

Creativity in Preschoolers: The Effect of Product-Based Program Across Culture and
Socioeconomic Status

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ACROSS CULTURE AND SOCIOECONOMIC STATUS

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This study aimed to examine the effect of product-based program on creativity of 72 preschoolers ($M_{\text{age}} = 4.03$, $SD = 0.51$) and compared differences across Australian and Thai cultures and within Thai culture in relation to socioeconomic status. Twenty-four participants were recruited for a study of 2 (viewing vs. no viewing) x 3 (Australian, high-socioeconomic status Thai, low-socioeconomic status Thai) between-group factorial design. In both viewing conditions, participants were provided with some Lego toys and pictures used to fill in the story line plotted by the experimenter. Inconsistent with the hypothesis, viewing condition did not affect creativity. Contrary to the prediction, creativity in high-socioeconomic status Thai sample was higher than that of Australian sample. Incongruent with the hypothesis, the effect of viewing condition was not differ within Thai sample. Our results highlight the potential influence of culture on the development of creativity in young children. The strengths and limitations of the current research are discussed as well as implications for future studies.

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Chapter 1

Introduction

Nowadays, adults and children spend more time than they ever have interacting with media and technology and spend less time in other activities or even interacting with one another. In some families where both parents are working, television is served as a “babysitter” for the children (Certain & Kahn, 2002). The result of a study conducted by Zimmerman and Christakis (2005) showed that children at ages 3 to 5 years watched television on an average of 3.3 hours per day. For young children, television programs seem to be somewhat stimulating and entertaining. However, it can unknowingly bring about negative effects on children’s imagination and creativity (Greenfield et al., 1990). While watching television, children remain passive – they do not need to imagine or create their own stories or characters. Moreover, watching television may hinder children’s physical and cognitive development.

Creativity has been defined variously. According to Sharp (2005), there are a number of components that many theorists agree upon, which are as the following:

...imagination, originality (i.e., the ability to come up with ideas and products that are new and unusual), productivity (i.e., the ability to generate a variety of different ideas through divergent thinking), problem solving (i.e., application of knowledge and imagination to a given situation), and the ability to produce an outcome of value and worth. (p. 5)

Most theories of child development viewed young children as being highly creative. However, the level of creativity is argued to be inconsistent throughout an individual's lifespan (Runco, 1996). For instance, Meador (1992) found a decline in creativity level when children reach the age of five or six, or after children enter kindergarten. Albert (1996) also suggested that there is a 'break' in creativity at adolescence. According to Runco (1996), the inconsistency in the development may be the result of certain traits and/or talents with different rates of development and the influence of individual's environment and life opportunities.

Among other factors, culture plays an important role in children's development (Vygotsky, 1978). In Western cultures, children are allowed to be different and freely expressed themselves (Pang & Richey, 2007). This tends to facilitate creativity. In contrast, some cultures, like Chinese and Taiwanese cultures, tend to hinder this development through the rigid, strict rules and expectation of desirable behaviors (e.g., Halpin, Payne, & Ellet, 1973; Papalia & Olds, 1986).

Socioeconomic status (SES) also seems to have an effect on the development of creativity. Research (e.g., Barnett & Kleiber, 1984; Lichtenwalner & Maxwell, 1969) found that high SES is associated with higher level of creativity. This can be explained with the fact that high SES children are in the environment that stimulates creativity, in opposed to low SES. However, some other research (e.g., Smith, 1965) found contradicting evidence that low SES children tend to be more creative.

Although there is an increase in awareness on the impact of media on children's creativity, the business of broadcasting directly to children is still growing, with

increasing numbers of television shows which can be classified into what is known as “product-based program” which is defined by Metroka-kirkham (2008) as a type of program that their main theme is the developed, for marketing, products (Fletcher & Nielsen, 2011). These programs and together with their products have been found to reduce children’s creativity (Fletcher & Nielsen, 2011; Greenfield et al., 1990). However, previous research have not yet investigated such effect across culture and in different ranges of socioeconomic status (SES). By conducting experimental research with a no viewing control condition, this study aimed to find out whether the effects found in Western children can be generalized to those raised in an Eastern culture.

The existing literature/research related to creativity and early childhood are rarely emphasized on the cultural influence. Furthermore, a few research on creativity and culture are at some stage of childhood. Noted that there are developmental differences between children at different stages or age group, the result of a study in a certain developmental stage cannot be used in predicting the results in other different stages, since the development is not in a linear fashion (Marsh, 2010). Contributed to previous research, this study then focused on children aged 3.5 years old, which is within the crucial years (i.e., between age 3-6 years) of creativity development (Rowe & Humphries, 2001; Craft, 2000; Beetlestone, 1998; Hubbard & Power, 1996; Woods, 1995).

Specifically, the purpose of the current study was to examine the effect of product-based program on 3.5-year-old children’s creativity by comparing the differences across cultures (i.e., Australian and Thai) and within Thai culture in relation to

socioeconomic status (SES). This research provided data collected outside of Western cultures to investigate cultural differences in order to rule out the fact that many researchers often assume that there is little difference across populations, that is, that Western, Educated, Industrialized, Rich, and Democratic (WEIRD) children are representative of all populations (Henrich, Heine, & Norenzayan, 2010).

Theoretical Background

Creativity

Nowadays, creativity raises its popularity in education, psychology, as well as, parenting. According to a national survey from North Western University (2013), creativity, just like health, safety, social-emotional skills, media uses, and cultural awareness, is one of parents' major concerns. Though a universal definition of creativity is elusive, many researchers have tried to develop the meaning and the construct of such concept. For instance, Barbara (2009) defined creativity in the encyclopedia of positive psychology as:

“A characteristic of a person, a product, or a process. In people, creativity is most often seen as the capacity to solve problems in new ways and to produce works that are novel, appropriate, and socially valued..... A process is considered creative when it involves divergent thinking, multiple ideas, and new connections.”

In general, creativity is defined by an ability to develop new and unusual ideas that can involve physical, emotional or mental processes (Valkenburg & van der Voort, 1994; Vygotsky, 2004; Prentice, 2000). As closely related, sometimes 'creativity' is

referred to as imagination and fantasy; these two synonyms are also linked to imaginative play, fantasy play, pretend play, and make-believe play (Valkenburg & van der Voort, 1994; van der Voort & Valkenburg, 1994; Vygotsky, 2004). Thus, those words will be used interchangeably in this report.

