development implemented measures to leverage on innovation, deepen early childhood educators' skills and enhance early childhood careers building (ECDA, 2018). To date, however after years of aspiration to develop the minds of the young in Singapore, there is insufficient research done on how creative teaching is being practised by early childhood educators in Singapore.

The aim of this study was to explore conceptions or views of early childhood educators in Singapore, their understanding of creative teaching. A research question was posed: What are early childhood educators' views on creative teaching? To answer these research questions, a scale of creativity competencies was developed, and a scale of roles and characteristics of teachers (Tan, 1999b) was adopted. The NEL (MOE, 2012) framework, creative teaching (e.g., Jeffrey & Craft, 2004; Tan, 1998) and creativity development (e.g., Csikszentmihalyi, 2008; Vygotsky, 2014) were reviewed to develop the scale of creativity competencies.

2. Method

2.1 Participants

A total of 35 early childhood educators were recruited from a kindergarten group and personal contacts. The student researcher approached the leaders in a kindergarten group and recruited 12 participants of her study. She first sent an email to the school leader of her own kindergarten and then through her, she further made contact with the other school leaders, and the potential participants of the study. In addition, she sent emails and whatsapp messages to her personal contacts. She then managed to recruit additional 23 participants of the study. All the participants of the study filled out the questionnaire.

2.2 Questionnaire

Instruments of the study included a questionnaire and ten interview questions. The questionnaire comprised three parts. The first part consisted of questions related to backgrounds of the participants (age, teaching years, gender, and teaching experiences), educators' views of young children, teaching, and creative teaching. The second part of the questionnaire comprised a measure which was meant to find out self-perceived competencies in creative teaching. The measure was developed with reference to the synthesized contents of the literature review such as NEL, student researcher's personal experience in the preschool classroom teaching, Craft's possibility thinking and Singapore 21st Century Competencies. The participants of the study were requested to read the items and to rate the degree of competencies they perceived of their own creative teaching. The measure of creative competencies comprised 49 items. A 9-point Likert scale was used with '1' indicating 'extremely not competent' and '9' indicating 'extremely competent'. For the current study, the reliability score of the measure was high, with a Cronbach alpha value of 0.967. The third part of the questionnaire comprised a measure of characteristics and roles of teachers. The measure was adopted from Tan (1999b). It comprised 54 items. The participants were

requested to rate the degree of importance of the items related to roles and characteristics of a teacher using a 9-point Likert scale with indicators: '1' representing 'extremely not important' and '9' representing 'extremely important'. The measure was originally used to find out primary and secondary school teachers' perceptions of roles and characteristics reported moderate and high reliabilities for the individual factors (primary: .68 and .82; secondary: .70 and .85, Tan, 1999b). For the present study, the reliability scores of the measure ranged between 0.65 and 0.90.

2.3 Ethical Considerations

Upon receipt of the approval from IRB (IRB-2020-08-025), the student researcher sent out the invitation. The information sheet and consent form were distributed to the participants physically (face-to-face) or electronically (on-line/email) according to their preferred choice and date of participation. Participation was voluntary. There was no foreseeable risk of threat associated with the participation. However, if the participants felt uncomfortable in responding to the questions and statements, they were informed that they could remain silent or could skip the questions and statement(s) without providing any reasons. They were also informed that they could withdraw from the study anytime without the need to provide any reasons. Upon withdrawal, all data collected were discarded. The participants were made known that there would be no direct benefits for participation. There was no compensation for their effort to take part in the study.

2.4 Data Analysis

The responses from the survey were typed to the Statistics Package for Social Sciences (SPSS) software. Using SPSS, descriptive and inferential statistics were computed. Normality and the psychometric properties of the scales such as reliability and validity were checked. Descriptive statistics were computed which included frequency, mean, standard deviation and other descriptive statistics. Furthermore, factors analyses were performed to obtain the components (factors) of the scales or measures. Correlational analysis was performed to examine the interrelations among the factors of the two measures. Cluster analysis was done to find out the group memberships of the participants of the study according to the common factors/components of the two scales.

