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Teacher's Attitudes towards Informational Technology (IT) Immersion in Singapore's Childcare Classrooms

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Abstract: Technology immersions are widely adopted in Singapore's childcare centers. In the last five years, as the flourishing of touch screens such as tablet computers, interactive whiteboards, smart phones, and smart TVs, up-to-date IT devices have become increasingly accessible by young children. In Singapore, the Ministry of Education (MOE) has highlighted the use of technology to support and enhance Early Childhood Education (ECE). Despite up-to-date IT devices' effectiveness and popularity in ECE, to our knowledge, there has been a lack of researches on examining how childcare teachers think. To address this timely issue, this study adopted a quantitative correlational research design to assess childcare teachers' attitudes on integrating IT in ECE. The data are to be collected by adopting and modifying from the Computer Attitude Scale (CAS), developed by Selwyn (1997). The sample of this study is Singapore childcare teachers who volunteer to fill the questionnaires. The data will be analyzed by conducting descriptive statistics and inference statistics in order to determine the influence of age, working experience, total training hours received, educators' qualifications, up-to-date technologies used at home, and teaching median (English/Mandarin) on teachers' attitudes.

Keywords: Informational Technology (IT), Early Childhood Education (ECE), technology immersion, young children, teacher's attitude

1. Introduction

Information Technology (IT) devices have been developed greatly in recent decades. Nowadays, both ECE educators and young children are technophiles. Undoubtedly, IT devices become more and more popular to be used to support young children's development and learning. And the educators believe they can handle various IT devices at the same time(Herman, 2012).Beside old IT devices, such as computers and TVs, there are new IT devices, such as interactive white boards, smart phones, smart TVs, and touch pads (Plowman, Stevenson, McPake, Stephen, & Adey, 2011; Wang, Kinzie, McGuire, & Pan, 2010). Meanwhile, the new applications of these old and new IT devices rising dramatically which make young children spend more hours daily on the devices(Herman, 2012).

In Singapore, almost all the childcare centers are equipped by IT devices in their settings. In 2008, Ministry of Social and Family Development (MSF) surveyed 229 Singapore childcare centers and headquarter operators, 84% of them had positive attitudes on integrating IT in young children's learning(Ong, 2010). Since 2008, the flourishing of new IT devices and the upgraded applications have become increasingly accessible by young children. Singapore young children spend all day in childcare from 7am in the morning until 7pm in the evening. Their experiences within the childcare classrooms play a pivotal role in their learning journey. And childcare teachers have very important responsibilities to provide young children with an optimal environment. It is clear that childcare teachers have to constantly re-think, evaluate and re-shape their daily practices for effective IT integration. Moreover, there is a need to consider how childcare teachers think, especially their thoughts on integrating up-to-date IT in their daily practices. As IT and teachers' roles have become important in ECE, the purpose of this study is to examine the childcare teachers' attitudes towards technology immersion in ECE.

2. Review of the Literature

2.1 Definition

Based on literature, IT was defined as “anything which allows us to get information, to communicate with each other, or to have an effect on the environment using electronic or digital equipment”(Saude et al., 2005). Technology immersion is using IT as learning media to facilitate learning and development. The attitude was defined by three characteristics “the notion that attitude is learned, that it predisposes action, and that such actions are consistently favorable or unfavorable toward the objects”(Fishbein & Ajzen, 1975).

2.2 Theoretical Framework

This study is based on the theoretical framework which illustrated young children’s learning at three layers (Figure 1). The micro layer consists of children’s centeredness and childcare teachers’ power (Tzuo & Chen, 2011; Tzuo, Yang, & Wright, 2011). Young children’s needs drives childcare teachers’ intention to integrate IT in their daily practice. The meso-layer is reconceptualism. Facilitating conditions are embedded in this layer. These conditions are teacher’s age, working experience, training, qualifications, up-to-date technologies used at home, and teaching median (English/Mandarin). The macro layer extended the viewpoints to social dynamics. The flourishing new IT devices in community influence teacher’s attitudes towards IT. All three layers are related and informed by Vygotsky’s foundation theories. The implications of Vygotsky’s socio-cultural-historical theories of learning with IT based on literature include language, scientific concepts, spontaneous concepts, and the zone of proximal development(Charnitski & Harvey, 1999). In his book “Mind of Society”, Vygotsky found that young children’s interactions with other people and environments promote their development(Vygotsky, 1978).

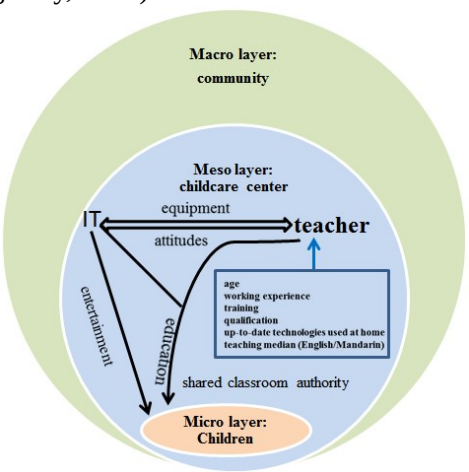

Figure 1. Theoretical framework

2.3 Childcare Teachers’ IT Attitudes

Childcare teachers’ attitudes towards IT immersion in ECE are worth exploring. Because their choice of resources made available to young children influence young children’s learning experience(Lynch, 2011).