Creativity emerges in the early years of childhood and peaks at the age of three to six (Blumenthal, 2009; Vygotsky, 2004), and is found to be linked to self-worth, healthy lifestyle, well-being, emotional, social, cognitive, and intellectual development in young children (Blumenthal, 2009; Feldhusen & Goh, 1995; Martlew & Grogan, 2013; Ruoff, 1973; Singer, 2003). For instance, Connolly and Doyle (1984) found a positive correlation between the frequency and complexity of children's fantasy play during free time in school and competence measures that included teacher's rating, social role-taking skill, popularity, and observation of social behavior.

Other studies have found that play is important for developing creativity and imagination (Blumenthal, 2009). Taylor and Rogers (2001) studied the association of playfulness and creativity. Although they reported no significant statistical analysis as a result of unusual testing conditions, they found through qualitative data analysis that the positive relationship between playfulness and creativity occurs. They described playful children to be active leaders with curiosity, creativity, and self-motivation. Moreover, their further elaboration suggests that curiosity is a main drive of creativity and playfulness.

Although play takes a significant role in developing children's creativity, it is increasingly being replaced by the growth of media consumption. A review by van der

Voort and Valkenburg (1994), reported that many studies return evidence supporting the displacement hypothesis which states that children spend most of their time with media rather than other activities. Undeniably, media has some educational advantages; however, the benefits of entertainment-based programs are still questioned.

Product-Based Program

In the early 20th century, Charles Francis Jenkins and John Logie Baird discovered a method for stable and motion image transmission via wire and radio; and that is the origin of television (Hilliard & Keith, 2010; Knapp & Tebo, 1978). Many children's broadcasts come right after its first production, *Howdy Duddy*, in 1947 (Hilliard & Keith, 2010). With the growth in broadcast industry, it is reported that children spend more time in front of the screen. Instead of watching television in the morning and evening after school and homework time, children also consume dramatic programs and adult programs which are on aired from 9 p.m. to after midnight (Hilliard & Keith, 2010; TV & Children, 1951).

Due to the increase in television watching, researchers become interested in the effect of television to children's creativity. The two main hypotheses in this kind of research are stimulation hypothesis and reduction hypothesis. Stimulation hypothesis predicts that children's creativity, as assessed by imaginative play and creative task, can be facilitated by television (Fletcher & Nielsen, 2012; van der Voort & Valkenburg, 1994; Valkenburg, 2001). In contrast, the reduction hypothesis proposes that television inhibits children's creativity by reducing their playtime (displacement hypothesis), providing a ready-made story (passivity hypothesis), resulting in cognitive overload (rapid-pacing

hypothesis), promoting hyperactive and impulsive behavior (arousal hypothesis), and creating anxiety (anxiety hypothesis) (Fletcher & Nielsen, 2012; van der Voort & Valkenburg, 1994).

Many research tend to support the stimulation hypothesis; however, this positive interaction is only limited to education-based programs or when adults' advice is available (Singer, 2003; Tower, Singer, Singer, & Biggs, 1979). In Fletcher and Nielsen (2012), children were randomly assigned to watch neutral, education-based and entertainment-based programs. Prior to watching the show, children's play was coded as functional or pretence and as novel or imitative. Their result showed that there was an increase in children's creativity and a drop in children's imitateness after watching education-based programs. However, entertainment-based programs led to a directly opposite direction. This is another proponent for the claim by van der Voort and Valkenburg (1994) that the enhancement or inhibition of children's creativity is based on the type of media they have consumed rather than whether or not they have seen the media.

Although education-based programs can be beneficial to children's creativity, parents are still concerned about the time their children spend in front of the screen (Jason & Fries, 2004; Chan & McNeal, 2003). This has led researchers to test the displacement hypothesis which predicts a significant negative correlation between media's popularity and time spent on play, social activities, shopping, doing homework, and sleeping (Murray & Kippax, 1978; van der Voort & Valkenburg, 1994). This means that when children spend more time consuming on television shows, they have less time

to join other social activities. Unsurprisingly, media growth shortened 'playtime' in which it's significant part is the time for fantasy play which helps children to develop their creativity, as well, as, their intelligence, cognition, and emotion (Blumenthal, 2009; Feldhusen & Goh, 1995; Martlew & Grogan, 2013; Ruoff, 1973; Singer, 2003; van der Voort & Valkenburg, 1994). Therefore, the displacement of media on playtime may delay children creativity.

Not only taking fantasy playtime away from children, media provides a ready-made plot (passive hypothesis) which is claimed to prohibit children's creativity that may arise when they make their own story line (Greenfield et al., 1990; van der Voort & Valkenburg, 1994). There is a high tendency that the ready-made plot will be copied as it was found that, by the age of three, children are capable of using and applying the content from television shows to their plays (van der Voort & Valkenburg, 1994). According to Social Learning Theory by Albert Bandura (1978), behaviors, such as aggression, are not inborn but rather it has to be learnt via observational learning. Many research (e.g. Bandura, 1965; Bandura, Ross, & Ross, 1963) found that apart from a real person, film and television are good models for children as young as 35 months old. Thus, from the work of Bandura, it can be argued that preschoolers have an ability to imitate the model which could be a real person or a filmed actor. It means that their creativity will be influenced by media as their have a high tendency to imitate whatever they see.

Furthermore, visual media, compared to other types of media, is very influential for young children. Hayes and Birnbaum (1980) found that children pay more attention to

visual media than other types of media. They recruited preschoolers aged between four to six years old and showed them a clip of *Superfriend* cartoon (visually presented) and *Scooby Doo* cartoon (auditory presented). The experimenter later asked children to respond on the questions regarding the major part of the shows. As predicted, children's recognition of visual information was more accurate than that of auditory processing. This research indicates that children are sensitive to visual information. In sum, the tendency and the capability to imitate and the sensitivity to visual information enhance children's imitative acts.

So far we have proposed ways that children broadcast can either increase or prohibit children's creativity. From this point onward, we will guide you to our main focus which is product-based.

Metroka-Kirkham (2008), as cited in Fletcher and Nielsen (2011), defined product-based program as a type of television show that have marketing as their major concern; instead of planning a beneficial story for children, they start with designing a product and make the program to promote the product. Such program is sometime referred to as program-length commercial (Boyer, 1986; Charren & Krock, 1986; Greenfield et al., 1990). Though the research of product-based program are still in its infancy, the available research has found that such programs support the reduction hypothesis. For instance, as mentioned earlier, Fletcher and Nielsen (2011) found that entertainment-based program reduced novel play and increased imitative play.

