

公務出國或赴大陸地區報告提要

出國或赴大陸地區報告名稱：科技部產學合作研究計畫補助出席國際學術會議心得報告

含附件：■是□否

出國計畫主辦機關：科技部(經費補助)、台北市立大學(請假報告)

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出國類別：■1 出席國際會議□2 表演□3 比賽□4 競技□5 洽展□6 海外檢測 □其他

(個人受邀，邀請單位為 Unique Conference Canada, ICRD 與 EduTeach2016，經費由科技部產學合作研究計畫補助出席國際學術會議)

出國期間：105/07/14 - 105/07/22 報告日期：105/10/3 出國地區：Toronto, Canada.

內容摘要說明：本計畫緣起、活動性質、目的、成員、過程、心得與效益，敘明重點如下。

一、參加會議經過

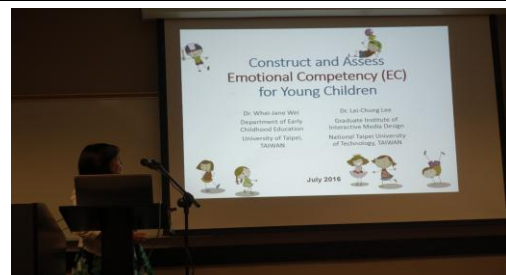
參加105/07/16 - 105/07/18加拿大多倫多之EduTeach2016國際學術研討會發表論文，主辦單位為 Unique Conference Canada與ICRD，此研討會共邀請64位口頭發表者到現場作發表，在2天的發表場次中，我的論文被安排在第1天上午的場次(Session 2)發表，由於加拿大的官方語言是英語，吸引來自美國、日本、英國、香港、以色列、斯里蘭卡、瑞士、菲律賓、南非、南韓、紐澳、東南亞、中東、東亞等世界各地的學者專家與會，會議前中後大家都積極互動，討論非常熱烈，尤其Keynote speech 1 由Prof. Michael Kyobe主講 “Empowering Education and Teaching through Technology – Present Challenges & Future Prospects”，以及Keynote speech 2 由Dr. Cristeta Dulos主講 “The Local Erasmus Mundus Program of Pangasinan State University: A Response to Asean and Global Engagement”，他們傑出的研究更具前瞻性與啟發性，值得作為學習的榜樣。

二、與會心得

本研討會共分為六大主題領域，包括Technology in Education and Teaching, Teaching and Learning Relationship Issues, Student-Teacher Relationship Studies, Different Studies in Education and Teaching, On-going Projects – Trends and Progress, Technology in Education and Teaching (continuation)，都與我的教學、研究、輔導領域直接相關，深具參考價值，與會最大的心得在發現世界先進國家，相當重視如何整合科技產業與創新技術，多元應用於教育解決人的問題，以滿足人文社會經濟的需求，相關研究成果發表已經非常豐碩，尤其是互動科技，已經全方位深入全世界人們的生活中，因此我們的教育更是必須朝著學生未來的生活方式與社會脈動，翻轉教與學，完全以學生的興趣需求及幸福快樂為中心思考，其實老師也不需要學生帶作業回家，最重要的是要深入思考如何做一位最聰明的好老師，這股潮流已經蔚然成為一種世界趨勢，也是我近年來用心思考與努力實行的教學研究方向。



個人受邀活動照片附文字說明--邀請函如下。



簡報示意圖附文字說明--電子檔(略)

三、發表論文全文(如附錄)或摘要(如下)

Construct And Assess Emotional Competency for Taiwanese Young Children

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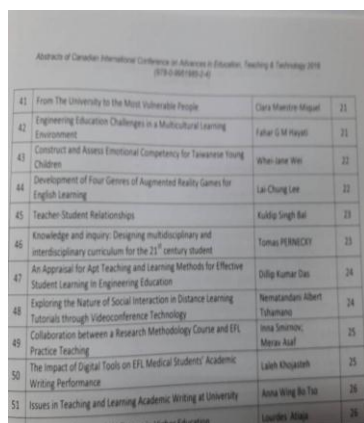
ABSTRACT: Emotion has been one of the six curriculum areas in Taiwan since August 30, 2012. However, few studies have examined the development and assessment of young Taiwanese children's emotional competency. This study developed a scale, called the Emotional Competency Rating Scale for Young Children (ECRSYC) in Taiwan, and analyzed the developmental norms of these children. The study adopted cross-sectional approach and selected 1200 children aged 4-6 years by using stratified random sampling. Data analysis methods included principal component analysis, descriptive analysis, t-testing, ANOVA analysis, Post hoc comparisons, and multiple regression analysis. Four factors comprising a total of 40 competencies were identified: understanding one's emotions, understanding others' emotions, adjusting one's emotions, and inspiring oneself. The results revealed which children were most familiar with their own emotions. Girls were significantly more adept than boys across the four subscales. Older children's emotional competency was significantly greater than that of younger children. Children in Central Taiwan were significantly more understanding of others' emotions and were the most adept at inspiring themselves. Age and gender were predictive factors. In conclusion, the ECRSYC exhibited high validity and reliability. The practical implications of this study are in helping teachers evaluate children's emotions. A follow-up study will develop an alternative instrument with which children's emotions can be measured by examining how they manipulate e-blocks (i.e., SIFTEO cubes).

