Evaluation on
"Quality Thematic Network (QTN) on Drama in Education"

The Sixth Report (2013-2014)

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This sixth year report evaluated the effect of drama education on students and teachers from kindergartens, primary schools, and secondary schools who had taken part in the project entitled "Quality Thematic Network (QTN) on Drama in Education" (QEF) from Sept. 2013 to August 2014. Special thanks are due to the participating schools and the student research assistants taking part in the study. All correspondence of the report should be addressed to Dr. Anna Hui, Dept. of Applied Social Sciences, City University of Hong Kong, Tat Chee Avenue, Kowloon or annahui@cityu.edu.hk.

Abstract

In this sixth year, "Quality Thematic Network (QTN) on Drama in Education" (QEF) has continued to provide professional training on Drama in Education (*DiE*) to kindergarten, primary and secondary school teachers with an aim to strengthen teachers' competency on facilitating students' learning and development of creativity. The objective of this study was to evaluate the effectiveness of the implementation of *DiE* in enhancing creative teaching and learning in classrooms. Four studies were included: (a) Study 1 was a pre-test and post-test quasi-experimental design on gains in creativity and motivation for 359 students (195 in the experimental group and 164 in the control group) and creative teaching techniques of 43 teachers (27 in the experimental group and 16 in the control group) from schools which first participated in the project this year; (b) Study 2 was a pre- and post-test quasi-experimental design for 112 kindergarten and 72 primary school students from one nursery school and one primary school; (c) Study 3 was an analysis of classroom vignettes taught by 20 teachers with various levels of *DiE* experiences; and (d) Study 4 was a focus group interview with 4 teachers and 3 principals on the policy and implementation of *DiE* in pre-primary, primary and secondary school education. Results from Study 1 have shown that kindergarten students in the experimental group had significant gains in both verbal and figural creativity as well as in teacher-rated creativity characteristics, learning motivation and empathy than those of the control group. A significant gain in learning motivation was also found in the secondary school students who took part in the project. Results from Study 2 have indicated that kindergarten students improved verbal fluency in the word association test. The analyses on classroom vignettes of Study 3 have documented that collaboration, communication, creativity, critical thinking, numeracy, problem solving, and self-management and study skills were observed in students through the *DiE* enriched curriculum.

Qualitative analyses from the focus group interview of Study 4 have found that positive attitude towards using *DiE* in the school curriculum and continuous teacher training and availability of resources should be crucial factors for sustainability of *DiE*. Discussion and limitations will be included.

中文摘要

「優質教育基金主題學校網絡：戲劇教育計劃(QTN)」已踏入第六年，繼續致力為幼稚園、小學及中學老師提供專業戲劇教育培訓；希望藉著培訓來加強老師在促進學生學習及創造力發展的能力。本研究旨在評估課堂實踐戲劇教育對優化創意教學的效能。是次研究包含四個獨立探討項目: 1)項目一利用前後測及準實驗設計的研究模式來探討來自今年首次參與本計劃學校的 359 名學生(195 名實驗組學生及 164 名控制組學生)創造力及動機的增長；以及 43 名老師(27 名實驗組老師及 16 名控制組老師)創意教學技巧的提升；2)項目二亦利用前後測及準實驗設計的研究模式來探討 112 名幼稚園及 72 名小學學生創造力及語文能力上的增長，參與學生均來自本地 1 所幼兒學校和 1 所小學；3)項目三給 20 名幼稚園、小學及中學老師所提供的實踐教學片段作分析；及 4)項目四是由 4 名老師及 3 名校長組成的焦點小組訪問，內容與如何於學前、小學及中學教育繼續實踐及促進現有政策支持戲劇教育的發展有關。項目一的結果顯示實驗組幼稚園學生在文字及形象表達之創造力、由老師評估的創造力特質、學習動機及同理心，都較控制組學生展現顯著的增長。項目二指出幼稚園學生在單字聯想測驗所展現的言辭表達廣泛程度亦有提升。於項目三所分析的實踐教學片段紀錄了學生在融入戲劇教育的課程上所呈現的各種共通能力，包括協作、溝通、創造、批判思考、數理、解難、自我管理及研習能力。而項目四之焦點小組訪問所作的質性分析帶出能夠令戲劇教育得以持續發展的必要因素包括：對校本課程運用戲劇教育抱持正面態度、持續的老師培訓及足夠並可用的資源來實踐戲劇教育。本報告亦討論是次研究結果的原因及限制。

INTRODUCTION

Over the recent decade, there have been increasing attempts towards exploring more creative, interactive and student-centered teaching and learning strategies aiming to foster a more stimulating environment for students to build knowledge and make sense of what they learnt. Unlike traditional pedagogical approaches, which teaching and learning were more of a one-way and passive process between teachers and students, more educators have been investing their effort on developing and maintaining more reciprocal pedagogical relationships, making learning experiences more intriguing and meaningful to school learners through fusing class content with different constructive-focused media; to name a few, visual art, dance and drama (Toren, Maiselman, & Inbar, 2008; Hanna, 2008; Hui, Cheung, Wong, & He, 2011). Of all the aforementioned media, drama has been one relatively prevalently adopted medium for channeling ideas and concepts to school learners, as it is more apt to facilitate students' learning via affective and empathic engagement in dramatic roles assigned to them (Dunn & Stinson, 2012). In Hong Kong, similar pedagogical practices have been supported by the Quality Education Fund (QEF) since 2006, composing the Thematic Network that advocated the discovery and sustainability of effective educational paradigms or strategies undertaken hand-in-hand with schools and different education organizations (Quality Education Fund Cyber Resource Centre, n.d.). Of all, Drama in Education (*DiE*), being an innovative attempt towards teaching for different levels, has shown to be a pedagogical paradigm full of potentials to enhance students' creative expression, motivation to learn and other socio-emotional aspects, and at the same time teacher's confidence in teaching creatively in the past five years of investigation. Moving on to the sixth year, investigative focus has slightly switched from solely looking at the positive gains *DiE* could bring to school learners' creative ability to generic skills and language

development, as a finale revealing the pedagogical implications bridging *DiE* and learning constituents expected by the current academic curriculum framework (Education Bureau, HKSAR Government, 2001). This current report intends to provide an extended discussion on *DiE* and its impacts on school learners and further suggests the compatibility of *DiE* to help them achieve better in different "key learning areas" highlighted in the curriculum.

Drama as Creative Pedagogy

Drama has always been conceived as merely a dialogic type of literature depicting a story that could be manifested on theatres, which in most cases embodying substantial entertainment values. Educational values of drama have not emerged and widely explored until recent decades as education professionals have been more aware of the essentialness of pedagogical dynamics and interested in uncovering the possibilities of turning different sensory-stimulating art experiences, such as dance movements (McMahon, Rose, & Parks, 2003; Hanna,2008) and music (Pasca, 2010), into unconventional pedagogical strategies that could be used to bring sustainable betterment to professional growth of school teachers (McMullen et. al., 2006; Parker & Neuharth-Pritchett, 2006) and multifaceted development in students (Liu, 2009; Pavitola and Jautakyte, 2013). Drama, different from other experiences, has the comparative advantage of implementation convenience, as domain-specific knowledge is not necessary yet desirable for adding dimension and richness to the pedagogical interactions between teachers and students.

A body of existing qualitative and meta-analytic literature has brought light to how drama is becoming an effective process-based learning medium that could creatively guide students to learn better in various subject areas. Engaging students to learn through a variety of different drama activities in classrooms has been reported to help harnessing their cognitive and emotional

understanding of specific concepts or themes (Kelin II, 2007), social-developmental well-being (Pecaski McLennan, 2008), mentality to learn and think autonomously and mini-c expression (Adomat, 2012). This enhancement in learning effectiveness and outcomes could only have happened if school learners were exposed to a relatively novel paradigm of teaching and learning, like *DiE*, which would be able to offer them immense opportunities to freely relate and apply their previous knowledge, skills and experiences to totally new ideas. In the literature, drama pedagogy was illustrated as playing vital roles in providing school learners the platform to elucidate and utilize their generic abilities to read, listen, comprehend, imagine and think, explore, integrate and create and engage in the process affectively.

Some other empirical studies have further added on to supporting *DiE* as a creative and helpful learning tool. Hendrix, Eick and Shannon (2012) have shared some insights on how *DiE* has helped improve elementary students in picking up and understanding scientific concepts and knowledge covered under a particular module of a standardized Science curriculum, called Full Option Science System™ (FOSS). Students receiving their learning through drama-infused class activities were shown to demonstrate better understanding and grasp of scientific concepts than their counterparts who were learning the same conceptual ideas via conventional pedagogy in post-test, as supported by statistical significance. Apart from academic significance, *DiE* was also closely related to the development of school learners' inter- and intra-personal competencies. Çetingöz and Günhan's (2012) study illuminated *DiE* has been able to encourage young children's social competence. Statistical comparisons were made between kindergarten students who were exposed to drama-integrated pedagogy and those under regular learning settings on various indicators of social competence included in the Social Skills Evaluation Scale (SSES) (Avcıoğlu, 2007). Results of this study reflected that immersing children in drama-led learning

activities could be beneficial in assisting them to actualize and become competent social individuals, with better mastery in various abilities related to relationship development and personal socio-emotional management, such as peer pressure coping and behavioral control, reported in post-test.

Integrating *DiE* in School Curricula

With growing quantity of research evidence pointing to the constructive influences *DiE* could render to school learners, these concrete enhancements observed in school learners have to a certain extent raised educators' attention to gradually refurbish their traditional pedagogical practices and advocate the implementation and integration of *DiE* into formal academic curricula. However, achieving this might require a great deal of coordination and supportive relationships between school teachers and various school administrators, as well as the effective use of school resources.

DiE, as a pedagogical strategy, was not particularly new to educators from the West for resources have been invested on introducing and educating pre-service teachers about *DiE* and considerable efforts have also been spent on testing the paradigm in formal classrooms. Despite all these ongoing initiatives attempting to promote *DiE* across different educational levels, educational practitioners' feeling of incompetence and ineptitude towards implementing *DiE* have been reported and discussed as potential impediment that could hinder the possibility of smoothly infusing *DiE* in the current curriculum and was closely related to how much support and resources they have been given. A study conducted by Russell-Bowie (2013) has shed light on the relationship between school practitioners' previous experience and exposure to drama and their self-perceived capability and enthusiasm towards using drama as a teaching means.

Comparisons have been made between pre-service practitioners across different countries and results suggested moderately strong positive association (r = .56) did exist between the two. The importance of *DiE* enrichment resources for school practitioners to raising their readiness to implement *DiE* effectively in classrooms was also further examined in two other studies. Greenwood's (2010) review on *DiE* practices in New Zealand and how far it has been able to realize the guidelines to aesthetic pedagogy, "Road Map for Arts Education" developed by UNESCO (2006), provided a realistic and comprehensive account on factors both in favor and hampering the sustainability of *DiE* in New Zealand's education curricula. In the article, Greenwood has implied the success of sustaining *DiE* could largely be predisposed by the extent to which school practitioners might take the initiatives to accumulate additional knowledge on *DiE* as well as the conceptual idea and themes they intended to deliver to school learners. In other words, this might also mean if school practitioners have not been equipped with knowledge and skills relevant to using drama as instructional means, this could add to their self-perceived insufficiency towards implementing *DiE* and further impede the promotion of *DiE* into formal curricula. Tanriseven (2013) has also elaborated on the fact that on top of knowledge and skills, opportunities to practice *DiE* in classrooms could offer school practitioners the training ground to get used to this pedagogical paradigm and adjust their *DiE* expectations with what they were actually facing in the classrooms. Such classroom implementation opportunities were found to be helpful in building school practitioners' confidence on designing and planning, executing and reflecting on *DiE* practices, as reflected by statistical significance in this study.

Integrating and promoting *DiE* in the current curricula takes not only the efforts of school practitioners but also the supportive attitude of local educational authorities and individual education institute. Being one of the handful sources spelling out challenges faced by different

educational parties, Greenwood (2010) further revealed in the report dissemination and integration of *DiE* have been made difficult due to an uneven allocation of support and incentives to maintain *DiE* initiatives within and between institutes, which drastically discouraged the process of school- and region wide *DiE* promotion; the growing expectations on school practitioners to handle a variety of administrative and instructional duties from their in-service institutes and local government; as well as the tension school practitioners were made to resolve between meeting academic goals or assessment needs and creating insightful interactive learning pathways, like *DiE*, for students to gain better understanding of certain themes and concepts covered in classes, constrained by limited time and resources available to reach a balance between the two. In face of the abovementioned hurdles, it is clearly imperative to strengthen the existing partnerships between government, institutes and school administrators and to sustain concerted effort and a common goal to permeate *DiE* into curricula.

DiE and its Roles in Fostering Various Generic Skills

Since 2001, the Education Bureau has included generic skills as part of the key focuses of the primary and secondary curricula of Hong Kong. Lesson plans and assessment objectives must be centered on this curricular focus as a way to achieving a more diverse and all-rounded education environment for students to thrive and succeed. With reference to the established curricular framework (Education Bureau, HKSAR Government, 2001), nine independent skills altogether have been coined the name, "generic skills", which were believed to be conducive to the holistic development of students: *collaboration* skills, self-management skills, communication skills, creativity, critical thinking skills, problem solving skills, study skills, numeracy skills and information technology skills. Throughout the years, a rich array of research has devoted to explore the possibilities of non-mainstream pedagogical approaches, like *DiE,* on

facilitating the acquisition of these skills and positive effects on students' learning and developmental outcomes have been achieved and documented in a number of these studies.

Collaboration, Communication and Self-management skills.

DiE has been found associated with students' improvements in their abilities to work and interact with their peers and teachers and also take care of themselves in both psychological and physical terms. A lot of different studies have suggested that *DiE* was able to set the stage for students to learn to cooperate with others and achieve the intended learning outcomes set out on lesson plans devised by their teachers, usually a by-product of *DiE*. Together with learning how to collaborate with classmates, the impact *DiE* could bring to student often also came along with the development of communication and intellectual skills (Lin, 2010). An empirical research attempt proposed by Walsh-Bowers and Basso (1999) gave affirmative results related to how involving students in learning with drama could pose influence on their social skills. In its interview with students, a series of peer-dependent behaviours have been reported, including their readiness to take on others' perspectives and listen and work cooperatively with their peers. Quasi-experimental results from this study also suggested that students' collaborative skills, regardless of their school profiles, have been observed to improve over time, given that they were likely to encounter fewer problems and more confident in working and communicating with their peers. Besides, Ariel's (2007) study has also offered an objective picture of *DiE*'s impact on primary school students' learning of science concepts. Information and data collected from both quantitative and qualitative measures reflected obvious enhancement in their mastery of scientific knowledge; while such enhancement has been attributed to the opportunities students were given to learn through teamwork and drama as a novel way to manifest their views and ideas, as have been reported by teachers and students. In the same study, the interactive

nature and role of drama in science education have helped students understand science class as a social system that counted on cooperative relationships among their classmates as well as teachers. Alongside collaboration skills acquired after receiving drama-integrated science learning, it has been reported that students have demonstrated better behavioural management in terms of better self-respect and sense of responsibility, as compared with their counterparts in the control group.

Creativity, Critical Thinking and Problem-solving skills.

Drama does not only provide students platform to interact and polish their social skills through collaborating with their classmates but also unleash their intellectual possibilities. Allowing drama to mediate learning might be able to encourage students to learn through experiencing rather than just receiving. This is particularly important when learning is considered an active process, which is supposed to be cognitive-stimulating.