Similarly Greenfield et al. (1990) investigated whether children's creativity would be reduced the most when a product-based program is followed by play with program-

related products, while their creativity should be facilitated the most when the same toys followed a nonproduct-based program. Through observational coding that was categorized by type of imagination, their hypotheses were supported. This research emphasizes two important points. Firstly, children's creative acts were decreased when they watched a product-based program even if they did not have a chance to play with program-based toys. This suggests that a product-based program alone can impact creativity. The ready-made plot that reduces the cognitive processes in children to innovate new ideas could explain this. Moreover, for marketing purpose, product-based program focuses on physical attributes that include the invention of heroes, villains, and action-adventure themes (Boyer, 1986; Fletcher & Nielsen, 2011). Children's creativity is found to have a higher reduction when children watch high action and violence children broadcast (Blumenthal, 2009; van der Voort & Valkenburg, 1994). Furthermore, in many cases, the main characters engage in aggressive actions resulting in a positive outcome. This in turn positively reinforces children to imitate the actions, which thereby limits their creative acts (Bandura, 1965; Huston-Stein, Fox, Greer, Watkins, & Whitaker, 1981). Without a necessity to create a story plot and with the ability to use action product-based program as an attractive model, children become more imitative and less creative.

Secondly, children's imagination was further prohibited when they were exposed to both product-based program and program-based toys. Developing one's desire of the product is a major goal of these program (Greenfield et al., 1990). Greenfield et al. (1990) explained that toys serve as visual cues in triggering children to recall the scene

from the program which then lower the tendency in developing creative play. Moreover, the invented products from this type of program usually consist of models and figures which are claimed to be highly structured and close-ended toys that lower the creative acts (Blumenthal, 2009; Greenfield et al., 1990; Ruoff, 1973). Ruoff (1973) conducted a study to investigate whether or not toy preference is related to creativity. Children were asked to choose between open-ended toys (e.g. crayons, play dough, and building blocks) and close-ended toys (e.g. people and their jobs matching puzzle, barn with realistic animals, and truck) and to complete a creativity assessment (Torrance test and teacher evaluation). The result illustrated that children who have high creativity, have a higher tendency to choose open-ended toys. Thus, more than reducing the need to be creative, program-based products could also be a visual cue of the story plot that has been presented in the product-based program (Greenfield et al., 1990).

To sum up, there are two opposing theories of the effect of media on children's creativity. One of the reasons to explain the difference is that whether the broadcast serves as an enhancer or an inhibitor is depended on the type of programs in which in was found that normally education-based programs enhance creativity while entertainment-based programs inhibit creativity. However, there is a growth in product-based program which most of them are an entertainment-based type with the purpose in toys merchandise. This type of program is assumed to further diminish children's creativity by providing a ready-made plot, being action and violence, and giving toys that serve as visual cues and limit creative play.

Culture

Creativity arises from the interaction of individuals and culture (Csikszentmihalyi, 1988; Kim, 2009). Cultures are made by humans; in the other words, it is the product of human creativity (Gauntlett & Stjerne-Thomsen, 2013). At the same time, it does have a great impact on individuals in the society and significantly shapes young children. Different cultures may promote the development of different cognitive skills (i.e., creativity) that are adaptive or necessary in particular environment. Children across cultures and backgrounds are naturally born with a creative mindset – being playful, taking risks, exploring and creating their own worlds (Gauntlett & Stjerne-Thomsen, 2013; Hennessey, 2013). However, research has shown that the conceptualizations of creativity are similar but not identical among Eastern and Western people (Niu & Sternberg, 2006; Rudowicz, 2003). With different conceptualizations, different cultures affect on children’s creativity variedly through different beliefs, values, parenting styles, and other contextual factors.

Individualism is typical in Western countries. Individualism is defined as “societies in which the ties between individuals are loose; everyone is expected to look after himself or herself and his or her immediate family” (Hofstede, 1991, p. 51). Parents in individualistic cultures encourage their children to be independent and autonomous, generating divergent thinking, and self-expression (Pang & Richey, 2007). Independence allows individuals to behave in unconventional and creative ways. Moreover, American

preschoolers are given more free time to play compared to children in East Asian countries like China.

On the other hand, collectivism is most common in Asia and the East. Collectivism is defined as "...societies in which people from birth onward are integrated into strong, cohesive in-groups, which throughout people's lifetimes continue to protect them in exchange for unquestioning loyalty" (Hofstede, 1991, p. 51). It emphasizes harmony, self-sacrifice, strong ethics, and respect for elders and authority figures. In order to achieve harmony, people often tend to behave in conformity and, as observable, tend to be less creative (Cropley, 1973).

In East Asian countries, particularly China and Thailand, parents tend to place more emphasis on hard work, effort, diligence, endurance, perseverance, and persistence (Haynes & Chalker, 1998; Henderson, 1990; Park & Kim, 1999). As a result, they do not believe that childhood is the time to play or have fun (Fielding, 1997; Rudowicz & Hui, 1997). In this case, play is devalued and thereby may hinder children's creativity (Bishop & Chace, 1971; Vygotsky, 1992). Moreover, East Asian parents usually place emphasis on loyalty and obedience to elders, following rules and traditions, which can in turn inhibit creative innovation (Van Gundy, 1987). Even though some researchers, like Williams and Yang (1999), suggested that modern Asian society put more importance on creative problem solving and decision making than loyalty and obedience, some old traditions/beliefs still remain. In addition, filial piety, or consanguineous affection, is what East Asian people value the most (Hwang, 1999). The importance of filial piety and obedience are embedded into the teaching of young children and that often lead the

children, without questioning, to automatically accept their parents' or elders' conventional thinking. As a result, it leads to a reduction in autonomy and independence, less divergence (i.e., more conforming), and thus, inhibit creativity. East Asian parenting is warm but very strict to rules (e.g., Bond, 1992). Youngsters are expected to respect the authority of the elder at home. In particular, children should be obedient and submissive to their parents. This type of parenting thereby may have a negative effect on children's creativity. In home environment, other factors that may hinder creativity are parental vigilance (Getzels & Jackson, 1961), hostile, rigid, and controlling home environments (Halpin, Payne, & Ellet, 1973; Papalia & Olds, 1986).