四、建議

感謝科技部經費支持本次出國發表研究成果，業經三位審查委員一致高度肯定本研究成果屬原創性研發成果，深具發表價值。為降低配合款，大幅刪減出國發表論文的經費，不足支付國際發表需要的潤稿費、註冊費、機票費、生活費等，建議可以在同一個產學合作研究計畫的兩個補助經費來源內流用實報實銷，修訂辦法准予從科技部補助款經費流出與流入合作企業配合款，彈性使用。

五、攜回資料名稱及內容

基於省成本的考量，主辦單位給所有與會者隨身碟與大會手冊兩項，大會手冊有登出議程與每篇發表者的論文摘要等會議發表文件(簡報、發表摘要等)。



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邀請函：第 43 篇

大會手冊有登出議程與每篇發表者的論文摘要等會議發表文件(簡報、發表摘要等)。

行程表

六、其他(發表前的邀請函，已於出國前獻上辦理請假手續時附上邀請函於附件)

七、附錄: 本論文已獲審查機制通過刊登於 105 年 9 月份期刊 IJMER 如附錄。

Construct And Assess Emotional Competency for Taiwanese Young Children

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ABSTRACT: Emotion has been one of the six curriculum areas in Taiwan since August 30, 2012. However, few studies have examined the development and assessment of young Taiwanese children's emotional competency. This study developed a scale, called the Emotional Competency Rating Scale for Young Children (ECRSYC) in Taiwan, and analyzed the developmental norms of these children. The study adopted across-sectional approach and selected 1200 children aged 4–6 years by using stratified random sampling. Data analysis methods included principal component analysis, descriptive analysis, t-testing, ANOVA analysis, Post hoc comparisons, and multiple regression analysis. Four factors comprising a total of 40 competencies were identified: understanding one's emotions, understanding others' emotions, adjusting one's emotions, and inspiring oneself. The results revealed which children were most familiar with their own emotions. Girls were significantly more adept than boys across the four subscales. Older children's emotional competency was significantly greater than that of younger children. Children in Central Taiwan were significantly more understanding of others' emotions and were the most adept at inspiring themselves. Age and gender were predictive factors. In conclusion, the ECRSYC exhibited high validity and reliability. The practical implications of this study are in helping teachers evaluate children's emotions. A follow-up study will develop an alternative instrument with which children's emotions can be measured by examining how they manipulate e-blocks (i.e., SIFTEO cubes).

I. INTRODUCTION

The Significance Of The Present Study

Wei (2007) found that a person tends not to have impulsive behavior when one is aware of one's emotion and uses adequate emotional expression and adjustment. Wei (2007) argued that providing timely assistance and counseling in accordance with children's development of emotional competence can help them develop emotional competence smoothly. Related studies are rare on analyzing children's emotional competence with a standardized scale. Educational personnel have few empirical studies to know whether the emotional competence development of children in Taiwan differs according to various demographic variables as well as the relationship between the variables. The study adopted across-sectional approach and selected 1200 children aged 4–6 years by using stratified random sampling. The ultimate goals are to develop the ECRSYC and to analyze the developmental norms of these children.

Emotional Intelligence

Salovey and Mayer (1990) defined emotional intelligence (EI) as individual people's ability to be aware of their and other people's emotion and to further cope with and use the emotion to facilitate their thinking and action. Goleman (1998) proposed an intelligence framework encompassing various emotional competences, which were divided into two categories, namely personal competence involving self-awareness, self-regulation, and inspiring oneself and social competence involving empathy and social skills. Accordingly, EI signifies individual people's awareness of their and other people's emotion and their capacity to adequately regulate and manage emotion. Mayer and Salovey (1997) examined the theoretical framework proposed in 1990 and found that EI only focuses on the perception and adjustment of emotion. Thus, they proposed new definition that EI comprises the capabilities to express, understand, and adjust emotion. Weisinger (1998) contended that EI leads people's thinking and behavior and facilitates personal development and interaction with others. In short, proper emotion management helps individual people to solve daily-life problems timely.