3. Results and Discussion

3.1 Perceived Creativity Competencies and Roles

To understand the views of creative teaching from the perceived competencies and characteristics and roles, an exploratory factor analysis was performed using the method of principal component analysis and direct Oblimin with Kaiser Normalization on 49 items of the creativity competence scale resulted in 86% of variance from seven factors (eigenvalues above 1). The first factor (F1) was defined as "facilitating" (9 items, e.g., I capture children's voices in creative activities such as draw, show and tell). The second factor (F2) was defined as "creating and collaborating" (4 items, e.g., I use rhyme to encourage children to explore the world around them or to discover their learning journey). The third factor (F3) was termed "possibility: play" (4 items, e.g., I involve in the play by leading at times, by directing the learning at times, by introducing resources and ideas). The fourth factor (F4)

was called “possibility: researching” (10 items, e.g., I provide choices of learning corners with safe distancing for children to decide what they want to play and learn). The fifth factor (F5) was regarded as “possibility: empowering and questioning” (5 items, e.g., I ensure children know how to sieve, extract relevant and useful information). The sixth factor (F6) was considered as “possibility: designing” (11 items, e.g., I set up and create safe-distancing play-spaces). The seventh factor (F7) was termed “risk taking” (2 items, e.g., I empower them to take ownership of learning). Items with factor loadings less than .3 were not included into the analysis. The correlations among the factors ranged between 0.24 and 0.47.

Table 1 outlines the values of Cronbach’s alpha reliabilities, eigenvalues, variance, means (M), standard deviations (SD), skewness and kurtosis of the factors of perceived creativity competencies by the participants of the study. The values of kurtosis and skewness were within the acceptable range, and hence the data was assumed to be normally distributed.

Table 1

Reliabilities, Eigenvalues, Variance, and Descriptive Statistics of Factors (Perceived Creativity Competencies)

Factor	Eigenvalue/ % variance	Reliability	M	SD	Skewness	Kurtosis
F1_C: Facilitating	33.59/68.54	0.967	6.991	1.322	.972	1.050
F2_C: Creating and collaborating	2.16/4.42	0.809	6.443	1.327	.631	.088
F3_C: Possibility: play	1.65/3.37	0.927	6.786	1.342	.613	.158
F4_C: Possibility: researching	1.44/2.95	0.965	6.846	1.309	.786	.573
F5_C: Possibility: empowering	1.24/2.52	0.941	6.594	1.462	.489	.442
F6_C: Possibility: designing	1.05/2.15	0.97	6.816	1.353	.717	.121
F7_C: Risk taking	1.00/2.05	0.749	6.386	1.520	.755	.111

The 54 items of teachers’ perceived characteristics and roles generated a total 89.99 percent of variance of explained with eleven factors with high eigenvalues above 1. An exploratory factor analysis with the method of principal component analysis for creative teaching scale yielded eleven factors with high eigenvalues above 1. The first factor (F1) was termed “leader” (4 items, e.g., empowering responsibility, leadership). The second factor (F2) was about roles and characteristics of “creator” (6 items, e.g., exposing children to the use of IT). The third factor (F3) showed characteristics and roles of “manager” (6 items, e.g., setting learning standards, evaluating outcomes). The fourth factor (F4) concerned roles and characteristics of “caregiver” (4 items, e.g., being patients, repeating instructions, when needed). The fifth factor (F5) was related to characteristics and roles of “openness” (6 items, e.g., being firm and consistent). The sixth factor (F6) was related to characteristics of “traditional teaching” (2 items, e.g., being a role model). The seventh factor (F7) was termed “resource persons” (2 items, e.g., Creating a non-threatening, safe distancing learning environment). The eighth factor (F8) was related to roles and characteristics of the “guide” (6 items, e.g., encouraging non-academic activity, ECA with safety measures in place). The ninth factor (F9) was about characteristics and roles of the “developmental teacher” (8 items, e.g., designing lesson plan with differentiated instructions). The tenth factor (F10) was related to characteristics and roles of “designer” (7 items, e.g., encouraging students to ask questions). The eleventh factor (F11) was termed “critical thinker” (3 items, e.g. encouraging logical, analytical thinking). Correlations among the factors were between 0.001 and 0.444. Table 2 outlines reliability scores, eigenvalues, variance, and descriptive statistics of the factors of educator roles.