Socioeconomic Status

According to Lehman (1990), the early peak of creativity is a result of environmental factors such as poor family conditions, financial issues, and lack of leisure time. Some children are in stimulating environments that result in satisfied development of creativity at the critical period while others of the same age are not. It is assumed that parents in good socioeconomic status (SES) can adequately satisfy the need of children to enhance their creativity. Some studies, such as Mankar, Ugale, and Rothe (2011), failed to support this assumption. They did not find a significant relationship between creativity of children and SES. However, other studies (e.g., Barnett & Kleiber, 1984; Lichtenwalner & Maxwell, 1969), support this assumption of the difference of creativity in children in different levels of SES. Barnett and Kleiber (1984) suggested that high SES is associated with high levels of playfulness, which is a fundamental dimension of personality linked to creativity. A study conducted by Lichtenwalner and Maxwell (1969)

found that middle-class children, aged 4-6 years old, have higher levels of creativity than the lower-class children. Lichtenwalner and Maxwell proposed three factors that could affect on the development of creativity in low SES children. First of all, children in low-SES families usually are independent from their parents. Secondly, low-SES parents tend to use harsh physical punishment rather than reasoning and thereby, this can repress creative behavior. Lastly, low-SES homes often are not stimulating environment to promote creativity.

In opposed to the assumption above, some research suggests that children from low SES are often in the situations that force them to behave autonomously (Smith, 1965). Findings suggest that creative children are most often associated with an environment that emphasizes independent behavior, risk taking, and personal judgment. In contrast, children with lower levels of creativity are often raised in the environment that places an emphasis on the safest solution.

Current Study

Specifically, the purpose of the current study was to examine the effect of product-based program on 3.5-year-old children's creativity that is the crucial years (i.e., between age 3-6 years) of creativity development (Rowe & Humphries, 2001; Craft, 2000; Beetlestone, 1998; Hubbard & Power, 1996; Woods, 1995) and to compare the differences across cultures (i.e., Australian and Thai) and within Thai culture in relation to SES. In contribution to the previous research, this study provided the data collected outside of Western cultures used in investigating the cultural differences in the impact of product-based program on children's creativity.

The current study implemented the method of inferring creativity from children's toy preference. According to Ruoff (1973), toy preference and creativity were found to be related. In this study, children were asked to select from sets of toys and/or picture choices that they want to use or play with, in answering the questions. Among the toys provided, half of the toys were program-related toys that were considered to limit creative or divergent thinking, while the other half were program-unrelated toys that were considered to enhance creativity and flexibility (Ruoff, 1973).

Derived from the literature review, research questions and hypotheses were made to be examined in the study.

Hypotheses

As a part of this study, the aim was to investigate:

1. A negative relationship between viewing product-based program, and children's creativity has been found in a number of research, such as Fletcher and Nielsen (2011) and Greenfield et al. (1990). As creativity is defined as a novel act, we hypothesized that children who watch a product-based program would prefer program-related toys more than program-unrelated toys. In other words, participants in the viewing condition would show less creativity than those in a no viewing condition.
2. According to Altbach (1989), Asian countries have long been impacted by the western education system, which leads to a more westernized higher education in Asia, including Thailand, Japan, and China. Moreover, Pinyuchon (1997) suggested that cultural fusion in high SES sample in Thailand, adopting

Western cultures and becoming more westernized, as compared to the low SES sample in the rural areas. By comparing between cultures, we hypothesized that, regardless of the effect of the viewing conditions, the creativity would be similar in both Australia and high SES Thai sample groups.

3. As suggested by a few research (e.g., Barnett & Kleiber, 1984; Lichtenwalner & Maxwell, 1969), high SES is associated with higher level of creativity. In investigating between SES in Thailand, we hypothesized children from low SES backgrounds to have a higher preference for program-related toys than children from high SES backgrounds. This means that after viewing condition, children in low SES would be more affected than high SES and Australia samples. Thus, their creativity would be lowest, compare to the other two groups.

Operational Definition

Creativity. Creativity in this study refers to the ability to creatively select the toys that do not appear in the product-based program.

Product-based program. Product-based program is defined as the program that is produced and designed with marketing purposes to induce the desires of the audiences to purchase the products based on the program.

Culture. Culture is “a society that has its own set of ideas, beliefs, and ways of behaving” (Macmillan Dictionaries). In this study, culture is different across countries and continents in terms of their native language, tradition, lifestyle, beliefs, and values.

People in Western and Eastern cultures hold different concept of individualism and collectivism (Markus & Kitayma, 1991).

Socioeconomic status (SES). School tuition fees and location were used as the criteria to categorize the Thai sample into high- and low-SES. High SES refers to children living in town within 25 kilometers from the Central Business District (CBD) in Bangkok. The tuition fee of high SES is approximately 20,000-50,000 Baht per semester. In contrast, low-SES refers to children living in the rural areas, which are located more than 50 kilometers from the CBD in Bangkok. Tuition fee of low SES is lower than 4,000 Baht per semester.

Chapter 2

Methodology

Design

The experiment was a 2 (viewing condition) x 3 (culture and SES) between-group factorial design. The independent variables were (a) viewing condition (viewing vs. no viewing), and (b) culture and SES which divided into three groups including Australian, high-SES Thai, and low-SES Thai. Creativity, as assessed by toy selections, was the dependent variable of this research.

Participants

The participants were separated into three groups including Australian, high SES Thai, and low SES Thai, in which the experimenters recruited children from the early cognitive development center (The University of Queensland, Australia) and children from schools in Thailand from Bangkok, Nakornpathom, and Ratchaburi. Table 1 illustrated the demographic information of the participants. Each sample consists of twenty-four children. In total, the experiment consisted of 72 participants, composed of 32 males and 40 females ($M_{\text{age}} = 4.03$, $SD = 0.51$). Rewards (i.e. toothbrush, toothpaste, and certificate) were given to all participants as a compensation for their time.

Table 1

Demographic information of the participants

	Australian	Thai High-SES	Thai Low-SES
Location	Brisbane, Australia	Approximately 20 km from CBD of Bangkok, at Nonthaburi	A school at Samphran, Nakornpathom province and another school at Pak Tho, Ratchaburi province, located respectively at 61 km and 99 km distance from CBD of Bangkok
Tuition fee		25,000 Baht per semester	3,000 Baht per semester
Age	3 to 3.58 years ($M = 3.54, SD = 0.12$)	3.25 to 4.92 years ($M = 3.99, SD = 0.39$)	4 to 5.08 years ($M = 4.55, SD = 0.33$)

Materials

Harry Lego product-based program. A new Harry Potter Lego product-based program, presented by Apple iPad 2, was created by taking the scenes from *LEGO Harry Potter and the Philosopher's Stone* and *LEGO Harry Potter and the Chamber of Secrets* (HogwartsTheGreatHall, 2012). This was a revised version from the one ran in the pilot study (see Appendix A).