Several lines of research evidences have illuminated the power of *DiE* on different intellectual abilities across all levels of education (Hui, Cheung, Wong, & He, 2011; Karakelle, 2009; Yeh & Li, 2008). Of these intellectual abilities, creativity was often one of those being put under the spotlight. This ability to produce and construct something new and original, sometimes with personal events and experiences, referred to as "mini-c" (Kaufman & Beghetto, 2009), could serve the basis for the emergence of other intellectual skills. Taking students' perspectives, Lin (2010) carried out an informative discussion on drama education and intellectual outcomes. The discussion was facilitated in the form of interview, which students have expressed drama-mediated learning activities enabled them to exercise their imagination, gave them rooms to think and reflect, and also to explore possibilities and tackle issues on their own. Students'

feedback during the interview showed agreement on *DiE* being a creativity-promoting pedagogy having closed links with both critical thinking and problem-solving skills. Similar positive effect of *DiE* has on students' creativity has also been reported in another cross-sectional quantitative study conducted by Yeh and Li (2008). Better performances in creativity exhibited by kindergarten students have been reflected by higher levels of novelty and usefulness, measured by the Preschoolers' Creativity Test (PCT), and were likely to be closely and positively associated with the extent school practitioners adopted *DiE* within the institute.

Apart from creativity, *DiE* was also thought to be related to the development of critical thinking and problem-solving skills. Mounting research has given results suggesting the close connections between the pedagogical paradigm and the three intellectual abilities. In several qualitative investigations, drama pedagogy has been introduced to and implemented in primary schools and findings from explorative methodologies and analyses have disclosed the vast amount of beneficial intellectual outcomes it entailed, including their progressing competencies in planning, evaluating and analyzing information with multiple perspectives (McNaughton, 2004) and development of forward- and reflective-thinking mentality (Lehtonen, 2012), which would better enable students to view the world with different dimensions and unbiased lenses. Taşkın-Can's (2013) study has further added to the roles drama-facilitated learning could be playing in shaping primary students into independent learners, who would be able to discover and create their own knowledge by equipping themselves with critical and creative mindset and problem-solving skills. Scientific process skills, including techniques involved in different stages of scientific inquiry, from identifying questions to evaluating results (Pekmez, Aktamiş, & Taşkin, 2009), have been measured and quasi-experimental outcomes revealed a statistically significant increase in these skills demonstrated by students after learning Science through drama

activities, outperforming students from the control group. Such results have affirmed the fact that *DiE* could encourage students to optimize their learning by providing them opportunities to utilize their skills to think critically about the subject matter and arrive at different ways to attempt their problems.

Study and Numeracy Skills.

Unlike the aforementioned skills, study and numeracy skills were relatively of less concerned and not so widely discussed in research related to innovative pedagogies. This might be related to the academic nature of these two skills, which normally could be developed under conventional pedagogical environment. However, some recent scholastic works have taken a step further to uncover the potential impacts *DiE* could have on students' strategies to manage their studies and their sensitivity to numbers and calculation. Duatepe-Paksu and Ubuz (2009) intended to examine the extent to which drama-facilitated learning environment might enhance students' learning of Mathematics and Geometric concepts. Study results showed significant increase in students' performances in various geometric and mathematics-related assessment measures upon having undertaking their 25 geometry lessons delivered to them by means of drama. Not only in numeracy skills did students experience improvements but also approaches to studying geometry after classes, as drama was being thought of to be able to assist them in relating mathematics to what they came across in their everyday lives through visualizing and mnemonics techniques; acquiring domain-specific vocabulary and knowledge; and understanding abstract ideas with the help of contextualizing and imagining (Ariel, 2007). Another study by Erdoğan and Baran (2009) also shared insights on how *DiE* could stimulate the application and development of numeracy skills. Similarly, elementary school students have been engaged in drama-based Mathematics learning and were invited to participate in ability

assessment relevant to Mathematics. Statistical outcomes reported better retention and ability in dealing with numeracy and Mathematics concepts manifested by students of the experimental group, and such significant progress has not been observed in their control group counterparts.

Drama Pedagogy and Language Abilities: Listening, Reading, Speaking and Writing

The dialogic nature of drama has undoubtedly created rooms for educators to anchor language teaching in this unconventional means, making learning of (first or foreign) languages more fun and stimulating for school learners. Drama did not only seem to render students just an alternative way for classroom learning, it also clearly added variations and accommodated more freedom for students to manifest their ideas (Mok, 2012) by means of gestures, motions (Baraldi, 2009) and other possible elements and dimensions on top of words and phrases. Current pool of relevant research literature has further discussed on how drama has become an agent that helped accelerate students' growth in various aspects of language use and the underlying mechanisms that were involved.

Listening and Speaking

With reference to the assessment-focused learning objectives of classroom learning, listening and speaking skills could be part of the "linguistics objectives" (Mok, 2012) to be achieved through language classes. The use of drama in language learning was found to be directly and sometimes indirectly influencing students' ability to listen to and speak a particular language. Past research studies dedicated to exploring the potential of drama-based language learning have yielded positive results showing higher likelihood students were to excel and succeed in both receptive and expressive aspects of language mastery. As most drama-enriched learning programmes have been designed in a way that offered streams of activities enabling

students to utilize various languages skills, such as listening and speaking, drama became an interactive and resourceful tool for students to refine and reflect on their learning. Such reflective learning opportunities have allowed students to engage more deeply, listen and share via taking turns (Barnes, 2014). In comparison with listening skills, drama seemed to be more apt at polishing students' spoken expression. Results from several quantitative and qualitative studies have affirmed the beneficial impacts of drama pedagogy on training students' oral skills. The heightening of their oral language performance, such as speaking with more details and audibly, have been accounted for by these several studies as the power of drama-teaching to lever students' confidence and willingness to express (Barnes, 2014; Gill, 2013); imagination and role-specific engagement (Decoursey, 2014); alleviate their feelings of unease to express orally (Salamel & Kayaolu, 2013); and maintain an encouraging and unintimidating environment favourable to students' expression and exchange of ideas (Gill, 2013; El-Nady, 2000).

Reading and Writing

Learning with drama was also linked to improved language proficiency, reflected by their better reading and writing responses after engaging in drama-led learning activities. A few studies with experimental set-up have observed statistically significant enhancements in language achievements (Maden, 2012), including composition and comprehension ability and usage (Tutkun & Akdağ, 2010; Rose, Parks, Androes, & McMahon, 2000), exhibited only by primary students who went through different drama-infused learning activities but not those taught with non-drama-related pedagogies. Verbal and written responses of teachers and students documented in some qualitative studies have further supplemented on how drama-assisted teaching and learning have helped students brushed up on their reading and writing abilities. They believed their improved writing and reading performances could have been the results of

drama, being a more flexible pedagogical means, promoted collaborative and expressive instances (Maden, 2012) which students were made to read and communicate their ideas more confidently and frequently than they used to be in regular classes (Baraldi, 2009; Araki-Metcalfe, 2008). More importantly, drama-infused activities were also found to be helpful in assisting students comprehend and recall vocabulary learnt during the activities by relating to sensory cues used and apply the vocabulary to enrich their verbal expression (Baraldi, 2009).

Objectives of This Study

The objectives of the present study are to investigate how drama pedagogy could foster language use, verbal and figural creativity of kindergarten, primary school as well as secondary school students; facilitate teachers' creative self-efficacy in teaching with drama; promote various generic skills expected of students by Educational Bureau's curricular framework; and disseminate and continue to be adopted across schools of different levels in Hong Kong. Four studies were included in this sixth year: (a) Study 1 was a pre-test and post-test quasi-experimental design on gains in creativity and motivation for students and creative teaching techniques of teachers from schools which first participated in the project this year; (b) Study 2 was a pre- and post-test quasi-experimental design for kindergarten and primary school students from one nursery school and one primary school; (c) Study 3 was an analysis of classroom vignettes taught by teachers with various levels of DiE experiences; and (d) Study 4 was a focus group interview with teachers and principals on the policy and implementation of DiE in pre-primary, primary and secondary school education.

Method

Study 1

1.1. Method

1.1.1. Participants

This research was designed as a pre and post-test quasi-experimental design with an aim to examine teachers' effectiveness on implementing DiE techniques to achieve their teaching objectives and students' enhancement of their creative potentials. There was a total of 16 schools, which participated in this project only in the academic year 2013-14, (10 kindergartens, 4 primary schools, and 2 secondary schools) took part in the study.

The first part is a quantitative study for students. Convenience sampling was used. A total of 359 students (include 181 males and 178 females) participated in both Pre- and Post-test. There were 195 students in experimental group and 164 students in control group. Pre-test was held before having DiE Lessons (from 10/2013 to 01/2014), and the Post-test was held after taking part in DiE Lessons (from 03/2014 to 06/2014). The time duration between Pre- and Post-test was about 4 months.

The second part is a quantitative study for QTN teachers. Snowball sampling was used. There were a total of 43 teachers (7 males and 36 females) participating in both Pre- and Post-test. Twenty-seven experimental teachers were invited to fill in a Pre-test questionnaire before they joined the DiE workshop in Sept. and Oct. 2013, while 16 of control teachers in the same school, who did not join any DiE workshop before and were invited by the experimental teachers, participated in Pre-test during Oct. 2013 to Jan. 2014. Post-test was held in May 2014 for both groups of teacher participants. All the experimental teachers completed 2 sessions of 4 hours training (a total of 8 hours) focusing on DiE strategies. The first workshop was held in Sept. and

Oct. 2013, and the second workshop was held in Jan. and Feb. 2014. In both of their school terms, they had to design and deliver a unit of drama-enhanced curriculum in their class. Before the delivery, a teaching artist who specialized in both DiE and the targeted academic subjects (such as Chinese language or English language) conducted collaborative lesson planning with the teachers. In the project, they observed the class delivery and gave comments to the teachers.

1.1.2. Instruments

1.1.2.1. Students Questionnaire and Assessments

1.1.2.1.1. Story Telling Test (STT; Hui & Lau, 2006). The STT was conducted by an experienced researcher and trained research assistants. Each student was presented with an unseen picture and was asked to tell a story about the picture. In this test, student participants were provided 3 minutes for preview and 5 minutes to create their story. They were allowed to continue until they indicated the completion. The storytelling process was digital-recorded and then evaluated by two raters independently in accordance to 13 criteria: 1) relevancy to the story, 2) ability to describe the story, 3) ability to organize the story, 4) ability to express, 5) ability to show emotions or 6) speak in an audible tone, 7) ability to add in conversations, 8) ability to include humorous elements, 9) ability to include creative elements, 10) ability to identify problems and find relevant solutions, 11) ability to naming the story, 12) ability to make story by themselves and 13) ability to use vocabulary. Each criterion was rated on a five-point scale (from 0, lowest, to 4, highest).

Each Story was rated by two trained researchers. Positive correlations between the composite scores calculated by the two markers for the pre-test ($r = .76$, $p < .001$) and post-test ($r = .82$, $p < .001$) were obtained, indicating a good inter-rater reliability.

1.1.2.1.2. The Test for Creative Thinking - Drawing Production (TCT-DP). The TCT-DP (Urban & Jellen, 1996) was used to examine students' creative potential. The test aims to assess participants' creativity in terms of quantity, i.e. fluency of ideas and quality, such as content, gestalt, composition, and elaboration, together with other components such as risk taking and breaking of boundaries, unconventionality, affection, and humour (Urban, 2005; Urban & Jellen, 1996). The instrument is applicable in single or group testing with persons between 5 and 95 years of old, and it is suitable for examining effects of training and Learning motivation as a Pre- and Post-test (Urban & Jellen, 1996).

The test was available in two forms A and B which were used in the Pre-test and Post-test respectively. Both forms consist of 6 figural fragments, a Semi-circle, a Point, a Large Right Angle, a Curved Line, a Broken Line, and a Small Open Square outside the Large Square Frame. Fragments for the two forms were the same but different in positioning. Participants were told to complete the drawing freely without any restrictions. Title was told to be given if there was any. Generally, there was no time limit for this test but notice would be given by administrator after 15 minutes had passed. Creative performance was scored by using 13 criteria (i.e., Continuations (Cn), Completion (Cm), New elements (Ne), Connections made with a line (Cl), Connections made to produce a theme (Cth), Boundary breaking being fragment-dependent (Bfd), Boundary breaking being fragment-independent (Bfi), Perspective (Pe), Humor and affectivity (Hu), and Unconventionality A/B/C/D (Uca/b/c/d), while the 14th criterion, Speed (Sp), was not included in the current study. A composite score was obtained by summing the points scored on each of the above-mentioned criteria with no transformation. The possible score of TCT-DP ranges from 0 to 66 points. A higher score indicates better creativity.

Each drawing production was rated by two trained researchers. High positive correlations between the composite scores calculated by the two raters for the pre-test (r = .86, p < .001) and post-test (r = .81, p < .001) were obtained, indicating a good inter-rater reliability.

1.1.2.1.3. SRBCSS. Items adapted from Renzulli, Smith, White, Callahan and Hartmann (1976) Scales for Rating the Behavioral Characteristics of Superior Students (SRBCSS) were used to access students' 1) Communication Characteristics and Learning motivation. There were 15 items in the Communication Characteristics subscale (11 items of precision communications and 4 items of expressiveness communication) and 11 items in Learning motivation subscale. Items were rated using a 6-point Likert-scale (from 1 = never to 6 = always). The questionnaire was administered twice to compare the Pre- and Post-test scores.

The reliability of the subscales as indicated by the Cronbach's alphas were .83~.94, in the Pre-test were .83~.94 and in the Post-test were .83~.93, indicating that there was a good reliability of each subscale.

1.1.2.1.4. Basic Empathy Scale (BES). The original scale was designed by Jolliffe and Farrington (2005), and was translated into Chinese by Li, Lv, Liu, and Zhong (2011). The Basic Empathy Scale was used to assess students' cognitive empathy and affective empathy. There were 11 items in the cognitive empathy subscale and 9 items in the affective empathy subscale. Items were rated using 5-points Likert scale (from 1 = strongly disagree to 5 = strongly agree). The questionnaire was administered twice to compare the Pre- and Post-test scores.

The reliability of the subscales as indicated by the Cronbach's alpha were .76 ~ .81, in the Pre-test were .76 and .77 respectively, and in the Post-test were .81 and .80 respectively, showing that there was a good reliability of each subscales.

1.1.2.1.5. Self-Assessment Rubric of Creative behavior. The scale was developed by Kousoulas (2010). The construction of the rubric was based partly on theoretical features of creative behavior. Cognitive, emotional, social, and personal characteristics have been explored as indicators of creative behavior of students during the Learning motivation process. Items were rated using 4 points rubric. The questionnaire was administered twice to compare the Pre- and Post-test scores.

The reliability of the scale in Pre-test as indicated by the Cronbach's alpha was .77, and Post-test was .81, showing that the scale contained a good reliability.

Kindergarten students completed only the drawing task and story-telling task. The questionnaire was filled in by their teachers. Primary and secondary school students finished the drawing task, story-telling task and questionnaire by themselves.

1.1.2.2. Teachers Questionnaire

1.1.2.2.1. Creative self-efficacy. Thirteen items of Yang and Cheng's (2009) Scale of Creative Self-Efficacy were adapted with a high reliability ($\alpha = .91$). Items were rated using a 5-point Likert scale (from 1 = strongly disagree to 5 = strongly agree). Sample items included: "the belief that I would suggest new ways to achieve goal or objectives, the belief that I would exhibit creativity on the job when given the opportunity to." The reliability of the scale in Pre-test as indicated by the Cronbach's alpha was .87, and Post-test was .92, showing that the scale contained a good reliability.