Table 2

Reliability Scores, Eigenvalues, Variance, and Descriptive Statistics of Factors (Educator Role)

Factor	Eigen- value/ % Variance	Reliability	M	SD	Skewness	Kurtosis
F1_R: Leader	24.205/44.825	0.942	7.5714	1.14496	-.838	.660
F2_R: Creator	10.810/10.810	0.933	6.6476	1.43188	-1.403	3.462
F3_R: Manager	4.444/8.230	0.833	6.9952	1.21838	-.800	.830
F4_R: Caregiver	3.525/6.528	0.795	7.9000	.81394	-.336	-1.035
F5_R: Openness	2.492/4.615	0.861	6.9143	1.22098	-.635	.466
F6_R: Traditional teacher	1.776/3.289	0.803	7.7571	1.23295	-1.934	5.598
F7_R: Resource persons	1.689/3.127	0.792	7.8714	.98774	-.470	-.632
F8_R: Guide	1.327/2.457	0.902	7.7571	.99043	-.768	-.101
F9_R: Developmental teacher	1.168/2.163	0.938	7.8750	.90951	-.796	.086
F10_R: Designer	1.121/2.076	0.923	7.9755	.89381	-1.275	2.165
F11_R:	1.011/1.872	0.829	7.4190	1.05205	-.132	-.582

Critical thinker

Means and standard deviations of factors for both scales were computed. Values of kurtosis and skewness were within the acceptable range of a normal distribution. Mean values of the factors were between the range of 6 and 8. In general teacher participants of the study rated creativity competencies slightly lower than creative teaching components.

3.3 Correlational and Cluster Analyses

Correlations were significant for most teacher roles and competencies of creative teaching (see Table 3). Perceived traditional teacher role (F6_R) correlated significantly and positively with perceived competencies in perceived competencies in creating and collaborating (F2C), possibility: play (F3_C) and possibility: empowering (F5_C). Perceived competencies in risk taking correlated significantly positively with perceived teacher roles as leader (F1_R), creator (F2_R), being open (F5R), guide (F8R), developmental teacher (F9_R), designer (F10 R), and critical thinker (F11_R). Perceived manager (F3R) correlated significantly and positively with perceived competencies in facilitating possibilities in play (F3C), researching (F4C), empowering (F5C) and designing (F6C). The findings of the study seem to suggest that, to a large extent, perceived teacher roles influenced perceived competencies, and vice versa.

Table 3

Correlations among Factors: Perceived Creativity Competencies and Teacher Roles

	F1_C	F2_C	F3_C	F4_C	F5_C	F6_C	F7_C
F1_R	.536**	.444**	.656**	.510**	.568**	.452**	.345**
F2_R	.407*	.507**	.401*	.414^	.429*	.648**	.429*
F3_R	.330	.324	.513**	.438**	.373*	.441**	.325
F4_R	.521**	.485**	.582**	.563**	.538**	.466**	.303
F5_R	.873**	.737**	.917**	.931**	.831**	.919**	.765**
F6_R	.284	.438**	.603**	.321	.340*	.279	.248
F7_R	.377*	.628**	.472*	.459*	.500**	.563**	.313
F8_R	.563**	.516**	.587**	.522**	.535**	.583**	.409*
F9_R	.758**	.468**	.667**	.633**	.583**	.587**	.461**
F10_R	.788**	.596**	.652*	.684**	.690**	.628**	.516**
F11_R	.400*	.400*	.702*	.656**	.675**	.572**	.573**

Furthermore, K-means cluster analysis was performed on the 18 factors of the two scales. Final cluster centres between the two clusters, was 6.731. Nine of the participants of the study belonged to cluster 2, which was characterized by F4R: perceived teacher role as caregiver, F7R: perceived teacher role as a resource person and F10R: perceived teacher role as a designer teacher. Cluster 2 is defined as moderate and low cluster centres for creative competencies and moderately high (more than 7) perceived roles as caregivers, resource

3rd World Conference on Teaching and Education

03-05 September 2021

Prague, Czech Republic



persons, and developmental teachers. Cluster 1 was defined as high perceived creative competencies and perceived multiple teacher roles; nearly all cluster centres for this cluster were near .7 and above (see Table 4).

Table 4
Final Cluster Centres

	Cluster 1	Cluster 2
F1C	7.50	5.52
F2C	6.93	5.03
F3C	7.33	5.22
F4C	7.40	5.26
F5C	7.17	4.93
F6C	7.33	5.34
F7C	6.85	5.06
F1R	7.96	6.44
F2R	6.89	5.94
F3R	7.28	6.17
F4R	8.13	7.22
F5R	7.42	5.46
F6R	8.13	6.67
F7R	8.15	7.06
F8R	8.03	6.96
F9R	8.14	7.11
F10R	8.25	7.17
F11R	7.77	6.41