Lego figures. Eight lego figures (see Appendix B) were involved in the experiment. They were divided into two categories: program-related (Harry Potter, Dumbledore, Hermione, and Dubby) and program-unrelated toy (a man, a boy, a girl, and a monster). Two of them were required in the first question while the rest were used in the third question.

Transportation toys. Transportation toys (see Appendix B) used in Question 5, were a blue car, a boat, a lego bus, and a rocking horse. A blue car was categorized as program-related toys while other options were counted as program-unrelated toys.

Picture choices. Picture choices (see Appendix B) were applied to Question 4, 6, and 7. In Question 4, four choices of places for holding a party were a Quidditch field, a Lego house, a factory, and a playground. Four choices that were provided in Question 6 were a Jumper 'R' (worn by a character in the program), a cap, a Lego car, and an apple. Question 7 that required participant to select two toys for the character had six choices, in which half of them were program-related toys (a Quidditch goal, a Quidditch ball, and a golden snitch) and the other half were program-unrelated toys (a kite, a ball, and bowling pints). Quidditch field, Jumper 'R', a Quidditch goal, a Quidditch ball, and a golden

snitch were characterized as program-related toys while the rest were program-unrelated toys. In these three questions, at least four choices were provided in order to reduce by-chance selection.

Marking sheet. A marking sheet, as shown in Appendix C, was used while conducting the experiment to score the child's responses.

Procedure

The first phase of data collection was conducted at the University of Queensland in Brisbane, Australia. Parents with children fitted the criteria of age 3.5 years old were contacted by the experimenter regarding the study with some details provided (see Appendix D). They were informed that the participation is voluntary and they are allowed to withdraw from the experiment anytime without a penalty and their child will still be rewarded with a certificate and a set of toothbrush and toothpaste as compensation for their time.

Upon arrival, each child went through a warm-up session of approximately 5 to 10 minutes with another experimenter who conducted the experiment prior to the current one. In the warm-up session, children were allowed to have free play with toys that match their gender. For example, boys were provided with cars and dinosaurs while girls were given baby dolls and a supermarket set. After a warm-up session, the child entered the testing room with an experimenter and his/her parent(s). The child and his/her parent(s) were requested to sit on the opposite side of the experimenter. Viewing or no viewing condition was randomly assigned to each child. After the experiment, they were debriefed about the purpose of the research.

In the second part of the experiment that was carried out in Thailand, participants were recruited from the kindergarten schools. The letters of the experimental details (see Appendix E) were sent to the schools for approval. Participants were randomly assigned to one of two conditions. Two participants were picked up from their classroom at a time. They had a warm-up session with the two experimenters. During the warm-up session, children and the experimenters played the matching and arithmetic game. After that, the experimenters asked for a volunteer for the research. The first participant who volunteered took part in the experiment first with one of the experimenters while the second subject continued in the warm up session with another experimenter. They then took turn. At the end of the experiment before returning to their classroom, the experimenters rewarded them with a cartoon paper clip.

In doing research with children, the experimenters were required to be flexible and able to appropriately and effectively handle the children as well as the parents, in case that some problems arose. The length of warm-up and experimental sessions varied across each individual. In this study, if the child was quiet, shy, and/or uncooperative, the experimenter gave them 1-2 minutes before ending the experiment.

Viewing condition. Children in viewing condition were exposed to a 5-minute product-based program of Harry Potter Lego Animation. After watching the program, the experimenter brought up a man and Harry Potter figure, for the child to choose the one he/she would like to play with. He/she was asked to name the chosen figure before choosing another two figures that would be friends of the previous figure. Later, the experimenter showed transportation toys and picture choices to the participants who had

to choose the objects to fill in the story line (see Appendix B for the story sequence)

No viewing condition. Children in no viewing condition were not exposed to the product-based program, while the same questions as those in the viewing condition were asked.

Data Analysis

Coding. The coding of the child's creativity was based on the score of toy preferences, either program-related or program-unrelated toys. For each question, children were given 1 mark for choosing program-related option and 2 marks for program-unrelated choices. An overall score for each category of each question and overall score for each participant was obtained by summing across all scores. The incomplete set of with some questions left unresponded were included.

Statistical analysis. The experimenters ran 2-way Analysis of Variance (ANOVA) using Statistical Package for the Social Science (SPSS) to find the main effect and the interaction of the two independent variables. Pairwise comparison was conducted as a follow-up of the significant main effect.

Chapter 3

Results

A 2 (viewing condition) x 3 (culture and SES) between-group ANOVA on the level of creativity was conducted. Table 2 demonstrated the output of statistical analysis of the test of between subjects effects and figure 1 represented the pattern of the results. No significant main effect of viewing condition was found, $F(1, 66) = 0.98, p = .326, \eta_p^2 = .02$. This indicated that viewing ($M = 14.92, SD = 1.30$) or no viewing condition ($M = 15.20, SD = 1.24$) did not affect creativity. The statistical analysis revealed significant main effects of culture and SES with small effect size of the analysis, $F(2, 66) = 4.18, p = .02, \eta_p^2 = .11$, followed up by pairwise comparisons against $\alpha = .05$. Levene test indicated that there was a violation to the assumption of normality and homogeneity, $p = .042$. As a follow-up, Dunnett C was used as a post hoc test. The analysis illustrated the difference across each sample in which the mean creativity of Australian sample ($M = 14.50, SD = 1.46$) was significantly lower than that of high-SES Thai sample ($M = 15.46, SD = 1.02$) and Australian sample was not differ from low-SES Thai sample ($M = 15.21, SD = 1.10$). Moreover, the analysis did not found a significant difference within Thai samples. Furthermore, the interaction of viewing condition and culture and SES was not significant, $F(2, 66) = 2.42, p = .097, \eta_p^2 = .07$.

Table 2

The output of statistical analysis of the test of between-subjects effects

Source	SS	df	MS	F	p	Partial Eta Squared
Condition	1.389	1	1.389	.979	.326	.015
Samples (culture and SES)	11.861	2	5.931	4.179	.020*	.112
Condition x Samples	6.861	2	3.431	2.417	.097	.068
Error	93.667	66	1.419			
Total	16434.00	72				

Note: Levene's Test of Equality of Error Variance, $p = .04$

$p < .05$, ** $p < .01$, *** $p < .001$.