1.1.2.2.2. Self-efficacy of creative teaching. Fifteen items of Self-efficacy of creative teaching was adapted by Lin and Chiou (2008) with a high reliability ($\alpha = .74 \sim .92$). It was designed to measure the self-efficacy of creative teaching in terms of three aspects: positive affirmation, negative awareness, resilience belief. Respondents were required to rate the extent to

which they agreed with different statements about self-efficacy of creative teaching on a 7-point Likert scale (from 1 = strongly disagree to 7 = strong agree). The reliability of the scale in Pre-test as indicated by the Cronbach's alpha was .68 ~ 80, and Post-test was .74 ~ .91, showing that there was a good reliability in each subscale.

1.1.2.2.3. Teachers' expectation on DiE. It was developed by Bolin, Khramtsova and Saarnio (2005). The original scale was to measure the university students' affective outcome, evaluation of course outcomes, cognitive journal outcomes and course expectations on journal writing. Only 12 items from the original scales was adapted. The terms of "journal writing" and "this class" in the original scales were rephrased to "drama in education". Items were rated using a 5-point Likert-scale (from 1 = very disagree to 5 = very agree). The reliability of the scale in Pre-test as indicated by the Cronbach's alpha was .92, and Post-test was .91, showing that there was a good reliability of the scale.

All experimental teachers completed the questionnaire before the workshops in Oct. 2013, while the teachers in the control group were invited to fill in the questionnaire before Jan. 2014. Both groups filled in the Post-test questionnaire in June and July 2014.

1.2. Results

1.2.1. Students

Repeated measure of multiple analysis of variance was conducted to test the differences on the 6 abilities and 2 assessments between the experimental group (N = 192) and control group (N = 164) of three types of school (kindergarten, primary and secondary school) at two different times (Pre-test and Post-test) (Table 1). Participants from experimental group (N = 159) and control group (N = 97) were randomly selected for the task of STT. For TCT-DP, there were 185

students in experimental group and 159 students in control group. The results of different school types were presented separately.

Table 1

Means and Standard Deviations of the testing variables at the Pre- and Post-test

	Experimental				Control			
	Pre		Post		Pre		Post	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Kindergarten								
Precision	3.91	1.05	4.60	0.70	4.02	0.77	4.31	0.73
Expressiveness	3.44	1.14	4.38	0.80	3.72	0.84	4.11	0.81
Learning motivation	3.94	0.99	4.65	0.67	4.10	0.81	4.34	0.75
Cognitive empathy	3.18	0.54	3.39	0.58	3.15	0.50	3.05	0.55
Affective empathy	3.55	0.56	3.81	0.39	3.51	0.46	3.42	0.53
Self-assessed creativity	2.51	0.60	2.86	0.56	2.47	0.65	2.53	0.72
STT	16.72	4.08	24.33	4.16	14.95	4.03	22.48	4.99
TCTDP	9.80	6.47	14.87	8.23	10.91	5.70	14.03	7.20
Primary School								
Precision	4.26	0.94	4.16	0.72	4.07	0.75	4.34	0.82
Expressiveness	4.02	1.04	3.90	0.99	3.69	0.89	4.09	1.08
Learning motivation	4.48	0.93	4.34	0.88	4.24	0.90	4.42	0.90
Cognitive empathy	3.25	0.64	3.15	0.70	3.28	0.54	3.39	0.50
Affective empathy	3.68	0.59	3.74	0.69	3.59	0.63	3.71	0.60
Self-assessed creativity	2.99	0.54	2.99	0.59	2.85	0.57	2.90	0.68
STT	27.43	3.85	30.83	3.92	26.36	4.84	30.67	4.81
TCTDP	13.97	4.75	16.79	6.22	16.17	6.81	17.57	6.85
Secondary School								
Precision	4.24	0.56	4.28	0.58	4.38	0.52	4.09	0.39
Expressiveness	4.17	0.82	4.10	0.82	4.31	0.63	4.08	0.78
Learning motivation	4.42	0.73	4.36	0.75	4.58	0.41	4.04	0.42
Cognitive empathy	3.44	0.66	3.49	0.58	3.64	0.48	3.47	0.51
Affective empathy	3.92	0.55	3.92	0.53	3.96	0.28	3.83	0.40
Self-assessed creativity	2.95	0.48	2.94	0.47	2.98	0.40	2.78	0.42
STT	27.11	2.77	29.74	4.35	29.58	1.50	32.17	4.75
TCTDP	16.31	6.70	19.98	6.97	17.61	8.36	19.56	4.75

1.2.1.1. Kindergarten Students

Two ways MANOVA (Table 2) was conducted to test the differences on the 6 abilities between the experimental group (N = 91) and control group (N = 101) at different times (Pre-test, Post-test) for the kindergarten students.

Table 2

Different type and different time on kindergarten students' abilities rated by teachers MANOVA table

	F	Sig.	η^2
Between group			
Type	4.87***	.000	.136
Precision	.76	.385	.004
Expressiveness	.01	.933	.000
Learning motivation	.63	.428	.003
Cognitive empathy	8.73**	.004	.044
Affective empathy	15.87***	.000	.077
Self-assessed creativity	5.26*	.023	.027
Within group			
Time	14.22***	.000	.316
Precision	64.20***	.000	.253
Expressiveness	81.85***	.000	.301
Learning motivation	55.34***	.000	.226
Cognitive empathy	1.54	.216	.008
Affective empathy	3.46	.064	.018
Self-assessed creativity	17.17***	.000	.083
Time x Type	4.13***	.001	.118
Precision	10.94***	.001	.054
Expressiveness	14.25***	.000	.070
Learning motivation	13.73***	.000	.067
Cognitive empathy	11.22***	.001	.056
Affective empathy	14.41***	.000	.071
Self-assessed creativity	9.41**	.002	.047

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

The results showed that there was an interaction effect between time and different types of students, $F(6, 185) = 4.13$, $p = <.001$, $\eta^2 = .118$, on all of the six abilities. This suggested that the all the abilities of different types of students had significant differences over time.

Table 3

The simple main effects of Time and Type on the kindergarten students' abilities rated by teacher

	F	Sig.	η^2
Precision Communications			
Type			
Experimental	61.40***	.000	.243
Control	11.73***	.001	.058
Time			
Pre	.58	.448	.003
Post	8.33**	.004	.042
Expressiveness Communications			
Type			
Experimental	77.34***	.000	.288
Control	14.67***	.000	.071
Time			
Pre	3.51	.063	.018
Post	5.68*	.018	.029
Learning motivation			
Type			
Experimental	58.70***	.000	.234
Control	7.39**	.007	.037
Time			
Pre	1.17	.280	.006
Post	9.83**	.002	.049
Cognitive empathy			
Type			
Experimental	10.82***	.001	.053
Control	2.24	.137	.011
Time			
Pre	.13	.720	.001
Post	17.50***	.000	.083
Affective empathy			
Type			
Experimental	16.29***	.000	.078
Control	1.92	.167	.010
Time			
Pre	.32	.572	.002
Post	35.41***	.000	.155
Self-assessed creativity			
Type			
Experimental	25.93***	.000	.119
Control	.62	.434	.003
Time			
Pre	.10	.750	.001
Post	12.32***	.001	.060

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

For the precision communications, expressiveness communications, and Learning motivation, their simple main effects of type and Post-test were significant (Table 3), $F(1,191)$ = 8.33 ~ 61.40, 5.68~77.34, 7.39~58.70, $p < .05$, η^2=.029~.288. Suggesting that the experimental group and control group students' precision and expressiveness communications, and Learning motivation improved through the time passed, but experimental group improved better than control group which made the group differences between experimental and control significant in Post-test (Figure 1, 2 & 3).

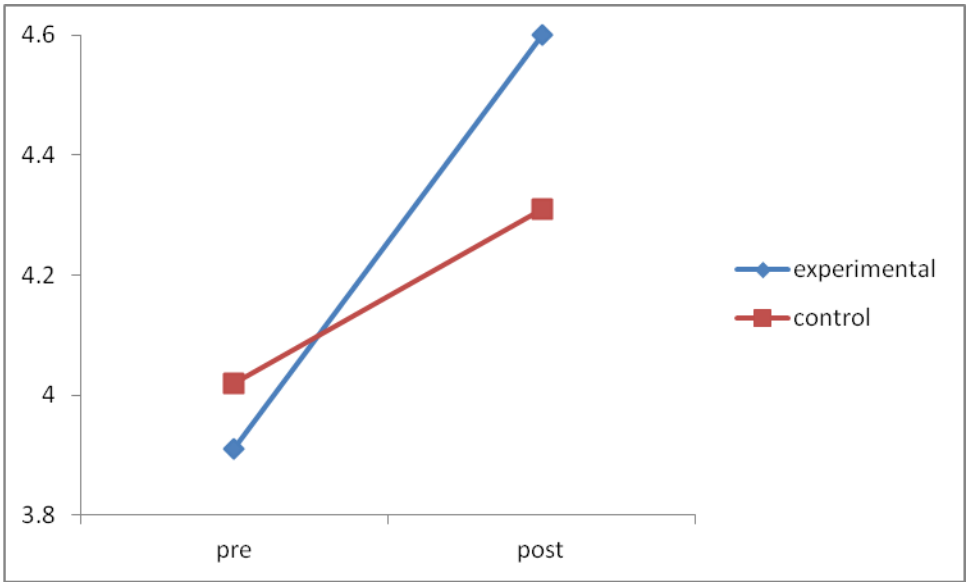

Figure 1. The precision communications between different group and time on kindergarten students

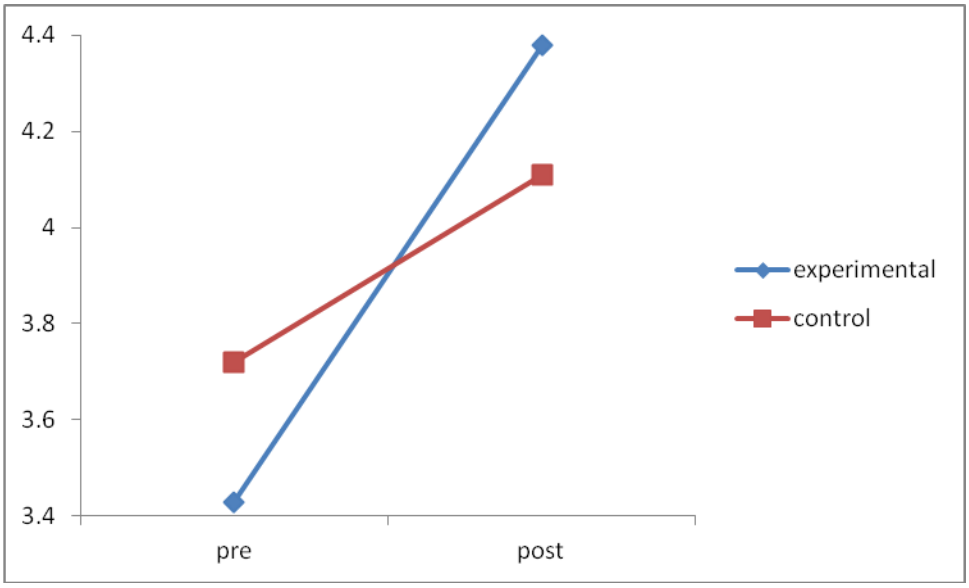

Figure 2. The expressiveness communications between different group and time on kindergarten students

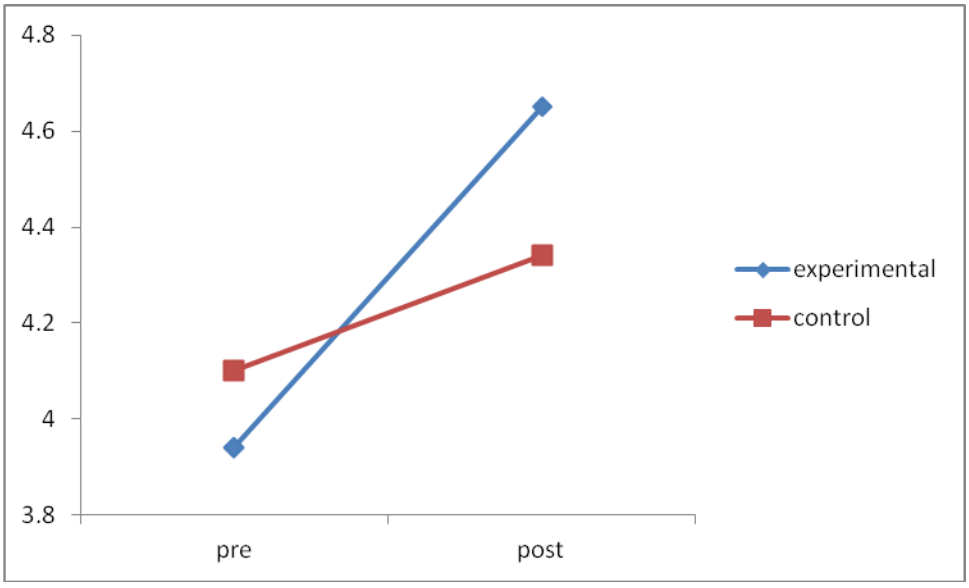

Figure 3. The Learning motivation between different group and time on kindergarten students

For the cognitive empathy, affective empathy, and self-assessed creativity, the simple main effects of experimental group and Post-test were significant (Table 3), $F(1,191)$ = 10.82~17.50, 16.29~35.41, 12.32~25.93, $p < .05$, η^2=.053~.155. The cognitive and affective empathy improved in experimental group, while those of control group even decreased in Post-test (Figure 4 & 5).

The level of self-assessed creativity increased in both experimental and control group, which the students who attended in the *DiE* lesson improved better than control group (Figure 6).