People with high EI are able to inspire themselves and others, manage interpersonal relationship, solve confrontation and conflict, and further enhance their thinking ability.

Measurement Frame Work Of Emotional Competence

The measurement framework of emotional competence for young children covers four aspects of emotional competence i.e. understanding one's emotions, understanding others' emotions, expressing one's emotions, and adjusting one's emotions (Hyson, 2003). It is similar to that used by De Beauport and Diaz (1996), Fukunishi and Wise (2006), Rieffe et al. (2007), Wang (1998), Chen and Hsieh (2007), and Hsieh (2008) to measure young children's emotional management competence. For pilot study, the framework for measuring children's emotional competence development comprised six aspects, namely understanding one's emotions, understanding others' emotions, expressing one's emotions, adjusting one's emotions, interpersonal relationship management, and inspiring oneself.

II. METHOD AND MATERIALS

Pilot Study

This study performed a pilot study on emotional competence with 240 children aged 4–6 years selected by stratified random sampling in Taipei City and New Taipei City. The questionnaire comprised six subscales with 72 items using five-point Likert scale. Teachers selected the proficiency level of emotional competence for each child.

Factor analysis

Factor analysis was conducted using SPSS/15.0 for windows according to the result of the pilot study. Principal component analysis was performed, followed by orthogonal rotation using varimax; items with low commonalities were eliminated, and common factors were extracted. Regarding the result of factor analysis, the Kaiser-Meyer-Olkin in measure of sampling adequacy (KMO) was 0.951; the cumulative explained variance for the four extracted principal components was 70.128%. Finally, four factors comprising a total of 40 competencies were identified: understanding one's emotions, understanding others' emotions, adjusting one's emotions, and inspiring oneself.

Reliability analysis

The Cronbach α for four subscales was 0.94, 0.95, 0.93, and 0.95. The Cronbach α for the whole scale was 0.98 that indicates high internal consistency. Overall, the ECRSYC exhibited high validity and reliability.

Nationwide stratified random sampling

For generalization, the study adopted across-sectional approach by using nationwide stratified random sampling. An ideal sample size was calculated by the following equation under the confidence level of 95% with $\pm 3\%$ margin of error (Saunders, Lewis and Thornhill, 2008; Hung and Hsieh, 2002):

$$P = .5; N = 407,838; \alpha = .025; d = .03; z_{.025} = 1.96$$
$$n \geq 1.962 \times N \times P(1-P) / [(N-1) \times .032 + 1.962 \times P(1-P)]$$

Consequently, the ideal and effective sample size was 1064. To consider the invalid questionnaires, this study selected 1200 children aged 4–6 years across country.

III. RESULTS

This section presents the empirical analysis result to determine the differences of emotional competence among young children with various demographic variables and the prediction of emotional competence from the demographic variables. This study delivered 1200 questionnaires and retrieved 1196 ones; the response rate was 99.67%. The number of valid questionnaires was 1070, the response rate of which was 89.17%.

Developmental Norm Of Emotional Competence For Children Aged 4–6 Years In Taiwan

The average age of emotional competency was between 4.9 and 5.3 in four subscales. The results revealed which children were most familiar with their own emotions. Girls were significantly more adept than boys across the four subscales. Older children's emotional competency was significantly greater than that of younger children. Children in Central Taiwan were significantly more understanding of others' emotions and were the most adept at inspiring themselves. Age and gender were predictive factors.

Differences Of Emotional Competence Between Children With Different Genders

This study conducted t-test and found that girls and boys were significantly different in understanding one's emotions, understanding others' emotions, adjusting one's emotions, and inspiring oneself. Girls had significant higher scores in all of four aspects than boys; the *t* values were at the level of significance of .05, .01, and .001.

Differences Of Emotional Competence Among Children With Various Ages

ANOVA and multiple comparisons were performed on children with various ages. The research outcome found that the scores for all of four aspects significantly differed among children in dissimilar age groups. Subsequently, Scheffe's method was adopted for post-hoc comparison, and the result was as Table 1.