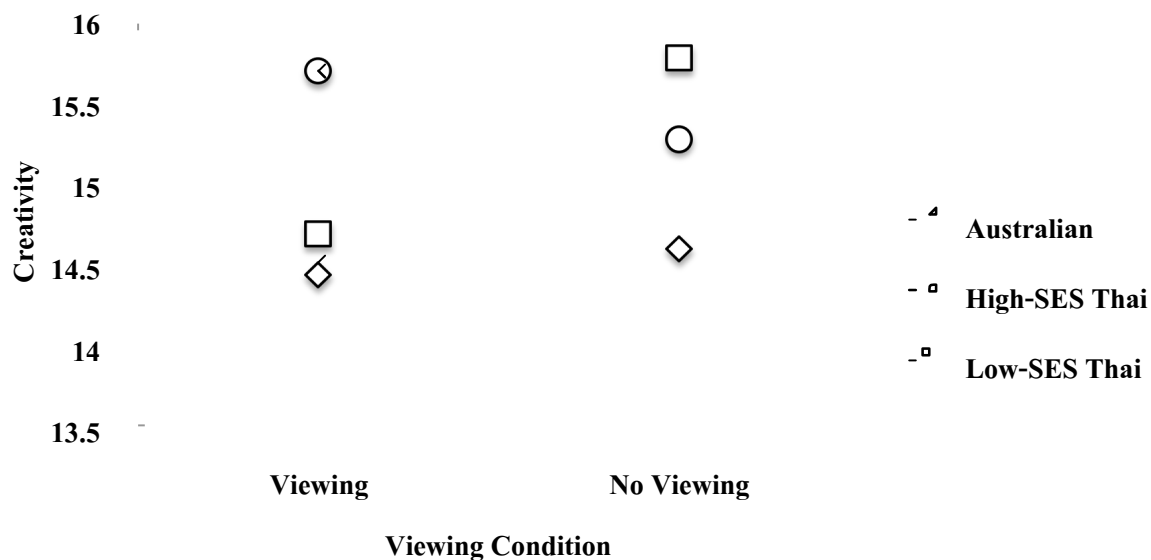


Figure 1. Level of creativity according to viewing condition and culture and SES.

Chapter 4

Discussion

Principle Findings

This study aimed to investigate the effect of product-based program on children's creativity across culture and SES. The results suggest that the differences in the effect of product-based program watching on creativity could be observed among children in Australia and high SES Thai group; however, no difference was found across viewing conditions and SES in Thai sample.

Inconsistent with the first hypothesis, creativity levels did not differ between children in viewing and no viewing conditions. This finding could be partly due to the low quality of the newly edited program. This finding seems to be inconsistent with the findings in the existing previous literature and that, it raises the question for further study to explore on the factors that may mediate the effect.

Contrary to the prediction, the creativity level as a result of product-based program watching was lower among Australian children than high-SES Thai children. A possible explanation is the cultural diversity and the exposure to foreign cultural images from foreign films and online media in Thailand and Australia (Chua, 2011). According to Arphattananon (2010), Thailand has been recognized as a culturally diverse country. Therefore, the creativity in Thai children is at the same level as that of Australian children. However, the exposure seems to be more profound among high SES children and less so among low SES children. Moreover, the explanation for the finding of a higher creativity in Thai children, as compared to Australian, is the exposure effect – the Australian children are likely to have

had greater exposure to the toys and the Harry Potter characters, which in turn constricted their creativity. Thereby, the difference in creativity can be observed between Australian and high-SES Thai children, but not low-SES Thai children.

Opposed to the third hypothesis, high-SES Thai children did not show a higher creativity, compared to low-SES Thai children. This might be rationalized by the fact that they have the same cultural background and similar parenting styles. An alternative explanation is due to the small effect size and/or low power, it is difficult to detect any difference.

Strengths and Weaknesses

This is the first study to examine how culture and SES could shape the effect of product-based program on children's creativity. One of the difficulties in doing cross-cultural experiment is the language barrier. To solve this issue, the product-based program utilized in this experiment was with sound effects but without language. With sound effects, participants would thereby develop similar emotions and similarly experience emotional changes from the product-based program. Moreover, another challenge of the study is the development of tasks and tools that were suitable for young children as young as 3.5 years old. To ensure the appropriateness of the tasks and tools, a pilot study was conducted and necessary improvements were made. Another strength of the study is the use of fixed coding with marking sheet that has a clear criteria, which thereby rules out the problem of ambiguity in behavioral coding.

There are several limitations in the study that prevent drawing firmer conclusions. Firstly, a major limitation of this study is the lack of a standardized measure of creativity.

Rather than directly assessing creativity, the measure used here assessed toy preferences, which may indirectly infer creativity. Secondly, there was an age difference between the two cross-cultural samples (Australians vs. Thai) that may affect on the findings since the development of creativity varies as a function of age. In comparison, age range in the Thai sample was larger. The study conducted by McDowell and Howe (1941) in preschool children aged 2 to 4 years old found that creativity level varies with age. Since creativity varies with age, such development may differ cross-culturally. However, many research related to the development of creativity in young children primarily conducted in Western countries, and rarely, if not none, have been done in the East Asian countries. Thereby, the age range and mean age of the peak of creativity may be wrongly assumed to be similar in East Asian children.

Another limitation is the uninterestingness of the product-based program shown in the viewing condition and the tasks that require children to answer the questions without actually engaging in play. Several researchers (e.g., Valkenburg & Janssen, 1999; Bazalgette & Buckingham, 1995; Clifford, Gunter, & McAleer, 1995; Collins, 1982; Valkenburg & van der Voort, 1994) claim that attractiveness and understandability of the television programs do affect on children's imagination and the effort in interpreting TV contents in their own ways. Since the presented product-based program was a newly edited one into a shorter version of the originals, thereby it may not contain a good story plotand may also lack the heroic feelings, which are some characteristics of product-based program that grasps children's attention (Boyer, 1986; Fletcher & Nielsen, 2011). Due to the shortness of the newly edited product-based program, the exposure time may

not be enough for children to get the main theme and/or bring about an immediate effect on their creativity, leading to the insignificant result.

Moreover, the activities done in the warm-up sessions varied across samples and that, they were not tested of the impact on creativity. The different warm-up activities may affect on creativity levels variedly. Furthermore, another limitation is that the study has not examined on the differences between the low SES in Western and Eastern countries. Children in low socioeconomic status from the Eastern countries may possibly be more creative than those from the Western countries due to the fact that they have to create/invent their own toys. Lastly, participants were distracted by parents or friends who were in the same room or nearby area the experiment was conducted.