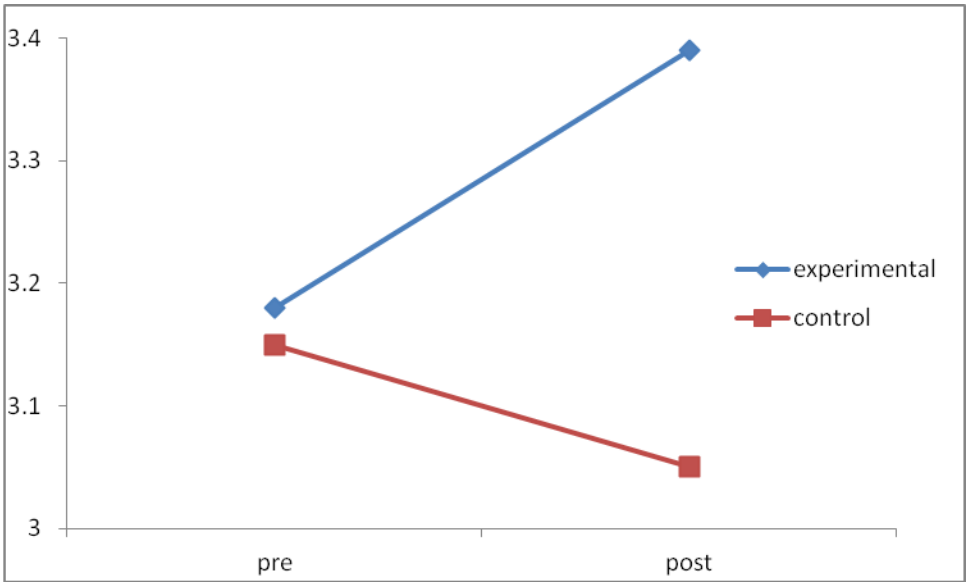

Figure 4. The cognitive empathy between different group and time on kindergarten students

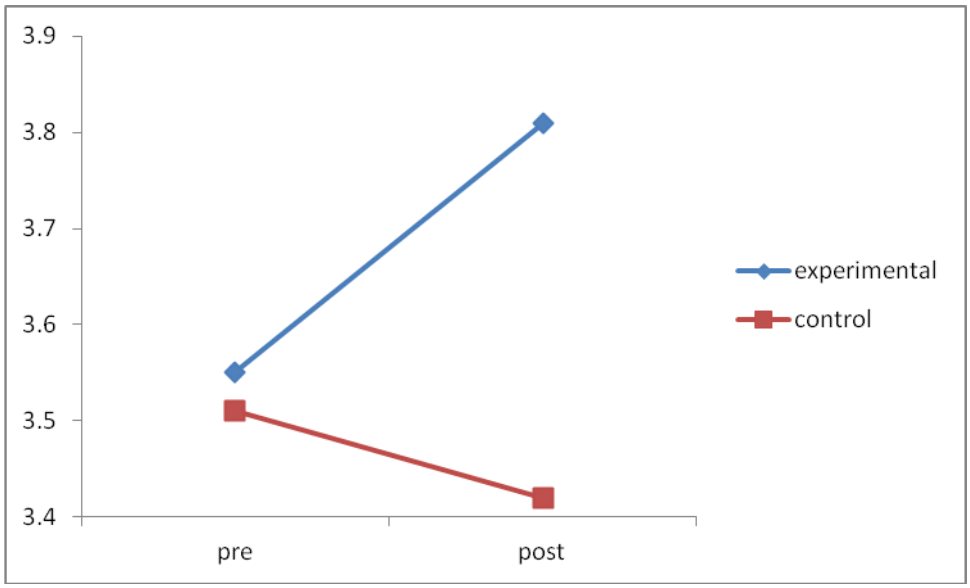

Figure 5. The affective empathy between different group and time on kindergarten students

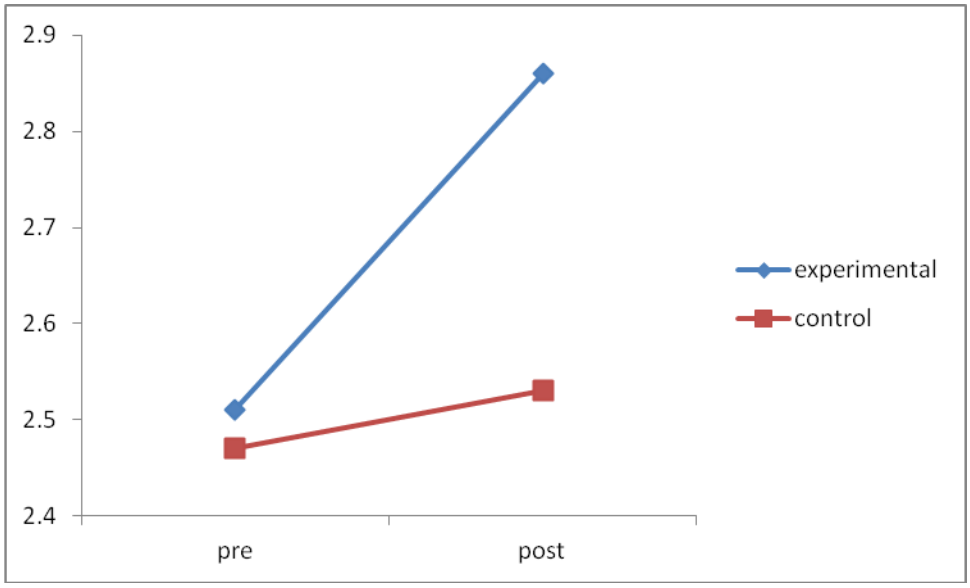

Figure 6. The affective empathy between different group and time on kindergarten students

For STT assessment, two ways ANOVA was conducted to test the differences between the experimental group (N = 78) and control group (N = 52) at different times (Pre-test, Post-test) for the kindergarten students. The type and time contained significant main effect, $F(1, 128)$ = 7.13, 439.26, p <.05, η^2=.053~.774, while there was no interaction effect between time and different types of students, $F(1, 128) = 0.14$, p = .905, η^2=.000 (Table 4). This indicated that there was significant difference between experimental group and control group in both Pre- and Post-test, while both groups improved through time passed. However, when comparing the improvement of experimental and control group, no significant difference was found.

Table 4

Different type and different time on kindergarten students' STT assessment ANOVA table

	F	Sig.	η^2
Between group			
Type	7.13**	.009	.053
Within group			
Time	439.26***	.000	.774
Time x Type	.014	.905	.000

Note: * p < .05, ** p < .01, *** p < .001.

For TCT-DP assessment, the differences between the experimental group (N = 87) and control group (N = 96) at different time (Pre-test, Post-test) was tested by two ways ANOVA for the kindergarten students. The time contained significant main effect, $F(1, 181) = 46.15$, $p < .05$, $\eta^2 = .203$, while there was no interaction effect between time and different types of students, $F(1, 181) = 2.62$, $p = .108$, $\eta^2 = .014$ (Table 5). This suggested that both control and experimental group showed improvement over Pre- and Post-test. Although no significant interaction effect was found, Figure 7 showed that there was interaction between time and different types of students in the task of TCT-DP, suggesting that the experimental group had a greater improvement than control group.

Table 5

Different type and different time on kindergarten students' TCT-DP assessment ANOVA table

	F	Sig.	η^2
Between group			
Type	.03	.868	.000
Within group			
Time	46.15***	.000	.203
Time x Type	2.62	.108	.014

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

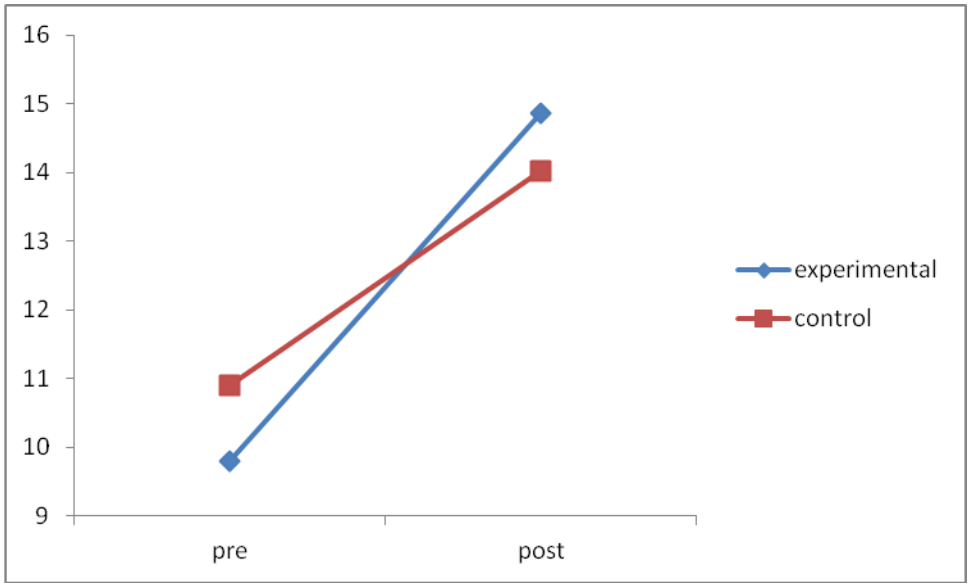

Figure 7. The performance of TCT-DP between different group and time on kindergarten students

1.2.1.2. Primary School Students

Two ways MANOVA was conducted to test the differences between the experimental group (N = 59) and control group (N = 54) on the 6 dependent variables for the Primary school students.

Table 6

Different type and different time on Primary students' abilities MANOVA table

		F	Sig.	η^2
Between Subjects				
Type		.70	.649	.038
	Precision	.00	.965	.000
	Expressiveness	.19	.661	.002
	Learning motivation	.29	.594	.003
	Cognitive empathy	1.76	.187	.016
	Affective empathy	.27	.603	.002
	Self-assessed creativity	1.35	.248	.012
Within Subjects				
Time		.76	.603	.041
	Precision	1.30	.256	.012
	Expressiveness	1.66	.200	.015
	Learning motivation	.07	.792	.001
	Cognitive empathy	.03	.874	.000
	Affective empathy	2.73	.101	.024
	Self-assessed creativity	.23	.636	.002
Time x Type		1.71	.126	.088
	Precision	6.27*	.014	.053
	Expressiveness	5.69*	.019	.049
	Learning motivation	3.46	.066	.030
	Cognitive empathy	3.81	.054	.033
	Affective empathy	.25	.616	.002
	Self-assessed creativity	.18	.673	.002

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

The results showed that there was no interaction effect between time and different type of students, $F(6, 106) = 1.71$, $p = .126$, $\eta^2 = .088$, while the precision and expressiveness communication had a significant interaction effect, $F(1, 111) = 6.27, 5.69$, $p < .05$, $\eta^2 = .049 \sim .053$ (Table 6).

Table 7

The simple main effects of Time and Type on the Primary students' abilities

	F	Sig.	η^2
Precision Communications			
Type			
Experimental	.97	.327	.009
Control	6.36*	.013	.054
Time			
Pre	1.48	.226	.013
Post	1.61	.207	.014
Expressiveness Communications			
Type			
Experimental	.63	.430	.006
Control	6.47*	.012	.055
Time			
Pre	3.18	.078	.028
Post	.95	.333	.008

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

The precision and expressiveness communications' simple main effect (Table 7) on the control group were significant, $F(1,111) = 6.36, 6.47$, $p < .05$, $\eta^2 = .054 \sim .055$, suggesting that the precision and expressiveness communication of primary control students improved, while those of experiment group dropped over time (Figure 8 & 9).

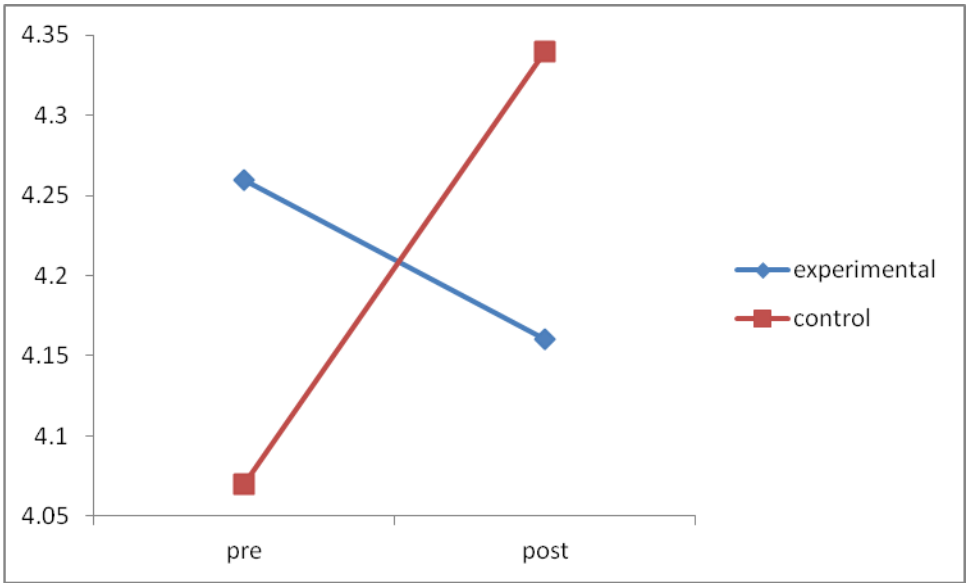

Figure 8. The precision communication between different group and time on Primary students

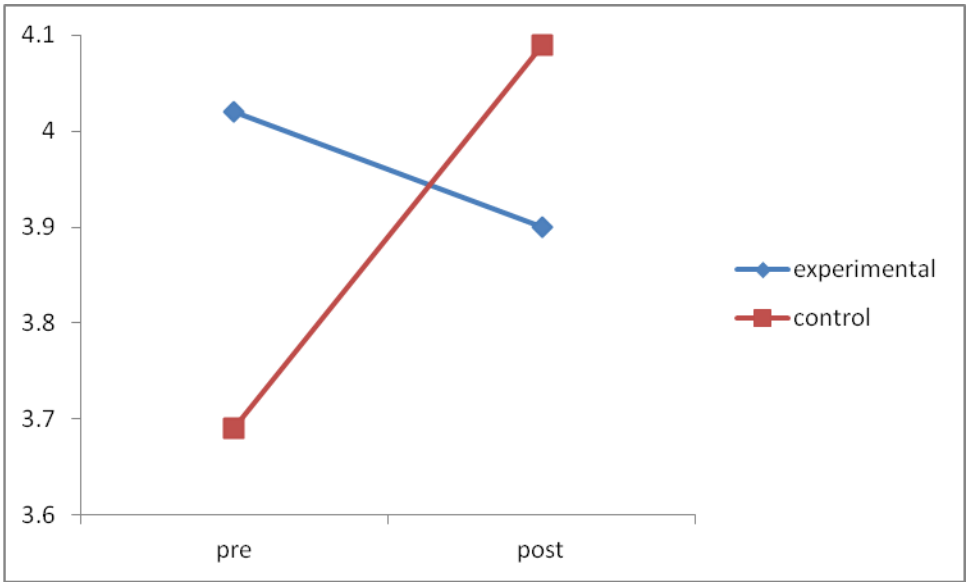

Figure 9. The expressiveness communication between different group and time on Primary students

For STT assessment, the difference between the experimental group (N = 46) and control group (N = 39) at different times (Pre-test, Post-test) for the Primary students was tested by two ways ANOVA. A significant main effect on time was reported, $F(1, 83) = 81.23$, $p < .001$, $\eta^2 = .495$, while there was no interaction effect between time and different types of students, $F(1,$

83) = 1.15, p = .286, η^2=.014 (Table 8). This indicated that no difference was found on the improvement of experimental and control group over Pre- and Post-test.

Table 8

Different type and different time on Primary students' STT assessment ANOVA table

	F	Sig.	η^2
Between group			
Type	.54	.466	.006
Within group			
Time	81.23***	.000	.495
Time x Type	1.15	.286	.014

Note: * p < .05, ** p < .01, *** p < .001.

For TCT-DP assessment, two ways ANOVA was conducted to test the differences between the experimental group (N = 58) and control group (N = 54) at different time (Pre-test, Post-test) for the Primary students. The time contained significant main effect, F(1, 110) = 10.31, p <.05, η^2=.086, while there was no interaction effect between time and different type of students, F(1, 110) = 1.16, p = .284, η^2=.010 (Table 9). This suggested that both control and experimental group contained improvements over Pre- and Post-test. However, comparing the improvement of experimental and control group, no significant difference was found.

Table 9

Different type and different time on Primary students' TCT-DP assessment ANOVA table

	F	Sig.	η^2
Between group			
Type	2.37	.126	.021
Within group			
Time	10.31**	.002	.086
Time x Type	1.16	.284	.010

Note: * p < .05, ** p < .01, *** p < .001.

1.2.1.3. Secondary School students

Two ways MANOVA (Table 10) was conducted to test the differences between the independent variable experimental group (N = 42) and control group (N = 9) on the 6 dependent variables for the Secondary school students.