The literature indicated that ECE teachers’ attitudes can be influenced by several factors. A survey of 297 in-service U.S. ECE teachers’ attitudes towards IT has indicate that their attitudes are varied with working experience, teacher’s type, IT used at home, and total hour of training received(Chen & Chang, 2006). However, a survey of 213 freshman and senior pre-service ECE teachers by Yilmaz&Alici(2011) found no significant relationship between age, working experience, IT devices used at home and attitudes. On the other hand, another survey of 238 in-service teachers

has presented conflicting results. There was a negative correlation between working experience and teachers' attitudes(Joshia, Pana, Murakamib, & Narayananc, 2010). When the impacts of training being examined, ECE teachers have very strong commitments. A mixed method study of 40 Botswana in-service teachers declared they need training integrate both IT and ECE skills(Bose, 2009).In Europe, a survey of 549 ECE teachers, more than 50% of them claimed they need IT training courses to facilitate their daily practice(Saude, et al., 2005). This is consistent with another Greece research which investigated the attitudes of 278 in-service ECE teachers on the prospect of integrated IT into childcare level, the results indicated that attitudes were shaped by the in-service training(Tsitouridou & Vryzas, 2004). And a study of 82 in-service U.S. ECE teachers showed that formal training is positively related to the respondents' attitudes towards IT(Sexton, King, Aldridge, & Goodstadt-Killoran, 1999). As suggested by Lynch (2011), childcare teachers' attitudes related with their practical experience rather than theoretical knowledge. And it is the attitude guide childcare teachers' daily practice. With different attitudes of IT, childcare teachers vary on how to teach.

Overall, there is increasing number of researches about integrating IT in ECE in other countries, but limited parallel research in Singapore's local context. To address this gap, this study is to examine childcare teachers' attitudes towards IT with following research questions.

1. What are teachers' attitudes of integrating up-to-date IT in their daily practice?

2. Is there a significant relationship between childcare teachers' attitudes and the independent variables? The independent variables are age, working experience, total training hours received, qualifications, up-to-date technologies used at home, and teaching median (English/Mandarin).

3. Methodology

3.1 Research Design

This study was designed as a quantitative correlational research design. It was conducted to examine the relationships between childcare teachers' demographic characteristics, IT background, and attitudes towards integrated up-to-date IT into daily practice. Based on Gravetter&Wallnau(2008) ,if there is a perfect positive correlation, the Pearson's r would has a value around +1.0 and if there is a perfect negative correlation, the Person's r would has a value around -1.0, and if there is no correlation between the variables, the Person's r would around zero. The correlation cannot demonstrate a causal relationship. So this study uses correlation to explain the childcare teachers' attitudes, to support the theoretical framework. The hypotheses are: There is a positive correlation between each independent variable and attitudes of integrating up-to-date IT.

3.2 Procedure and Instruments

The questionnaires will be administered at the beginning of the 2014 academic year for duration of one month. The context of the study is set in childcare center in Singapore. Base on Creswell (2012), snowball sample is adopted. Participants of this study are comprised of childcare teachers in Singapore. After a brief introduction to the principle, the questionnaires are distributed to teachers by principle. Considering the validity of the study, the target sample size is 200 in-service childcare teachers. They participate in this study on a voluntary basis. Participants are told that they could withdraw their participation during or after data collection by informing the researcher within one week after the data collection. Participants will respond to the revised CAS using a five-point Likert-scale ranged from strongly disagree (1), disagree (2), neutral (3), agree (4), to strongly agree (5). The revised CAS consists of 21 items. The items focus on affectivity, perceived usefulness, perceived control, and behavioral intention. The scores from the items on each section are aggregated to provide individual scores on each part. In this study, the negative items are reversed coded in order that meaningful analyses at the sub-scale level can be conducted. The CAS is an instrument with high reliability.86 and.90 (Sexton, et al., 1999; Teo, 2008).

3.3 Data Analysis

SPSS 19.0 for Windows analysis the raw data. The descriptive statistics are used to give a straightforward presentation of teachers' attitudes. They are frequency distribution, central tendency (mean, median, and mode). With inferential statistics, ANOVA (Analysis of Variance) is conducted to examine the multivariate normality and equality of variance. Correlation analysis is used to test whether there is a signification correlation. With Excel, set up the columns for Participants (e.g. in-service teacher), Variable 1 (qualification), and Variable 2 (e.g. attitudes towards integrate ICT). Follow by type in the data into these three columns. Then, select the "Pearson" with highlight the data, charts, graphs and scatter plots will be generated by Excel.

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