



Title	Teachers' and students' perceptions of creative thinking in liberal studies
Author(s)	Lam, Man-tai; 林雯娣
Citation	
Issued Date	2013
URL	http://hdl.handle.net/10722/192358
Rights	unrestricted

Teachers' and students' perceptions of creative thinking in Liberal Studies

by

Lam Man Tai

(2009069566)

**Dissertation presented in partial fulfillment of the requirements of the Bachelor of
Education in Liberal Studies, the University of Hong Kong**

May 2013

Declaration

I hereby declare that this dissertation represents my own work and that it has not been previously submitted to this university or any other institution in application for admission to a degree, diploma or other qualifications

May 2013

Acknowledgements

I would like to express my deepest gratitude to my supervisor, Prof. Zhang Li-fang for her time and effort in providing valuable advices, encouragement and support throughout the period of my dissertation. Her expertise inspired me and guided me to think broadly and critically for the research. She also facilitated me with clear instructions and guidance.

Special thanks also to all the participants in this research. Your time and insights contribute to my dissertation.

Last but not least, I particularly thank my family and friends for their encouragement and support during the work.

TABLE OF CONTENTS

Declaration	i
Acknowledgements	ii
Table of Contents	iii
List of Tables and Figures	v
CHAPTER 1 INTRODUCTION	
1.1 Background of the Study	P. 1
1.2 Aims of the Research	P. 3
1.3 Research Questions and Design	P. 4
1.4 Significances of the Study	P. 5
CHAPTER 2 LITERATURE REVIEW	
2.1 Definitions of Creative Thinking	P. 6
2.2 The Principles of Creative Thinking in Liberal Studies	P. 9
2.3 Creative Thinking Techniques in Education	P. 11
2.4 Difficulties Faced in Creativity Development in Formal Education	P. 12
CHAPTER 3 METHODOLOGY	
3.1 Research Sample	P. 13
3.2 Research Instruments & Procedures	P. 14
3.3 Rationales of Methodology	P. 16
3.4 Data Collected for Analysis	P. 16
CHAPTER 4 DATA FINDINGS AND RESULTS	
4.1 Reliability & Validity	P. 17
4.2 Response Rate	P. 20
4.3 Respondents' demographics	P. 20
4.4 Relationships between Different Conceptions	P. 22
4.5 Gender Differences in Conceptions	P. 26
4.6 Different Interpretations of Creative Thinking	P. 27
4.7 Different Views on Creative Thinking in Liberal Studies Subject	P. 30
4.8 Views on Difficulties of Creativity Development in Liberal Studies	P. 32

CHAPTER 5 DISCUSSIONS	
5.1 Conceptions of Creative Thinking	P. 34
5.2 Creative Thinking Development in Liberal Studies	P. 35
5.3 Difficulties of Creative Thinking Development in Liberal Studies	P. 37
CHAPTER 6 LIMITATIONS AND SUGGESTIONS	
6.1 Limitations of the Study	P. 39
6.2 Suggestions for Further Research	P. 39
CHAPTER 7 IMPLICATIONS AND CONCLUSIONS	
7.1 Implications	P.40
7.2 Conclusions	P. 41
REFERENCES	P. 42
APPENDICES	
(I) Questionnaire of Student’s Perceptions (Chinese Version)	P. 46
(II) Questionnaire of Student’s Perceptions (English Version)	P. 49
(III) Questionnaire of Teacher’s Perceptions (Chinese Version)	P. 52
(IV) Questionnaire of Teacher’s Perceptions (English Version)	P. 55

LIST OF TABLES AND FIGURES

Table 1	(P.18)	Reliability Scale and Descriptive Statistics
Table 2	(P.19)	Factor Structure for the Students Group
Table 3	(P.19)	Factor Structure for the Teachers Group
Table 4	(P.21)	Students' Parent Socio-Economic Status
Table 5	(P.22)	Teacher's Teaching Experience
Table 6	(P.23)	Correlation Matrixes Among Students and Teachers
Table 7	(P.25)	Correlation Matrixes Amongst Teachers' Age Group and Conceptions
Table 8	(P.25)	Correlation Matrixes Amongst Teachers' Teaching Experience and Conceptions
Table 9	(P.26)	Means of Creative Thinking Scores for Male and Female Students
Table 10	(P.27)	Means of Creative Thinking Scores for Male and Female Teachers
Table 11	(P.28)	Means of Interpretation of Creative Thinking for Students and Teachers
Table 12	(P.29)	Means of Interpretation of Creative Thinking for Student-teachers and Teachers
Table 13	(P.30)	Means of Creative Thinking in Liberal Studies (LS) for Students and Teachers
Table 14	(P.31)	Means of Creative Thinking in LS for Student-teachers and Teachers
Table 15	(P.32)	Means of Creative Thinking Difficulties in LS for Students and Teachers
Table 16	(P.32)	Means of Creative Thinking Difficulties in LS for Student-teachers and Teachers
Figure 1	(P.33)	Difficulties of developing Creative Thinking in Liberal Studies