Table 10

Different type and different time on Secondary students' abilities ANOVA table

		F	Sig.	η^2
Between Subjects				
Type		.12	.993	.016
	Precision	.02	.889	.000
	Expressiveness	.05	.823	.001
	Learning motivation	.12	.727	.003
	Cognitive empathy	.19	.665	.004
	Affective empathy	.03	.868	.001
	Self-assessed creativity	.17	.684	.003
Within Subjects				
Time		1.40	.235	.161
	Precision	2.04	.160	.040
	Expressiveness	1.00	.321	.020
	Learning motivation	7.04	.011	.126
	Cognitive empathy	.39	.537	.008
	Affective empathy	.71	.404	.014
	Self-assessed creativity	2.04	.160	.040
Time x Type		1.37	.250	.157
	Precision	3.38	.072	.064
	Expressiveness	.27	.609	.005
	Learning motivation	4.56*	.038	.085
	Cognitive empathy	1.56	.218	.031
	Affective empathy	.71	.404	.014
	Self-assessed creativity	1.61	.210	.032

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

The results showed that there was no interaction effect between time and different type of students, F (6, 44) = 1.37, p = .250, η^2=.157, while significant effect on Learning motivation was

found, $F(1, 49) = 4.56$, $p < .05$, $\eta^2 = .126$. The Learning motivation's simple main effect of control was significant (Table 11). This suggested that both control and experimental groups' Learning motivation decreased through time passed, while experimental group decreased slowly than that of control group (Figure 10).

Table 11

The simple main effects of Time and Type on the Secondary students' abilities

	F	Sig.	η^2
Learning motivation			
Type			
Experimental	.38	.540	.008
Control	6.96*	.011	.124
Time			
Pre	.39	.536	.008
Post	1.53	.222	.030

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

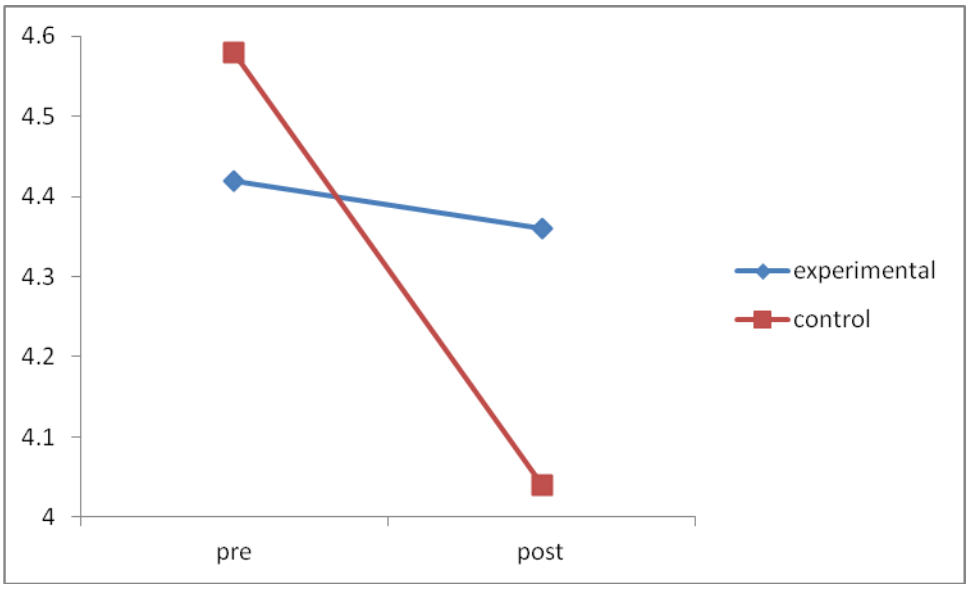

Figure 10. The learning motivation between different group and time on secondary students

Besides, there were interactions between time and different types of students in precision and expressiveness communication (Figure 11 & 12). This suggested that secondary

experimental group students' precision and expressiveness communications improved, while those of the control group students decreased over time. The insignificant results may be limited by the small sample size.

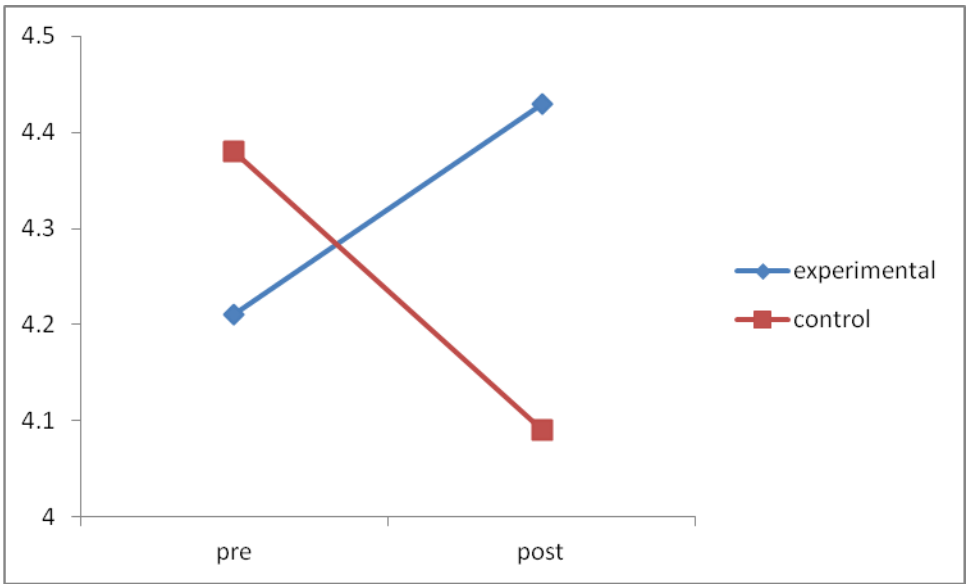

Figure 11. The precision communication between different group and time on secondary students

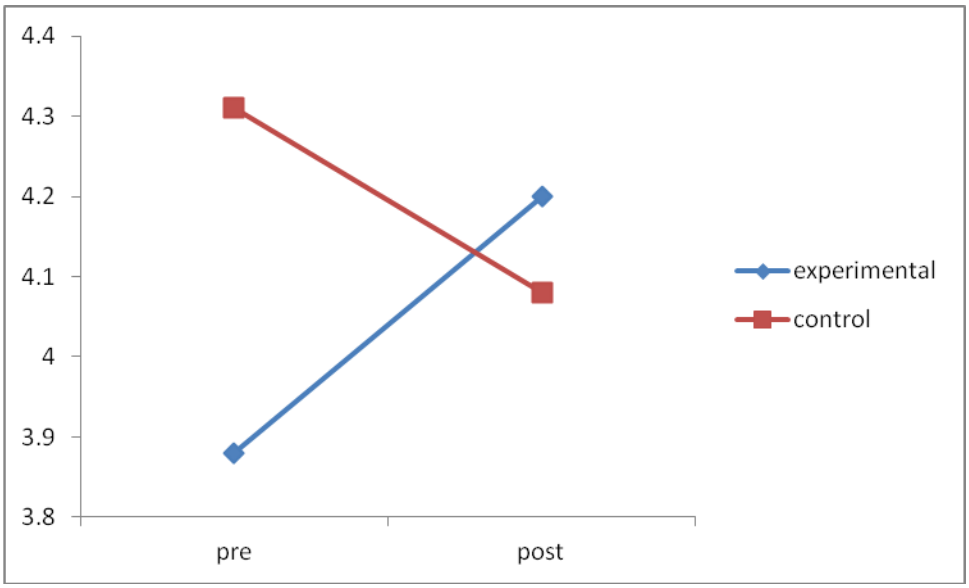

Figure 12. The expressiveness communication between different group and time on secondary students

For STT assessment, the difference between the experimental group (N = 35) and control group (N = 6) at different times (Pre-test, Post-test) for the secondary students was tested by two ways ANOVA. The time contained significant main effect, $F(1, 39) = 6.82$, $p < .05$, $\eta^2 = .149$, while there was no interaction effect between time and different type of students, $F(1, 39) = .001$, $p = .982$, $\eta^2 = .000$ (Table 12). This indicated that no difference was found on the improvement of experimental and control group over Pre- and Post-test.

Table 12

Different type and different time on Secondary students' STT assessment ANOVA table

	F	Sig.	η^2
Between group			
Type	3.80	.058	.089
Within group			
Time	6.82*	.013	.149
Time x Type	.001	.982	.000

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

For TCT-DP assessment, two ways ANOVA was conducted to test the differences between the experimental group (N = 40) and control group (N = 9) at different time (Pre-test, Post-test) for the secondary students. There was significant main effect of time, $F(1, 47) = 6.13$, $p < .05$, $\eta^2 = .115$, while there was no interaction effect between time and different type of students, $F(1, 47) = .58$, $p = .452$, $\eta^2 = .012$ (Table 13). This suggested that both control and experimental group showed improvement over Pre- and Post-test. Although no significant interaction effect of time and type was found, the figure below (Figure 13) showed that there was an interaction between time and different types of students in the task of TCT-DP, suggesting that the experimental group had a greater improvement than control group.

Table 13

Different type and different time on Secondary students' TCT-DP assessment ANOVA table

	F	Sig.	η^2
Between group			
Type	.038	.846	.001
Within group			
Time	6.13*	.017	.115
Time x Type	.58	.452	.012

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

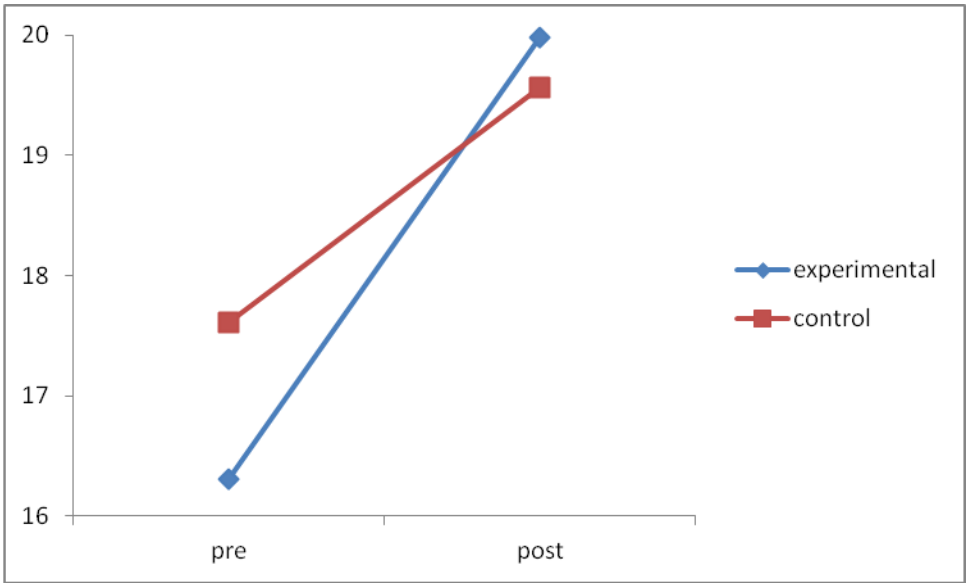

Figure 13. The performance of TCT-DP between different group and time on Secondary students

1.2.2.Teachers

Repeated measure of analysis of variance was conducted to test the differences between the experimental group (N = 27) and control group (N = 16) at different time (Pre-test, Post-test) on the 4 abilities (Table 14 & 15).

Table 14

Means and Standard Deviations of the testing variables at the prepost-test

	Experimental Group				Control Group			
	Pre		Post		Pre		Post	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Creative Self-efficacy	3.44	0.37	3.77	0.37	3.48	0.43	3.68	0.56
Positive affirmation	4.55	0.60	5.07	0.52	4.66	0.57	4.97	0.72
Negative awareness	3.32	0.97	3.18	1.11	3.49	0.58	3.61	1.39
Resilience belief	4.33	0.88	4.42	0.80	4.50	0.68	4.88	1.00
Expectation of DiE	3.91	0.44	4.06	0.44	-	-	-	-

Table 15

Different type and different time on teachers' abilities MANOVA table

		F	Sig.	η^2
Between Subjects				
Type		1.22	.318	.114
	Creative Self-efficacy	.06	.808	.001
	Positive affirmation	.00	.978	.000
	Negative awareness	1.35	.252	032
	Resilience belief	1.89	.176	.044
Within Subjects				
Time		10.09***	.000	.515
	Creative Self-efficacy	16.56***	.000	.288
	Positive affirmation	31.43***	.000	.434
	Negative awareness	.00	.977	.000
	Resilience belief	2.66	.111	.061
Time x Type		1.69	.172	.151
	Creative Self-efficacy	1.11	.298	.026
	Positive affirmation	2.16	.149	.050
	Negative awareness	.40	.533	.010
	Resilience belief	1.04	.314	.025

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

The results showed that there was an main effect of time, $F(4, 38) = 10.09$, $p < .000$, η^2=.515, in which creative self-efficacy, $F(1, 41) = 16.56$, $p < .000$, η^2=.288, and positive affirmation, $F(1, 41) = 31.43$, p <.000, η^2=.434 also yielded significant results. It suggested that

there was a significant difference between pre- and post-test, and post-test had a favorable result, in terms of creative self-efficacy and positive affirmation.

There was no interaction effect between time and different type of teachers in terms of the 4 abilities, $F(1, 41) = 1.69$, $p = .172$, $\eta^2 = .151$, shown in the results. However, the figures showed there was interaction between time and different types of teacher in creativity self-efficacy and positive affirmation (Figure 14 & 15). This result will be further illustrated in the discussion part.

For teachers' expectation of DiE, no significant difference between Pre- and Post-test was found, $F(1, 24) = 1.69$, $p = .082$, $\eta^2 = .121$, suggesting that teachers' expectation did not change over time.

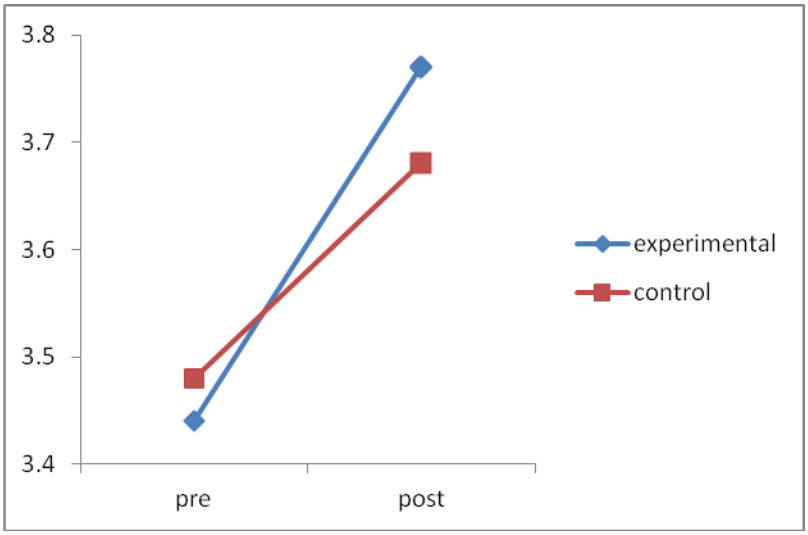

Figure 14. The creative self-efficacy between different group and time on teachers

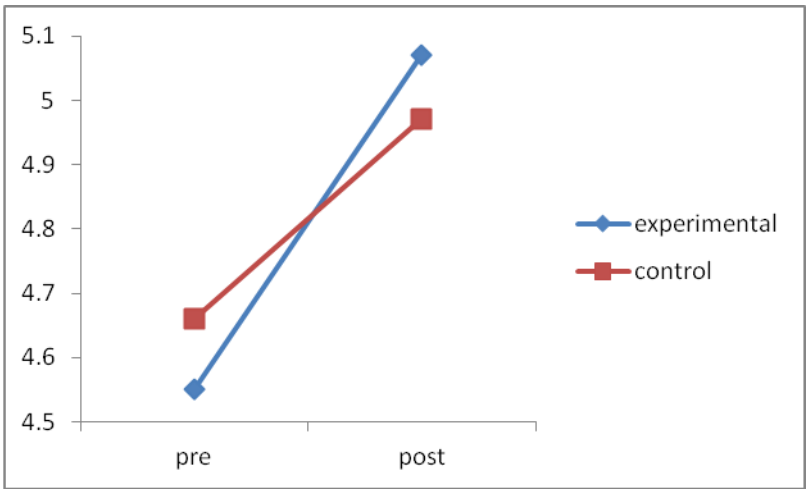

Figure 15. The positive affirmation between different group and time on teachers

Study 2

2.1. Method

2.1.1.Participants

This research was designed as a Pre and Post-test quasi-experimental design with an aim to examine students' enhancement of their vocabulary comprehension by implementing DiE techniques. One kindergarten and a primary school took part in the study. A total of 112 students (60 boys and 52 girls) participated in both Pre- and Post-test. Pre-test was held before they had DiE Lesson and the post-test was held after implementing DiE Lesson. All of the kindergarten students taking part in DiE lesson were treated as experimental group. They completed the Hong Kong Cantonese Receptive Vocabulary Test (Lee, Lee, & Cheung, 1996) and the Word Association Task (Wallach & Kogan, 1965) in both Pre- and Post-test. For the Primary school, there were 42 students randomly assigned into experimental group and 30 students in control group. Students in both groups completed the Peabody Picture Vocabulary Test – Fourth Edition

(PPVT-IV; Dunn & Dunn, 2007) and the Word Association Task (Wallach & Kogan, 1965) in both Pre- and Post-test. The details and the procedures of each assessment were illustrated in the instrument sessions.