Future Research

Future research should aim at using and/or developing a standardized measure of creativity to ensure its reliability and validity. The use of a standardized measure along with a newly developed measure can serve as a mean to evaluate the standardization of the newly developed measure, whether it is reliable and valid for measuring creativity. To rule out the problem of small effect size, a larger sample size may be necessary to increase power in detecting the interaction effect. To rule out the limitations with the uninterestingness of the product-based program in future study, ratings of arousal and interest from teachers and/or caretakers may provide feedback whether or not the developed product-based program is interesting to children aged 3.5 years. To rule out the confounding of the effect of the warm-up activities, the experiment should control

and implement the same activity across the samples. Moreover, such activity should be tested on the extent to which it affects on creativity.

The amount of TV viewing at home, which can be estimated by children's parents, should be added as a control factor in future studies because the immediate effect of product-based program used in the experiment might be due to the accumulative effect of the long-period exposure to TV programs. Importantly, the experimenter should do a background check whether the children has exposed to such program before, since that might contributes to the difference. Parental involvement during TV viewing is another factor to be explored into. Singer and Singer (1976) found that the presence of active adults during watching television tend to promote imagination. That is, adults usually direct children's attention to the fascinating part of the program (Singer & Singer, 1976; Thakkar, Garrison, & Christakis, 2006). This study, however, examined the short-term exposure effect; therefore, a longitudinal study should be done to confirm the effect of adult involvement that prevents the negative effect of media on children's creativity. Additionally, parenting style is an interesting factor to further investigate on its impact on children's development of creativity. For instance, Rogers (1959) suggested that creative behaviors are developed from childhood environment that parents are responsible for (Koestner, Walker, & Fichman, 1999). The best setting is when children have a sense of safety and freedom (Koestner et al., 1999). As based on Rogers' suggestion, Koestner et al. (1999) found positive relationship between creative acts and the experience of freedom during childhood; thus, as parents are the significant figures for their children,

'how creative ones are' would due to what parenting style they had experienced in their childhood (Papalia & Olds, 1986).

An additional of a viewing condition in which children are exposed to a non-product-based program would be beneficial in future study, in observing the effects of product-based program and non-product-based program on creativity, as compared to no program (control) condition. The differences in creativity level between product-based program and non-product-based program may suggest that highly-structured program-based toys serve as visual cues and reinforcement. Therefore, they tend to limit creativity.

Implications

The findings of this study have important implication for the notion that product-based program has contributed to the reduction in creativity. Although it is true that these program limit creative thinking and play, our findings do not support the notion of the negative effect of product-based program on creativity. In addition, culture implicated the difference in the effect of television programs on creativity. This implies that some types of television programs may be beneficial to Western children, but not for Eastern children.

With the rapid growth of the children media industry, especially product-based one, it is important to investigate its effects on children's creativity. This study would be beneficial for parents, teachers, and even for the media legal system to choose the appropriate type of media and to limit the inappropriate one for the best of our children's future.

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Appendix A

Pilot study

A new program-based program of *LEGO Harry Potter* was developed, composing of the scenes taken from *LEGO Harry Potter and the Philosopher's Stone*, *LEGO Harry Potter and the Chamber of Secrets* and *LEGO Harry Potter and the Deathly Hallows*. The program was 4 minutes long with the theme song at its opening. The program started with the wedding party and later continued with the Christmas scene that is when Ron (one of the characters) got a red jumper with 'R' as a present. After that Harry Potter and Ron used a blue flying car to travel to school. Later Harry got involved in the Quidditch game when Harry (the main character) broke his arm. This was the first appearance of Hermione. Dumbledore was presented on scene with Dobby before the program ended with the end of semester school party. In the pilot study, the program was implemented to check its appropriateness for children aged 3.5 years. The participant was asked to choose one of the characters that he/she would like to play with and name it. After that, the experimenter created a plot, in which it was the selected main character's birthday and where a party would be held, and that the participant was asked to draw the place for holding the party and a birthday's gift. Then, a set of characters was provided for the child to pick friends for the main character. The experiment went on with the story that the main character was in an accident and broke his arm, just like what appeared in the program. After that the participant was asked to choose the treatment for that main character.

As the result, the experimenter found that the theme song along with the dark opening scene seemed to be scary for the participant. The scene of gloomy wedding and of the main character in an accident induced fear and was not appropriate for the 3-year-old child. Moreover, drawing task was not appropriate for 3-year-old child since their drawings were very difficult to interpret and comprehend. Thereby, the improvement and revision were made on the program and the tasks. The scary scenes and opening song were removed and that, the experimenter developed another program that was more age-appropriated. Experimental task was changed from drawing to selecting LEGO characters and picture choices for the ease and more engaging of the 3-year-old children.

Appendix B

Materials



Appendix C

Marking sheet

□

Name

Date/ Time

1. Choose a character (A)
2. Can you give him a name?
3. Can you invite two persons (B and C) for him to play with?
 - A Boy
 - A Girl
 - A Monster
 - Hermione
 - Dumbledore
 - Dubby
4. 'A' would like to play with his friends.
Can you pick a place where 'A' will play with his friends.
 - Quidditch field
 - Playground
 - Lego House
 - Factory
5. How can B and C get there?
 - A Blue Car
 - A Boat
 - A Knight bus
 - A Rocking horse
6. Today is B's birthday. 'A' wants to give him a gift. Can you choose that for him?
 - A jumper with 'R'
 - A Cap
 - A lego toy
 - An Apple
7. These are all the stuffs they have. Can you pick two things for them to play with?
 - Golden Snitch
 - A broom
 - Quidditch Goal
 - Pint bowling
 - Ball
 - Kite

Appendix D

A letter from Early Cognitive Development Center, the University of Queensland, Australia

SCHOOL OF PSYCHOLOGY

Early Cognitive Development Centre

School of Psychology
The University of Queensland
Brisbane QLD 4072



Thursday, 1 May 2014

Dear parent,

My name is Jeremy Nash and in collaboration with Dr. Mark Nielsen, Director of the Early Cognitive Development Centre at the University of Queensland, I am currently exploring how children learn from others¹. Your contact information was obtained from the Brisbane Pregnancy, Babies and Children's Expo; registration from our brochure; or referrals from your friends whose children have participated in our past studies. With your permission, we would greatly appreciate the opportunity to include your child in our research.