Findings from cluster analysis inform us that educators adopt multiple roles and responsibilities. Perceived competencies, roles and characteristics of early childhood educators influence creative teaching practices. There were some limitations of the study. As the study was conducted during the COVID-19 pandemic, the initial idea of conducting classroom observation was omitted before submitting to the IRB for approval due to the strict distancing measures. The post-circuit breaker day to day practice prohibited classroom observations of colleagues within the same preschool and across other schools. Data were collected when early childhood educators were in the midst of adjusting to the new normalcy. It was challenging to reach out to those beyond the close contacts. The exploratory study involved a small sample size, namely 35 participants. Future studies can include classroom observations and interventions, and a larger sample size to extend the current exploratory study scope beyond survey. Creative teaching is more than selecting content knowledge and

creative techniques (see Tan 1998). Knowledge of children and development guides selection of teaching materials that support growth of children's learning behavior and cognition. In addition, future students can explore how alternative modes of assessment such as learning stories (Carr, 2001) can be adopted in creative teaching to facilitate creative learning of children.

4 Conclusion

The new normalcy calls for early childhood educators to design an integrated curriculum highlighting creative thinking, values, aspirations of the societal policies and new school culture of safe distancing for optimal learning and creative teaching. Young children's creative imagination should be fostered (Nickerson, 1999) in the classroom and at home. All stakeholders should collaborate and support young children to grow and learn holistically. To achieve this, preschool service providers should encourage curricular innovation among early childhood educators. Instead of providing teachers with materials, lesson plans, and schedule early childhood educators should be invited to be part of curricula design teams. Service providers can leave the detailed planning of the lessons to the early childhood educators by empowering them to design learning and creative teaching strategies that match experiences of the children. Service providers should encourage educators to be more creative through in-house competitions on creative teaching and creative lesson planning. Preschool policy makers like ECDA and MOE can set guidelines for the new normalcy and provide training for educators to embrace the new normalcy creatively in teaching and learning. As noted, in this study, characteristics and roles of teachers were perceived as important by the early childhood educator participants, policy makers in charge of preschools can support educators by providing avenues for them to adopt multiple roles, to acquire related skills, knowledge, technology application, and models of creative teaching.

Acknowledgment

Contents of this paper are based on the quantitative study reported in the first author's Master dissertation. The second author was her dissertation supervisor. The table of correlations of the factors was prepared for this paper.

References

- Bruner, J. (1979). *On knowing : essays for the left hand*. (Expanded ed.). Cambridge: The Belknap Press of Harvard University Press.
- Carr, M. (2001). *Assessment in early childhood settings: learning stories*. London: Sage.
- Jeffrey, B., & Craft, A. (2004). Teaching creatively and teaching for creativity: distinctions and relationships. *Educational Studies*, 30(1), 77–87.
- Csikszentmihalyi, M. (2008). *Flow: the psychology of optimal experience*. New York, NY: Harper Perennial.
- ECDA. (2017). *Early years development framework: educators' guide*. Early Childhood Development Agency. Republic of Singapore.

3rd World Conference on Teaching and Education

03-05 September 2021

Prague, Czech Republic



- ECDA. (2018). *Transforming the early childhood sector to give every child a good start in life*. Retrieved on 10 August 2020 from ecda.gov.sg/PressReleases/Pages/TRANSFORMING-THE-EARLY-CHILDHOOD-SECTOR-TO-GIVE-EVERY-CHILD-A-GOOD-START-IN-LIFE.aspx
- MOE (Ministry of Education, Singapore). (2012). *Nurturing early learners: A curriculum framework for kindergartens in Singapore*. Ministry of Education, Pre-school Education Branch. <http://www.moe.gov.sg/education/preschool>
- Nickerson, R.S. (1999). Enhancing creativity. In R.J. Sternberg (Ed.), *Handbook of creativity* (pp. 392-430). Cambridge: Cambridge University Press.
- Tan, A.G. (1996). Understanding creativity from a diversified perspective. *ASCD (Singapore) Review*, 6(2), 22-25.
- Tan, A.G. (1998). Teaching primary mathematics creatively: Some insights for educators. *The Mathematics Educator*, 3(1), 38-49.
- Tan, A.G. (1999a). Teacher roles in promoting creativity. *Teaching and Learning*, 19(2), 42-51.
- Tan, A.G. (1999b). An exploratory study of Singapore student teachers' perception of teacher roles that are important in fostering creativity. *Education Journal*, 27(2), 103-123.
- Tan, A.G. (2006). *Creative teaching: How it works and how to do it*. Educational Research Association of Singapore Conference, 29-31 May 2006.
- Vygotsky, L. (2014). Imagination and creativity in childhood. *Journal of Russian and East European Psychology*, 42 (1), 7-97. <https://doi.org/10.1080/10610405.2004.11059210>