2.1.2. Instruments

2.1.2.1. Vocabulary assessment

2.1.2.1.1. Hong Kong Cantonese Receptive Vocabulary Test (Lee, Lee, & Cheung, 1996). The Hong Kong Cantonese Receptive Vocabulary Test was adapted to examine the kindergarteners' (aged 2-6) achievement in acquiring the receptive vocabulary by evaluating comprehension of the spoken word in Hong Kong Cantonese and the impact of distractors (Lee, Lee, & Cheung, 2009). There were 3 training trials followed by 65 test trials, with each trials consisting of a stimulus word and four pictures which were arranged on a page presented to the participants.

Each participating kindergartener was told to select the picture which best illustrates the meaning of a stimulus word spoken by the examiner with ample time. Only one picture was representative of the targeted stimulus word, and the other three pictures were distractors in phonological, semantic, and unrelated aspects. Participant was first required to respond correctly to 3 training trials (T1-T3) before beginning the test items. For each item, participant's response was marked as 1 point for a correct response or marked as 0 point for an error (incorrect or no response). The test would be terminated once five consecutive errors were reached, excluding the training trials. A composite score was then obtained by adding up all the scores with no transformation. A higher score represents better performance in the task of Cantonese vocabulary among kindergarteners.

2.1.2.1.2. Peabody Picture vocabulary Test, Fourth Edition (PPVT-4 instrument; Dunn & Dunn, 2007). The PPVT-4 instrument was adapted to measure the primary one to two school children's achievement in acquiring the receptive vocabulary in English. Fifty-two items were retrieved from the two parallel forms (Form A and Form B) of PPVT-4 instrument, and used to assess the performance of receptive vocabulary task. Those items were selected based on the education of Primary school English level in Hong Kong, which is equivalent to the English level of American children aged 2.5 to 5.

The procedure of receptive vocabulary task was the same as Hong Kong Cantonese Receptive Vocabulary Test conducted among kindergarteners.

Additional assessment was designed by the researcher based on the same vocabularies of PPVT-4 instrument to measure the expressive vocabulary of the participants in terms of the indicators of reading and meaning. There were 2 training trials followed by 50 test trials on each record form. Each student was asked to pronounce and explain the stimulus presented by the examiner with ample time.

The scoring of receptive and expressive vocabulary task were the same as Hong Kong Cantonese Receptive Vocabulary Test conducted among kindergarteners (1 point for a correct response or marked as 0 point for an error).

2.1.2.2. Word Association Task

This task designed by the researcher was to assess the school children's cognitive thinking ability. In this study, participant was given two stimulus words which were selected by the participants' teachers as those words were supposed to be taught in the following DiE lesson (N3 kindergartener: 陽光 [sun] &長大 [growth]; N4 kindergartener: 森林 [forest] &循環再做

[recycling]; primary one student: talk & draw; primary two student: church & computer). They were asked to conduct free association towards the stimulus.

The rating method was adapted from that of Wallach-Kogan Creativity Tests (WKCT). There were two indicators used to measure the cognitive thinking ability: 1) fluency: the number of responses; 2) elaboration: association between the response and stimulus word. Fluency refers to width of cognitive thinking ability indicated by capability to produce a number of ideas, insights, or diversity in direction of thinking. Elaboration refers to depth of cognitive thinking ability indicated by being able to generate logical reasoning towards connection between the response and the relevant fields.

2.2. Results

Repeated measure of multiple analysis of variance was conducted to test the differences on the assessments performance between the experimental group (N = 39) and control group (N = 28) of primary school, and performance of experimental group (N = 37) among kindergarten in two different times (Pre-test, Post-test) (Table 16). The results of different school types were presented separately.

Table 16

Means and Standard Deviations of the testing variables at the Pre- and Post-test

	Experimental group				Control group			
	Pre		Post		Pre		Post	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Kindergarten								
Vocabulary Task								
-Receptive vocabulary	56.84	4.89	59.43	4.16	-	-	-	-
Word Association Task								
-Fluency	4.00	2.35	6.39	3.84	-	-	-	-
-Elaboration	6.85	1.86	6.70	1.64	-	-	-	-
Primary School								
Vocabulary Task								
-Receptive vocabulary	31.31	8.82	32.36	7.72	33.18	10.12	34.71	8.39
-Reading	12.87	10.37	16.97	11.58	13.43	13.12	19.14	13.27
-Meaning	12.31	10.06	16.69	11.03	12.93	12.79	17.89	11.96
Word Association Task								
-Fluency	2.23	1.99	3.26	2.29	3.15	2.18	3.52	1.72
-Elaboration	2.63	1.57	3.88	2.18	3.17	1.59	4.26	1.88

2.2.1. Kindergarten Students

One way ANOVA (Table 17) was conducted to test the differences on the performance of receptive vocabulary at different times (Pre-test, Post-test) among the experimental group (N = 37) of kindergarten students. The result showed that there was a significant difference between Pre- and Post-test, $F(1, 35) = 16.64$, $p < .001$, $\eta^2 = .316$. This suggested that receptive vocabulary task in kindergarten students who participated into the DiE lessons improved significantly over time.

Table 17

Different time on kindergarten students' Receptive vocabulary ANOVA table

	F	Sig.	η^2
Within group			
Time	16.64***	.000	.316

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

In addition, the difference on the performance of receptive vocabulary task in Pre- and Post-test between two classes N3 and N4 was found in further analysis (Figure 16). The significant interaction effect of time and different classes of students was found, $F(1, 35) = 5.85$, $p < .05$, $\eta^2 = .143$. This suggested that the performance of receptive vocabulary task in both N3 and N4 students improved through time passed, while the N3 students had a greater improvement than N4 students.

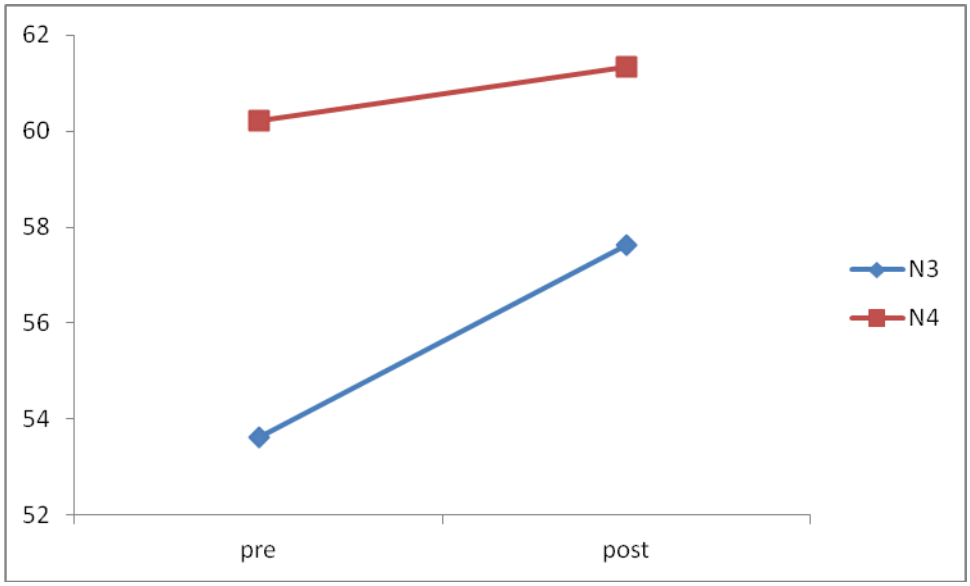

Figure 16. The Receptive vocabulary between different classes and times on kindergarten students

For the Word Association Task, the differences on the task performance at Pre- and Post-test among kindergarten students ($N = 31$) was tested by one way ANOVA (Table 18). The result showed that there was significant difference in terms of fluency between Pre- and Post-test, $F(1, 30) = 8.32$, $p < .01$, $\eta^2 = .217$. This suggested that the width of cognitive ability towards the vocabularies taught with *DiE* technique in kindergarten students improved significantly over time. However, there was no significant difference on the indicator of elaboration between Pre-

and Post-test, suggesting that the depth of cognitive ability among the participants did not improve over time.

Table 18

Different time on kindergarten students' performance in Word Association Task ANOVA table

	F	Sig.	η^2
Within group-Time			
Fluency	8.32**	.007	.217
Elaboration	.13	.721	.004

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

2.2.2. Primary School Students

Two ways MANOVA (Table 19) was conducted to test the differences between the experimental group ($N = 39$) and control group ($N = 28$) on the three assessments performance (Receptive vocabulary, Reading and Meaning) in Pre- and Post-test for the Primary school students.

The results showed that time contained main effect on Reading, $F(1, 63) = 13.83$, $p < .001$, $\eta^2 = .180$, and Meaning performance, $F(1, 63) = 8.85$, $p < .01$, $\eta^2 = .117$. But no significant interaction effect between time and different types of students was found, $F(4, 60) = .45$, $p = .771$, $\eta^2 = .029$. This suggested that both experimental and control group primary students had an improvement in Reading and Meaning task through time passed. However, comparing the scores of experimental and control group, no difference on their improvement was found.

Table 19

Different type and different time on Primary students' performance in three assessments MANOVA table

		F	Sig.	η^2
Between Subjects				
Type		1.41	.242	.086
	Receptive vocabulary	.78	.380	.012
	Reading	.18	.676	.003
	Meaning	.07	.787	.001
Within Subjects				
Time		3.74**	.009	.199
	Receptive vocabulary	.94	.337	.015
	Reading	13.83***	.000	.180
	Meaning	8.85**	.005	.117
Time x Type		.45	.771	.029
	Receptive vocabulary	.04	.843	.001
	Reading	.49	.487	.008
	Meaning	.02	.881	.000

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

In addition, the interaction between time and different types of students on the performance of receptive vocabulary was found among Primary1 students in further analysis (Figure 17). This suggested that the performance of receptive vocabulary task in both experimental and control group students improved through time passed, while the experimental group had a greater improvement than control group.

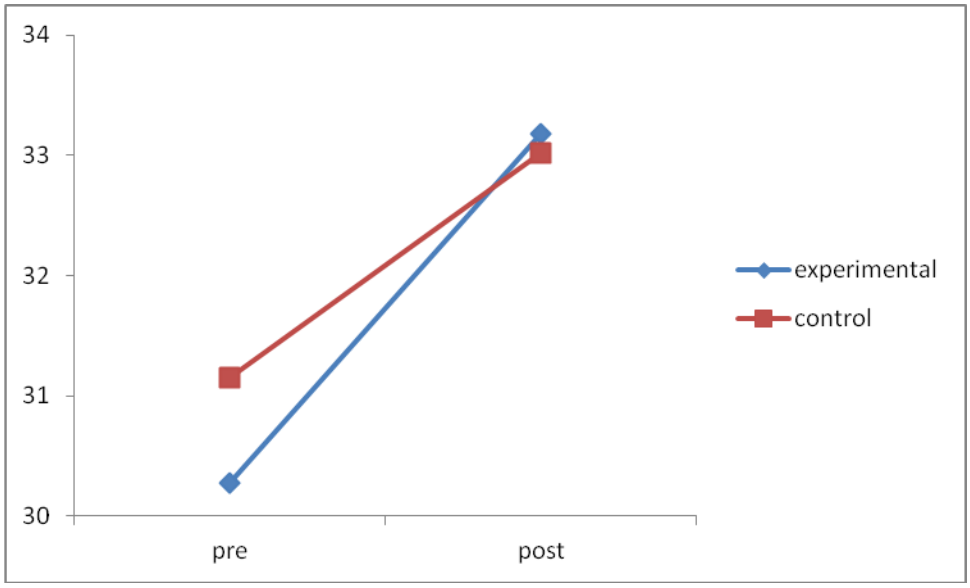

Figure 17. The Receptive vocabulary between different classes and times on kindergarten students

For the Word Association Task, the differences on the task performance at Pre- and Post-test among experimental (N = 35) and control group (N = 27) primary students was tested by one way ANOVA (Table 20).

Table 20

Different type and different time on Primary students' performance in the Word Association Task ANOVA table.

		F	Sig.	η^2
Between Subjects				
Type				
	Fluency	1.80	.185	.029
	Elaboration	1.37	.247	.022
Within Subjects				
Time				
	Fluency	5.68*	.020	.086
	Elaboration	20.09***	.000	.251
Time x Type				
	Fluency	1.26	.267	.021
	Elaboration	.10	.749	.002

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

The result showed that there was significant difference in terms of fluency and elaboration between Pre- and Post-test, $F(1, 60) = 5.68, 20.09$, $p < .05$, $\eta^2 = .086, .251$. This suggested that the width and depth of cognitive ability towards the taught vocabularies in both control and experimental students improved significantly over time. Although there was no significant interaction effect on both indicators, the experimental group showed a significant difference between Pre- and Post-test in terms of fluency while control group did not when conducting pairwise comparisons (Table 21). This suggested that fluency of both experimental and control group students improved over time, and experimental group had a significantly greater improvement than control group (Figure 18). The insignificant interaction effect may be limited to the great difference in Pre-test between the experimental group, which consisted of the students who had relatively weaker academic performance, and control group which consisted of

students of average ability. It is noticeable that the DiE teaching technique had a positive influence on the experimental students.