Table 1. Differences of emotional competence among children in various age groups Aspect	Age groups	N		M		SD		ANOVA		Post-hoc comparison (Scheffe')
		(1)4-4.5years	(2)4.5-5years	(3)5-5.5years	(4)5.5-6years	Between	Within	F		
Source of variation understanding one's emotions	(1)4-4.5years	238	3.84	.76	Between	36.13	3	12.04	19.22*	(4)>(1) (4)>(2) (4)>(3)
	(2)4.5-5years	257	3.99	.87	Within	667.98		1066	.63	
	(3)5-5.5years	286	4.02	.79	Total	704.12		1069		
	(4)5.5-6years	289			4.34				.75	
understanding others' emotions	(1)4-4.5years	238	3.57	.90	Between	61.38	3	20.46	25.95*	(4) > (3) > (1) (4) > (2)
	(2)4.5-5years	257	3.77	.96	Within	840.52		1066	.79	
	(3)5-5.5years	286	3.81	.90	Total	901.90		1069		
	(4)5.5-6years	289			4.22				.79	
adjusting one's emotions	(1)4-4.5years	238	3.42	.79	Between	72.55	3	24.18	39.54*	(3)>(2) (4)>(1) (4)>(2) (4) > (3) > (1)
	(2)4.5-5years	257	3.60	.84	Within	651.88		1066	.61	
	(3)5-5.5years	286	3.82	.75	Total	724.42		1069		
	(4)5.5-6years	289			4.12				.75	
inspiring oneself	(1)4-4.5years	238	3.50	.88	Between	48.03	3	16.01	19.47*	(4)>(1) (4) > (2) > (1) (4) > (3)
	(2)4.5-5years	257	3.78	.94	Within	876.80		1066	.82	
	(3)5-5.5years	286	3.67	.96	Total	924.83		1069		
	(4)5.5-6years	289			4.08				.85	
Total scale	(1)4-4.5years	238	3.58	.74	Between	51.84	3	17.28	29.89*	(4)>(1) (4) > (2) > (1) (4) > (3) > (1)
	(2)4.5-5years	257	3.78	.82	Within	616.17		1066	.58	
	(3)5-5.5years	286	3.83	.77	Total	668.00		1069		
	(4)5.5-6years	289			4.19				.71	

The predictive ability of the demographic variables for the aspect of understanding of others' motions was examined. The demographic variables had significant predictive effect on children's emotional competence of understanding of others' emotions ($F = 14.44; p < .001$). The *t* values indicate that variables of gender 1, age 1, age 2, 5 age 3, and region 1(north/central) all achieved the level of significance. Specifically, girls had a significantly higher score of understanding of others' emotions than boys ($p < .01$). Concerning the dummy variables of age 1 (4-4.5 years/ 4.5-5 years), age 2 (4-4.5 years/ 5-5.5 years), and age 3 (4-4.5 years/ 5.5-6 years), children aged 4.5-5, 5-5.5, and 5.5-6 years had a significantly higher score of understanding other people's emotion than children aged 4-4.5 years ($p < .05, p < .01, p < .001$). The dummy variable of region 1 was also significant ($p < .01$); children in central region had a significantly higher score of understanding other people's emotion than children in the northern region.

The predictive ability of the demographic variables for the aspect of adjusting one's emotions was examined. The demographic variables had significant predictive effect on children's competence of adjusting one's emotions ($F = 20.21; p < .001$). The t values indicate that variables of gender 1, age 1, age 2, and age 3 all achieved the level of significance. Specifically, regarding gender 1 (male/female), girls had a significantly higher score of adjusting one's emotions than boys ($p < .001$). Concerning age 1 (4-4.5 years/ 4.5-5 years), age 2 (4-4.5 years/ 5-5.5 years), and age 3 (4-4.5 years/5.5-6 years), children aged 4.5-5, 5-5.5, and 5.5-6 years had a significantly higher score of adjusting one's emotions than children aged 4-4.5 years ($p < .05, p < .001$).

The predictive ability of the demographic variables for the aspect of inspiring oneself was analyzed. The demographic variables had significant predictive effect on children's emotional competence of inspiring oneself ($F = 10.78; p < .001$). The t values indicate that variables of gender 1, age 1, age 2, age 3, and region 1 all achieved the level of significance. Regarding gender 1 (male/female), girls had a significantly higher score of inspiring oneself than boys ($p < .01$). Concerning age 1 (4-4.5 years/ 4.5-5 years), age 2 (4-4.5 years/ 5-5.5 years), and age 3 (4-4.5 years/ 5.5-6 years), children aged 4.5-5, 5-5.5, and 5.5-6 years had a significantly higher score of inspiring oneself than children aged 4-4.5 years ($p < .05, p < .01, p < .001$). Finally, the variable of region 1 was also significant; children in the Central Taiwan had a significantly higher score of inspiring oneself than children in the Northern Taiwan ($p < .01$).