In past studies we have documented that when learning a novel skill, children will replicate all of the actions an adult demonstrates to them, including those having no apparent purpose or causal function. We have also shown that this occurs whether children are from large, urban cities in Australia or remote, traditional communities in Northern Australia and Southern Africa. This behaviour has come to be called over-imitation and we are trying to understand why children do it. To date, over-imitation has been found across a range of different objects, but it is unclear whether the actions on these different objects are being copied for the same reasons. The aim of our current study is therefore to help us understand if this is so. The results of this project will shed light on important questions of how children learn from others, thereby informing approaches to early education, and will provide the basis for further studies that will help in the early identification of children at risk of developmental delays.

For this study we will use specially designed boxes adapted from those we have used in the past in which the target outcome is to retrieve a desirable object (e.g., stickers). Opening the box first requires a sequence of steps to be enacted that involve removing different bolts and disengaging hidden switches. Sometimes an adult will show children how to do this; sometimes they'll need to work it out for themselves.

The experimental sessions are run with a playful approach and take approximately 30 minutes. Your child will receive a certificate and a small gift for participating, and you or your child may withdraw from participation at any time during the study without prejudice. All experimental sessions are videotaped for the purpose of data collection, and these will only be accessed by myself and Dr. Mark Nielsen. At all other times they will be kept locked in a secure storage room at the Early Cognitive Development Centre. All information regarding yourself and your child will be treated with the strictest confidentiality.

Along with this letter I have included a map providing directions to the Early Cognitive Development Centre in the McElwain Building where the testing will take place. Weekend appointments are available. If you would like any further information about the study or would like to make an appointment to participate, please don't hesitate to contact me on 3365 6323. I will follow up this initial contact with a courtesy phone call if I have not heard from you within a week or so.

Yours truly,

Jeremy Nash
Study Coordinator

¹ This study has been cleared in accordance with the ethical review processes of the University of Queensland, and within the guidelines of the National Health and Medical Research Council's guidelines. You are, of course, free to discuss your centre's participation in these studies with me (3365 6323), or Dr Mark Nielsen (3365 6805). If you would like to speak to an officer of the University who is not involved in these studies, please contact the School of Psychology Ethics Review Officer directly on 3365 6394 (message on 3365 6230), or contact the University of Queensland

Appendix E

A letter from Faculty of Psychology, Chulalongkorn University, Thailand



ที่ ศบ.0512.7/

คณะจิตวิทยา จุฬาลงกรณ์มหาวิทยาลัย
อาคารบรมราชชนนีศรีศตวรรษ ชั้น 7
ถนนพระราม 1 แขวงวังใหม่ เขตปทุมวัน
กรุงเทพฯ 10330

กุมภาพันธ์ 2557

เรื่อง ขออนุญาตเก็บข้อมูลเพื่อทำโครงการทางจิตวิทยา
เรียน ผู้อำนวยการโรงเรียน

เนื่องด้วย นางสาวนุสบา สมพานิช และ นางสาวยิ่งยภา แดงประเสริฐ นิสิตปริญญาตรี ชั้นปีที่ 4 คณะจิตวิทยา จุฬาลงกรณ์มหาวิทยาลัย กำลังศึกษาโครงการทางจิตวิทยาในหัวข้อ เรื่อง 'Creativity in Preschoolers: The Effect of Product-Based Program Across Culture and Socioeconomic Status' หรือ 'ความคิดสร้างสรรค์ในปฐมวัย: ผลกระทบของรายการเชิงการค้าที่เกิดจากความต่างของวัฒนธรรมและฐานะทางสังคม' โดยมี Associated Professor Mark Nielsen เป็นอาจารย์ ที่ปรึกษาหลัก

รายการเชิงการค้าคือสื่อที่มุ่งเน้นที่จะมีผลรายการโทรทัศน์พร้อมทั้งผลิตภัณฑ์ที่เป็นจุดเด่นของรายการนั้นเพื่อการตลาด ซึ่งในปัจจุบันสื่อเหล่านี้ถูกใช้อย่างแพร่หลาย โครงการนี้จึงมีวัตถุประสงค์เพื่อศึกษามลกระทบของรายการเชิงการค้าต่อพัฒนาการของเด็กโดยให้ความสำคัญต่อความแตกต่างทางวัฒนธรรมและฐานะทางสังคมด้วย ในการเก็บข้อมูลจะใช้เด็กอายุประมาณ 3 ขวบ 6 เดือน จำนวน 14 คน โดยจะใช้เวลา 10 นาทีต่อคน ในช่วงแรกเด็กจะได้ดูรายการเชิงการค้าจากแอปฯ ซูตแอสรี พอดเดสเตอร์ ก่อนที่จะทำกิจกรรมต่อไป ท่านสามารถดูรายการดังกล่าวผ่านลิงค์ (http://www.youtube.com/watch?v=QpJRBb0Z_8) และโปรดแจ้งหากท่านไม่ประสงค์ที่จะให้เด็กดูการ์ตูนดังกล่าว แต่ยังมีมติอนุญาตให้นิสิตเข้าไปเก็บข้อมูลได้

ในการนี้คณะจิตวิทยาจึงใคร่ขอความอนุเคราะห์จากท่าน ให้มีมติเข้าดำเนินการภายในเดือนกุมภาพันธ์ 2557 และขอขอบคุณมา ณ โอกาสนี้

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.กศินางค์ มณีศรี)
คณบดีคณะจิตวิทยา

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ตัวแทนนิสิตที่ดำเนินโครงการ นางสาวนุสบา สมพานิช โทร. 089-177-6545

Bibliography

Nussaba Sompanich

She was graduated from School of Psychology, the University of Queensland, Australia and is an undergraduate student in the Joint International Program in Psychology at faculty of Psychology, Chulalongkorn University, Thailand. One of her major interests is how media affects young children, as media is inescapable but is still rarely being studied. She is fascinated in cross-cultural study with her personal belief in the strong influential effect of culture.

Yingpapha Dangprasert

YingpaphaDangprasert graduated in 2010 from Ruamrudee International School. After graduated from high school, she entered Joint International Psychology Program (JIPP) at Chulalongkorn University majoring in Psychology. She spent part of her undergraduate (during her third year and the first semester of the fourth year) in Brisbane, Australia, studying at the University of Queensland (UQ), where she received a Bachelor of Arts (B.A.) in Psychology (2013).