Table 21

The pairwise comparison on the Primary students' fluency in Word Association Task

	F	Sig.	η^2
Fluency			
Type			
Experimental	7.05**	.010	.105
Control	.71	.404	.012

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

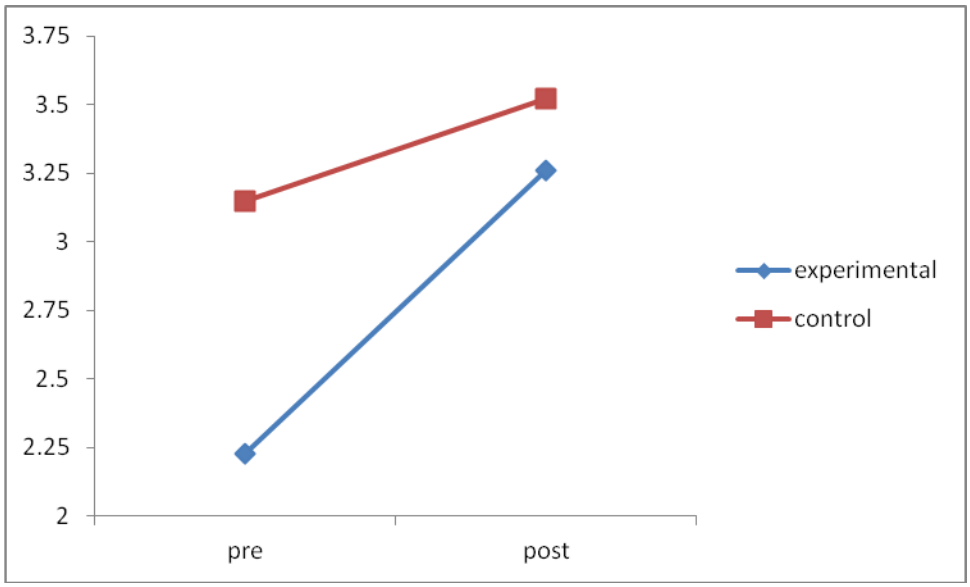

Figure 18. The fluency in Word Association Task between different types and times on Primary students

Study 3

3.1. Method

3.1.1. Participants

This research aimed to investigate teachers' teaching models on implementing *DiE* techniques to achieve their teaching objectives. A pool of teachers from kindergartens, primary schools and secondary schools participated in this single-blinded study. Twenty of the core teachers who had experience in drama education for at least 5 years and are capable of supervising other teachers were chosen. They were asked to conduct five-day teaching lessons with implementation of *DiE* techniques. Each day contained a one-hour lesson. Teaching lessons (a total of five hours) were recorded, and a total of 100 teaching hours were analyzed by two raters based on the assessments of students' generic skills and language skills, and Teaching Assessment scale under Bloom's Taxonomy (Blooms, 1956) and The Revised Taxonomy (Anderson & Krathwohl, 2001). The details and the procedures of each assessment were illustrated in the instrument session.

3.1.2. Instruments

3.1.2.1. Assessments of students' generic skills and language skills

There were 42 items in the assessment of student's generic skills and 12 items in the assessment of language skills. The performance of students under the teaching of the participating teachers were observed and evaluated by two raters in order to assess the teacher's teaching models.

The assessment of generic skills was designed by the researcher based on the nine generic skills which are identified as fundamental to student learning by the Education Bureau in Hong

Kong (Curriculum Development Council, 2000). The nine generic skills included collaboration, communication, creativity, critical thinking, information technology, numeracy, problem-solving, self-management, and study skills. Each skill was further defined into different measuring items. For collaboration skills (4 items), students were assessed whether they could express their needs, listen to others, communicate and collaborate with others. For communication skills (5 items), students' ability of handling and understanding other's opinions, asking and answering questions, and expressing own opinions were evaluated. For creativity skills (5 items), students' performance in utilizing materials, participating in activities, creating things by imagination, sensitive observation, and creative thinking were measured. For critical thinking skills (4 items), they were assessed whether they could present the events in detail, observe the characteristics of the events, express own opinions and interpretations, and criticize the events. For information technology skills (5 items), their knowledge in computer, skills in manipulating and using computer, information technology, or IT products were measured. For numeracy skills (4 items), their fundamental knowledge in numbers, computation, logical relationship, and numerical terms were assessed. For problem-solving skills (5 items), they were assessed whether they could understand the causes and consequences of the events, solve problems, handle different issues by different ways, try new things, and utilize their prior knowledge. For self-management skills (5 items), they were evaluated according to their performance in expressing self, organizing activities, following rules, and understanding and expressing different emotions. For study skills (5 items), their abilities in discovering objects, asking questions, thinking, organizing information, and utilizing knowledge were measured.

The assessment of language abilities was classified into three subscales: (1) Listening ability was measured by 4 items, based on students' performance in listening and understanding

others' speaking, understanding others' intonation, concentrating on the stories, and answering the story-related questions. (2) Speaking ability was measured by 4 items according to their skills in using complete sentence, fluent language, accurate vocabularies, and proper intonation, volume, and expressions in communications. (3) Reading ability was evaluated by 4 items based on their performance in identifying and interpreting the meaning of drawings, symbols and wordings properly, reading story books or writing spontaneously, and finding information from books.

Both the assessment of generic skills and language abilities were rated using 4-point Likert-scale (from 1=improvement needed to 4=excellent performance). The composite score of each subscale of the generic skills and language abilities were obtained by summing the points scored on the items under each subscale.

3.1.2.2. Teaching Assessment scale under Bloom's Taxonomy and The Revised Taxonomy

Based on the broad coverage of intended learning outcomes stated in Learning to Learn (2001), this research adapted a complementary approach of The Bloom's Taxonomy (Blooms, 1956) and The Revised Taxonomy (Anderson & Krathwohl, 2001). The teaching evaluation scale was also developed in quantitative approach and consisted of 34 items.

Teaching objectives were first classified into three domains as The Bloom's Taxonomy as: knowledge, affective and psychomotor. But for knowledge (cognitive) domain, it was classified as factual, conceptual, procedural and metacognitive based on The Revised Taxonomy, instead of The Original Taxonomy. In each knowledge (cognitive) domain, it was further classified into a four 6-item subscales to measure whether teacher could facilitate students to

remember, understand, apply, analyze, evaluate and create. The affective domain was measured in a 5-item subscale whether teachers could facilitate students to receive, respond, value, organize and internalize from the attitudinal or emotional objectives. Lastly, the psychomotor domain was measured in a 5-item subscale whether teachers could facilitate students to perceive, set, guide their response, coordinate and completely manipulate the skill.

Inter-rater reliability was used. Raters first studied the teaching plans and classified each teaching objective into any of the domains and sub-domains. Then, the raters assessed and presented the proportion of knowledge, affective and psychomotor domains in the teaching lessons with percentages (out of 100% as total). In addition to the overview of all these elements, the raters also gave scores to teachers' performance based on both teachers' demonstration of DiE techniques and students' feedbacks in classes. Each item under each subscale was rated using 5-point Likert scale (from 1= inadequate to 5= sufficient). A hierarchical model was used in each subscale. For the knowledge domain, it ranged from Question 1 (the level of fundamental objective e.g. helping students memorize the taught issues) to Question 6 (the level of ideal objective e.g. encouraging students to create things). For the affective domain, it ranged from Question 1 (the level of fundamental objective e.g. evoking student's affection) to Question 5 (the level of ideal objective e.g. identifying different values and building own value). For the psychomotor domain, it ranged from Question 1 (the level of fundamental objective e.g. encouraging students to practice the skills) to Question 5 (the level of ideal objective e.g. assisting students to master and perform the skills). The lower level objectives had to be obtained before achieving the upper level objectives. This indicated that the score of upper level would never be greater than that of previous level.

Scores were finally calculated by averaging to get the mean scores from the two raters. A chief rater rated all practice class recordings submitted from participating teachers. All the practice class recordings were then relayed to one of trained second raters to complete inter-rating. The inter-rater reliability of each domain of cognitive knowledge in the previous research ranged from.685 to .895. High inter-rater reliability coefficients indicated that the assessment tool was a reliable tool to evaluate teachers' performance on implementing DiE in classroom. The tool was also a valid tool useful to discriminate objectives in different domains.

3.2. Results

Descriptive statistical analysis was used to descript the results of the generic skill and language ability assessment, and teaching assessment scale. Twenty sets of teaching lessons were analyzed. Table 22 summarizes the details of the classroom vignettes.

For the assessment of generic skills, collaboration, communication, self-management and study skills were demonstrated by students under all participants' teaching lessons. However, other generic skills did not exhibit in all sets of teaching lessons. Students' creativity, critical thinking, numeracy, and problem solving skills were shown in Vignettes 17, 19, 12 and 16 of teaching lessons respectively. There was no information technology skill shown in any set of teaching lesson. The above suggested that not all the generic skills of the students were evoked by the teaching of participants.

Figure 19 showed that means of all the generic skills, excepting information technology skill, ranged from 2.41 to 3.20 out of 4. This indicated that the level of developing in progress was achieved among all those generic skills. Collaboration and self-management skills even reached the level of good development, with the highest means of 3.08 and 3.20. The result

suggested that collaboration and self-management skills were the one mostly stimulated by DiE teaching techniques, while problem-solving skills were evoked the least.

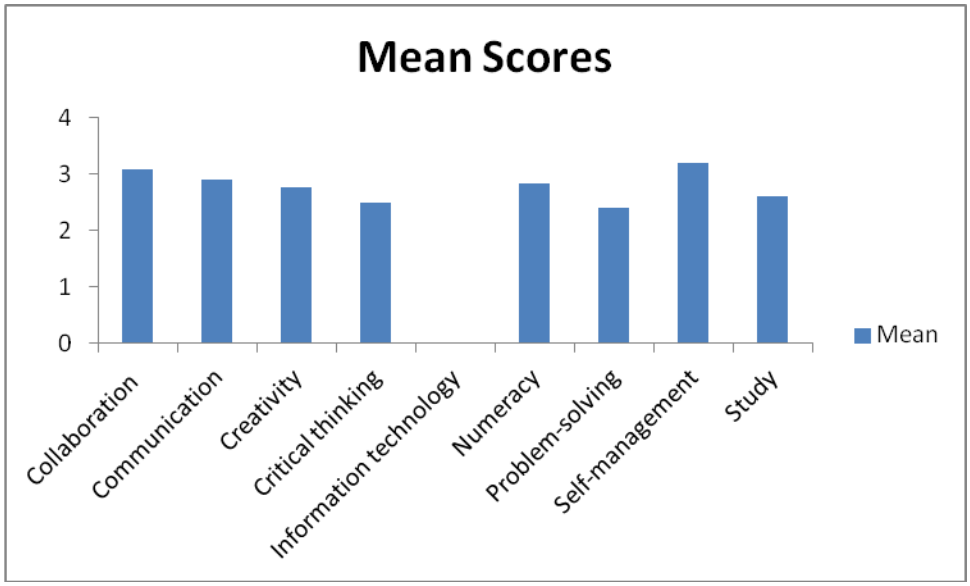

Figure 19. The mean scores of all the generic skills.

For the assessment of language abilities, listening and speaking abilities were demonstrated by the students in all sets of teaching lessons. However, reading and writing abilities were exhibited only in Vignettes 17 and 5 sets of lessons. The results (Figure 20) showed that the mean of all language abilities ranged from 2.85 to 3.25, suggesting that all of the abilities reached the level of developing in progress. The level of good development was even achieved among listening, reading and writing abilities (M =3.00~3.25).

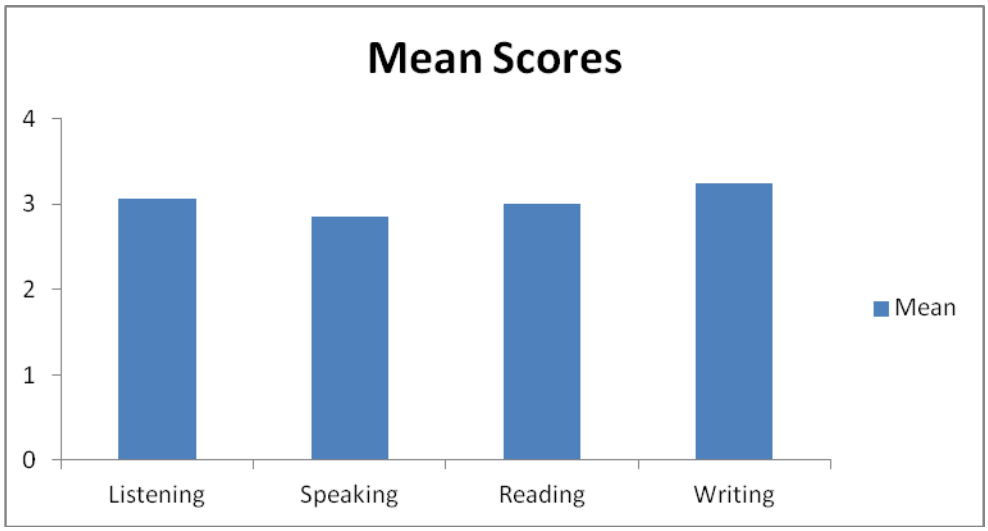

Figure 20. The mean scores of all the language abilities.

For the result of teaching assessment scale, it was found that the proportion of knowledge, affective and psychomotor components in the teaching lessons were 71%, 17% and 12% respectively (Figure 21). This showed that knowledge domains (factual: 29%, conceptual: 29%, procedural: 7%, and meta-cognitive: 5%) occupied the major components of the teaching lessons. From Figure 22, it showed that the mean of the knowledge, affective and psychomotor domains were 12.39 out of 30, 10.93 and 10.84 out of 25. This indicated that all the teaching domains reached the second level or above of the hierarchical model. For the knowledge domains, the objectives of helping students memorize and understand the taught issues, and encouraging students to utilize their knowledge were achieved in the teaching lessons. For the affective domains, the objectives of evoking student's affection, and prompting and encouraging student to reflect on the affective reaction were demonstrated. For the psychomotor domains, participants could encourage and provide opportunities to students to practice, utilize, and accurately master the skills.

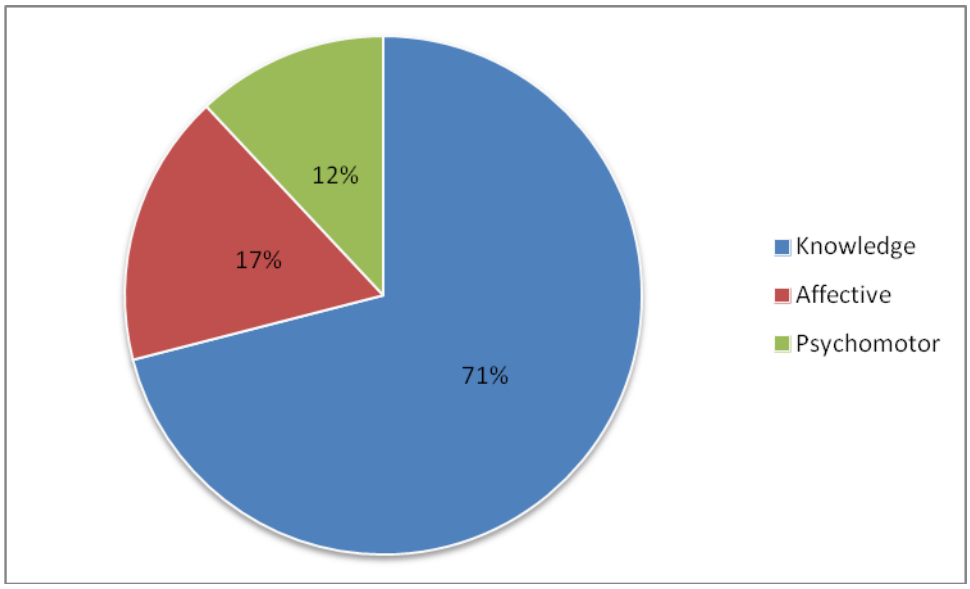

Figure 21. The components of teaching domains among all sets of teaching lessons.