IV. DISCUSSION

Contributions To Promoting EI

The existing domestic and international studies have not provided a standardized tool to assess 4-6-year-old children's emotional competence (Hsu, Liao and Yu, 2005). This study developed the standardized ECRSYC for children aged 4-6 years with satisfactory reliability and validity. It can solve such deficiency and prepare children's disadvantaged emotional competence for advantages EI (Gardner, 1983).

Gender differences

Both t -test and multiple regression analysis revealed that girls were significantly more adept than boys across the four subscales. Generally, girls are relatively gentle and careful and tend to calm their mind and be empathetic to other's feelings; instead, boys are relatively active and outgoing (Hyson, 2006). Therefore, girls tend to have stable development of emotional competence.

Age differences

Children in various age groups had significantly different scores in all aspects of emotional competence. The posthoc comparisons were performed using Scheffe's method, and the result showed that children in the oldest age group (5.5-6 years) were significantly more proficient at understanding one's emotions, understanding others' emotions, adjusting one's emotions, and inspiring oneself than children at younger ages. By comparison, children in the youngest age group (4-4.5 years) had significantly lower level of proficiency in emotional competence than older children. Consequently, children's development of emotional competence became greater with their ages increasing. This result can reflect to the previous related study (Wei, 2007).

Region Differences

The differential analysis revealed that children in dissimilar regions had significantly different scores of understanding others' emotions and inspiring oneself. The post-hoc comparison conducted using Scheffe's method showed that children in Central Taiwan were significantly more proficient at understanding others' emotions and inspiring oneself than those in the Northern Taiwan. Moreover, the level of proficiency in understanding others' emotions and inspiring oneself for children in the Northern Taiwan was lower than that for children in other regions, and in particular, was significantly lower than that for children in the Central Taiwan. This is possibly because in Northern Taiwan, most parents are busy with work and spend less time on interacting with their children; thus, children in the Northern Taiwan had fewer opportunities to learn, resulting in their weak ability of understanding others' emotions than children in other regions. Additionally, children in the Northern Taiwan mostly have a relatively wealthy life; their parents have arranged all daily life matters properly. In other words, they have few opportunities to experience frustrations. Thus, compared with children in other regions, they had relatively weak inspiring oneself ability.

The Emotional Competence Of 4-6-Year-Old Children In Taiwan Fluctuated

This study constructed a developmental norm of young children's emotional competence according to the result of emotional competence assessment conducted on 1070 children aged 4-6 years in Taiwan. The children were categorized according to gender (male and female) and age (4-4.5, 4.5-5, 5-5.5, and 5.5-6 years). The result revealed that regardless of gender difference, children's emotional competence increased as their age

increased. However, the average age of boys who were “very unproficient” and “unproficient” at adjusting one’s emotions was 4.9 and 4.8 years old, respectively. Additionally, the average age of girls who were “very unproficient” and “unproficient” at understanding one’s emotions was 5.0 and 4.9 years old, respectively. Therefore, although in general 4–6-year-old children’s emotional competence increased with their age, the level of emotional competence was still unstable and may be affected by some uncertain factors.

V. CONCLUSION

The standardized YCECRS provided developmental norm with satisfactory reliability and validity. It helped teachers to understand the development status of children’s emotional competence of children. Findings indicated that age and gender were predictive factors. Older children’s emotional competency was significantly greater than that of younger children. Children aged 5.5–6 years were significantly more proficient at four aspects of emotional competence than children in younger age groups. Girls were significantly more adept than boys across the four subscales. Children in Central Taiwan were more proficient at understanding others’ emotions and inspiring oneself than children in Northern Taiwan.

From the perspective of teaching practice, teachers can apply the YCECRS in assessing the emotional competence of 4–6-year-old children to understand the development status and provide individualized teaching and counseling. Schools can also use the YCECRS as a basis for offering diverse courses, thereby implementing the 7 emotional education effectively. A follow-up study can develop an alternative instrument with which children’s emotions can be measured by examining how they manipulate e-blocks (i.e., SIFTEO cubes).

ACKNOWLEDGMENTS

I thank the Ministry of Science and Technology for funds (NSC99-2511-S-133-008-) and experts for assistance.

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