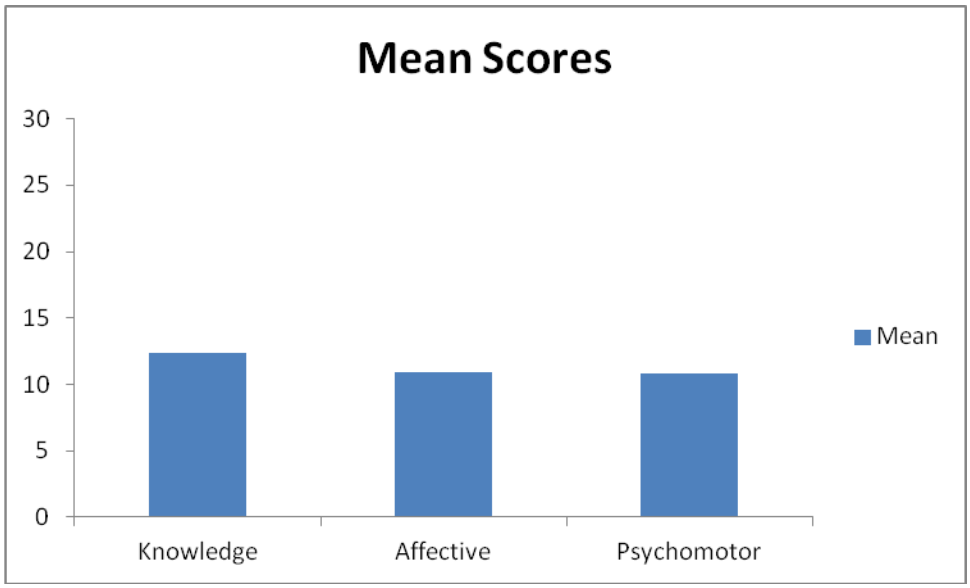

Figure 22. The mean scores of the teaching objectives under each teaching domain.

Table 22

The teaching contents of the experimental teaching lessons by the participants

	Kindergartens	Primary schools	Secondary schools
The number of sets of teaching lessons	11	8	1
Teaching content under each domain			
- Factual knowledge	• Characteristics and evolution of animals, plants, insects and weathers (Chinese) • Introduction of healthy life, balance diet, food pyramid, exercises (General Education) • Causes and consequences of virus and dirt(General Education) • Symptoms of sickness and ways to recover (General Education) • Characteristics of shadow under different conditions (Chinese)	• Introduction of different careers (Chinese) • Application of English grammar and sentence structure (English) • Introduction and consequences of global warming and deforestation (General Education) • Dr. Sun Yat-sen's personality and social background (Chinese & History)	• Kung I-Chi's personality, characteristics and background (Chinese & History)
- Conceptual knowledge	• Dos and Don'ts, and ways to recover when getting sick • Identifying healthy and unhealthy food and life, and designing a healthy meals • Ways to plant and protect environments • Identifying different cleaning products for different parts of body	• Identifying forest and city, the causes of deforestation, reasons and ways of protecting rainforests • Identifying different adjectives, and proper English grammar under different conditions • Identifying different solutions of bullying	• Social structures during the period of KUNG I-CHI
- Procedural knowledge	• Procedures of brushing teeth, cleaning own body, protecting	• Proper ways using English to ask for the price	-

	environments • Evolution of insects and plants • Proper procedures when sneezing, eating and playing games		
- Meta-cognitive knowledge	• Seeing doctors when getting sick • Do not open door to strangers when parents were not here • Asking others to help when being unable to complete the tasks	• Techniques to ask for the food price using English • Educating people to save rainforests • Importance of jotting notes	-
- Affective domain	• Identifying the emotion and its causes of the characters • Performing different emotions by role playing • Teaching the proper emotions under different conditions	• Analyzing the emotions of people when they were being exploited by the rich and the corrupt government • Analyzing the emotions of animals when the rainforest was being destroyed • Learning the proper emotions under different situations • Being thankful to other classmates	• Guiding students to think about the feelings of different social classes
- Psychomotor domain	• Presenting each step of different activities e.g. cutting food, exercising, sleeping, planting, and etc. • Making shadows of different animals by finger motions • Role playing the movements of different animals and plants	• Presenting different foods and animals by body movements • Presenting different activities e.g. cutting trees	-

Note. The subject domains were inside the blankets beside the teaching content.

Study 4

4.1. Method

4.1.1. Participants

Three school principals (nicknamed Mr. P, Ms. A and Ms. E) and four in-service teachers (nicknamed Mr. V, Miss H, Miss K and Miss G) of seven schools (including two kindergartens, three primary schools and two secondary schools) have been invited to participate in a focus group interview hosted in mid-July 2014, to share their experiences and views about the QEF-funded *DiE* programme and come up with some possible future directions on how *DiE* could be further disseminated and extensively implemented among schools of different levels in Hong Kong. The entire interview lasted for one and a half hour and was facilitated by the principal investigator of this study. All participants of this interview were allowed to express and respond freely to their own and others' opinions. Data generated from this focus group interview has been audio-recorded and later transcribed into text to ease analyses and discussion. Transcribed data has further been organized and analyzed with qualitative research software, NViVo 10.

4.1.2. Instruments

The interview was semi-structured in nature. The questions were as follows:

1. How long and since when have you been involved in Drama in Education (*DiE*)?
2. What are some strengths and benefits *DiE* could bring to students and teachers?
3. Could you think of some weaknesses or drawbacks *DiE* might bring to students and teachers?
4. Have you experienced any administrative, procedural or implementation difficulties while realizing *DiE*?

5. Which do you think could be the most compatible mode and learning stage to realize *DiE* in the curriculum?
6. Which is/are the academic subject(s) most suitable to be integrated with *DiE*, and bring the highest level of pedagogical efficiency?
7. What could be done by current educational policies and curricular framework to help schools to accommodate and adapt to realizing *DiE* in classrooms?
8. You might have already known that this six-year QEF-funded Thematic Network - *DiE* project is coming to an end, how would you or your school respond to this?
    a. Giving up *DiE*?
    b. Voluntarily continuing *DiE* practices?
    c. Seeking and applying for grants or funds independently to sustain *DiE*?
9. What do you think about the future development of *DiE* in Hong Kong?

4.2. Results

Within this interview, school principals and teachers have been asked questions regarding the strengths and weaknesses of *DiE*, difficulties they have encountered in promoting and implementing *DiE* in their own in-service institutes and some future guidelines to follow or consider on policy and curricular levels if *DiE* is to continue as an initiative to quality education. With reference to their responses, it seemed that despite school principals and teachers were convinced of *DiE* being a meaningfully encouraging pedagogical paradigm for students and practitioners, a major impeding force to sustaining and reaching out *DiE* in institutes of all levels could be from the government, being a critical source of motivation and financial support indispensable to realizing any new educational initiatives within any institutes in Hong Kong.

Orienting their educational attitude and behavior towards meeting the "assessment-based" objectives set out by government's educational policies and at the same time the internal pressure to improve pedagogical efficiency and diversity, both principals and teachers have expressed that they have been experiencing considerate level of tension while implementing *DiE* in their in-service institutes. Mr. P, the primary school principal, has in the interview further elaborated on this challenge they were facing:

> *"In fact, the secondary curriculum has been designed as more or less examination-oriented…If (DiE and the assessment-based curriculum) was not that directly related to one another, more resources could be allocated to (further develop DiE)…Practically speaking, (although) DiE has been implemented in teaching language subjects, (it is still necessary) to look at how it might be promoted within academic subjects together with meeting the OLE (Other Learning Experiences requirements set out by the new curriculum)."*

Mr. V, a secondary school teacher, has also added:

> *"Although the Education Bureau has proclaimed that TSA (Territory-wide System Assessment) has nothing to do with evaluation of individual institute, but to be honest, every secondary school takes this assessment utterly seriously. Taking our school as an example, a great amount of both class and after-class time have been invested on training students to excel in the assessment…(When) it comes down to realistic consideration…this could certainly be a (conflicting) issue to be resolved…if (an institute) was TSA-oriented and trainings were to be done at the*

expenses of regular learning time, and DiE is (also) a time-demanding pedagogical strategy…"

According to their responses, it certainly reflected the role education system is playing as a blueprint to affecting individual institute's educational orientation and decisions on resource allocation, which in turn impacting on learning experiences of students.

Lacking a balanced official framework that equally values both educational processes and outcomes, it has contributed to an environment relatively less favourable to the sustainability of *DiE* within institutes, which seemed to undermine resources available, practitioners' support and discernable directions conducive to promoting and implementing *DiE* extensively. With regard to a shortfall in resources dedicated to the development of *DiE*, interviewed principals and teachers shared agreements on their needs for such resources as getting *DiE* across to different levels required a great deal of "trainings" for practitioners to get themselves familiar with the paradigm. Ms. E, the kindergarten principal has exemplified this shortfall:

"The first challenge (to promote DiE within the kindergarten) is definitely on choosing which story to be used…matching the story's theme with the framework we have mapped out could be really challenging…(Besides,) training teachers to implement DiE is also another challenge…(as this is directly related to) how teachers could master the teaching skills enacted in DiE…(Moreover,) the most difficult part goes to developing lesson plans. The whole process requires teachers to get together to discuss and…spend lots of time designing lesson plans to bring out the core values and how class time shall be used (wisely)…(Despite) so much time has been spent on picking up DiE with the guidance of teaching

artist as well as on planning, children were left with relatively little time to learn through DiE… "

This shortfall in resources has apparently hindered school practitioners from strengthening their psychological readiness to accept and put *DiE* into practices. Miss G, the kindergarten teacher has suggested in the interview the essentialness of resources and support to the development of practitioners' skills and self-perceived capability of teaching with *DiE*:

"Some teachers might not have already mastered the skills necessary to develop lesson plans (with DiE), even I would sometimes doubt my confidence…This year I have been held responsible for developing lesson plans and I have consulted and received positive feedback from a DiE teaching artist on the plans, which I believed this type of support and help is crucial (to teachers feeling more comfortable planning with and implementing DiE)"

She also added:

"(To promote) DiE, if any person implementing DiE has background related to drama, then that would certainly make mastery of DiE easier for them. Also, given the fact that lack of drama classes in most schools has added to the difficulty to cultivate DiE…(Therefore,) I think, if DiE is really that important, then it should be included in pre-service teacher training programmes offered by local tertiary institutes…"

Discussions

The current project has included four studies to examine the effectiveness of a *DiE* project in kindergarten, primary and secondary school students and their teachers. The discussion will focus on individual study first and then on the overall conclusion and limitations.

Study 1

Three noticeable observations were found from the result of the study. Firstly, the kindergarten students benefitted most from the *DiE* teaching techniques. Experimental kindergarten students' precision and expressiveness communication, learning motivation, cognitive and affective empathy, and self-assessing creativity rated by teachers, and their creativity shown in TCT-DP had significantly greater improvement after participating in the *DiE* lessons, comparing with the control group. Secondly, the experimental group among secondary students also had significant gains in precision and expressive communication, and creativity shown in TCT-DP. These results were cross validated by teachers in the focus group interview in the Study 4. The interviewed teachers suggested that *DiE* techniques could increase students' learning motivation, communication ability, empathy, and creativity. From the above, *DiE* techniques therefore demonstrated a positive influence on facilitating students' learning. Thirdly, creative self-efficacy and positive affirmation in the teachers who participated in the *DiE* workshops enhanced, shown in the result. These indicated that *DiE* teaching was not only beneficial for students' learning, but also for teacher's belief in their own ability to be a creative teacher.

Study 2

Two noticeable observations were found from the result of the study. Firstly, students from lower class benefitted the most from the *DiE* teaching techniques, shown in the result of

receptive vocabulary task. The performance of the task in both N3 and N4 kindergarten students improved in the vocabulary task, while the N3 students had a significantly greater improvement than N4 students. Moreover, the performance of the experimental group among the Primary one students, but not the upper classes, also had a significantly greater enhancement under the teaching of *DiE*, comparing with control group. This may suggest that younger students could enjoy the positive influence of *DiE* teaching techniques more in the aspect of vocabulary ability than older students.

Secondly, the kindergarten students and the experimental group among Primary students had a significantly improvement in terms of width of cognitive ability (i.e. fluency of the Work Association Task), after they participated in the *DiE* lessons. In addition, it is noticeable that the experimental group which included students with relatively weaker academic performance had a significantly greater improvement than control group among the sample of Primary school. This indicated that the *DiE* teaching technique could facilitate and contribute to the learning of students with diverse learning abilities.

Study 3

From the result of the study, the *DiE* teaching technique could bring certain degree of benefits to students in the teaching lessons. Students' generic skills, except information technology skills, were evoked under the *DiE* teaching conducted by the teachers. This result was also supported by the feedback from the focus group interview in study 4 that the contribution of *DiE* teaching techniques on students' collaboration, communication, self-management, study, creativity, critical thinking, and problem-solving skills was confirmed.

For the language abilities, it was found that *DiE* teaching techniques could help students' listening, speaking, reading and writing abilities, while writing abilities were exhibited only in

few vignettes of teaching lessons. This suggested the benefit of *DiE* teaching techniques on students' language abilities. Moreover, the result of the writing ability was supported by the findings in Study 4's focus group interview of which the difficulty in implementing *DiE* techniques in writing lessons was suggested.

Besides, teachers were found to mainly emphasize on the teaching objectives in terms of knowledge domain which included helping students memorize and understand the taught issues, and encouraging students to utilize their knowledge. Teachers put less focus on affective domain, which contained the objectives of evoking student's affection, and prompting and encouraging student to reflect on the affective reaction, and psychomotor domains covering the target on encouraging and providing opportunities to students to practice, utilize, and accurately master the skills. Affective development may be further developed in students' learning through *DiE*.

Study 4

The qualitative responses from teachers and principals have made clear on how policy concerns and resources available could predispose the dissemination and development of *DiE* in Hong Kong. With government's support being a critical motivational factor, school administrators and practitioners would feel more at ease in maintaining *DiE* practices in their in-service institutes and allow *DiE* to blossom. They would be more than willing to invest their time and effort on "preparing and sharing ideas on *DiE*-integrated lesson plans", "creating *DiE* implementation and class observation opportunities", "prioritizing *DiE* as one of the intended objectives to achieve in the three-year school development plan", "establish the *DiE* group" and "bringing new dimensions and themes to *DiE* practices". Apart from planning, these resources would also entitle them to learning and polishing their skills with the "support offered by teaching artists", which teachers could seek "feedback about related pedagogical skills" and take

a great leap forward to “accomplishing their pedagogical objectives”. It was believed by most respondents of this interview that if resources are to be used under a supportive education environment that advocates process-based directions, there could be hopes for *DiE* to sustain and continue to benefiting young school learners on acquisition of different skillsets, transforming them from learners to “critical thinkers” and creators.

However, there are a couple of limitations of the present study. The first is on the generalizability of the findings to other kindergarten, primary school children and secondary school students. The background of the participating kindergartens, primary and secondary schools are mainly for those institutions which are eager to take part in *DiE* projects. The teachers are willing and voluntary to attend drama training for their professional development. Their students are mainly from lower to middle income families. Their experience and exposure to *DiE* activities may influence the effect of the drama in education project. The second limitation is the lack of explanatory power of the transfer from drama learning to other academic achievement although observations in the generic skills, including students’ collaboration, communication, self-management, study, creativity, critical thinking, and problem-solving skills, were evident. Future studies on how participants integrate their *DiE* experience with their academic knowledge and with their social and interpersonal knowledge, in particular the affective domain, may be worthwhile pursuing.

As a conclusion, the *DiE* project has demonstrated strong evidence in enhancing creativity in kindergarten children and learning motivation of secondary school children. It also has positive impact in the vocabulary learning of less able primary students. Teachers with *DiE* training have reported higher creative self-efficacy and their classrooms have provided learning

opportunities for students to develop generic skills in the knowledge domain. Further studies can focus on the affective and psychomotor domains.

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