CHAPTER 1 INTRODUCTION

1.1 Background of the Study

1.1.1 Development of Liberal Studies

Liberal Studies (LS) is a subject which was firstly introduced in 1992 by British colonial government after the signing of the Sino-British Joint Declaration as an Advanced Supplementary Level (ASL) elective course, and reintroduced by HKSAR government officials in 2004 (Fung & Yip, 2012). In 334 Report (EMB, 2005), the Education and Manpower Bureau stated that a three-year senior secondary academic structure would commence at Secondary 4 in September 2009. Liberal Studies, Chinese Language, English and Mathematics are thus core subjects to be compulsorily taken by students (Curriculum Development Council (CDC), 2007). Unlike other core subjects, Liberal Studies is at an infant developmental stage since only few schools had implemented this course before the 334 curriculum was announced. According to Yang (2005), there were only 40 schools had implemented Liberal Studies as Advanced Supplementary Level (ASL) Liberal Studies course by 1995. And up till now, Liberal Studies has only been a compulsory core subject for 4 years.

1.1.2 The Reform and Aims of Liberal Studies in Curriculum

A Curriculum and Assessment (C&A) Guide was carried out to make preparations for New Senior Secondary (NSS) curriculum (CDC, 2007). This guide stipulated the rationales and aims of Liberal Studies Curriculum, including the details of curriculum framework, planning, pedagogy, assessments and educational resources. Therefore, this C&A guide is regarded as an important handbook and guidance for implementers, schools, teachers and students to follow. In the C&A guide, it had mentioned the development of life-long learning is the core aims in Liberal Studies (Lee, 2008; Fung & Yip, 2012; Cheung, 2009 & Kennedy, 2006) in the era of globalization and ever-changing world.

Liberal Studies aims to broaden students' knowledge base and enhance their social awareness through the study of a wide range of issues. The modules selected for the curriculum focus on themes of significance to students, society and the world, designed to enable students to make connections across different fields of knowledge and to broaden their horizons. The learning experiences provided will foster students' capacity for life-long learning, so that they can face the challenges of the future with confidence. (CDC, 2007, 1)

The emphasis of life-long learning is clearly shown in the C&A guide that “life-long learning” was appeared repeatedly throughout the document. It is convinced that Liberal Studies is intended to be a subject in helping students develops life-long learning skills, so as to cope with the challenges and evolving changes in the future.

1.1.3 Creative Thinking in Liberal Studies Curriculum

In order to develop life-long learning, a range of generic skills is emphasized, such as: critical thinking skills, problem-solving skills, communication skills and information technology skills (CDC, 2007); and there is no exception that creative thinking is under the umbrella of life-long learning skills. An ASL Liberal Studies teacher had given some examples illustrating how students' generic skills can be fostered in Liberal Studies (CDC, 2007), and for creativity, it is stated, “*Liberal Studies can accommodate different ideas and viewpoints and this can help to foster students' creativity*”. In this sense, diversified ideas and multi-perspectives articulated in Liberal Studies are in favor of the development of creative thinking.

1.2 Aims of the Research

Creative thinking is one of the generic skills that planned to be developed in Liberal Studies. It is stated that by the end of studying Liberal Studies, students should be able to develop their creativity and apply it in making decisions and judgments on issues and problems at both personal and social levels.

Meanwhile, the way of seeing the development of creativity in Liberal Studies is varying depends on the teaching and learning culture in different schools, and/or the perceptions of teachers and students. The new senior secondary Liberal Studies has already practiced for 4 years, the effectiveness of developing creative thinking in Liberal Studies although cannot be evaluated in this short implementation period, the practice and development of creative thinking in Liberal Studies are still worthwhile to be discussed by asking for the perceptions of teachers and students, i.e. how do teachers and students view creative thinking in Liberal Studies.

Subsequently, the research aims to investigate the views of teachers and students towards creative thinking in Liberal Studies; examine the development of creative thinking in Liberal Studies in terms of its nature, lessons and assessments and identify the difficulties and constraints in the developments of creative thinking in Liberal Studies regarding to its implication for learning in Liberal Studies.

1.3 Research Questions and Design

In order to achieve the aims of the research, the focus will be narrowed to Liberal Studies teachers and Senior Secondary students (Secondary 4 – 6) who are required to study Liberal Studies. Before carrying out the study, definitions of creative thinking from literature will be needed as a basis for analyzing different views upon the concepts of creativity; while with the use of the results in pilot study, a holistic questionnaire can be set with divergent definitions of creativity. Hence, it may be evidence of different understanding of creativity and its importance in education, which links to the hypothesis 1¹ (see Chapter 3.4 Data Collected for Analysis).

Another central point comes to the development of creativity in Liberal Studies, there are a plenty of creative thinking techniques and assessments to evaluate creative thinking in education. By examining the nature, lessons and assessments of Liberal Studies, we can discuss whether the facet of creative thinking is reflected in Liberal Studies and its implication in Liberal Studies. It is believed that teachers have more understanding than students upon Liberal Studies subject and the aims of Liberal Studies stated in the curriculum guide, thus hypothesis 2² and hypothesis 3³ are stated (Craft, 2008).

Last but not least, one of the key research questions is to study whether there are difficulties in developing creativity in Liberal Studies. Thus possible problems and constraint of implementing creativity in education will be discussed accompanied by hypothesis 4⁴, thereby raising concern on the development of creative thinking in Liberal Studies and Students' learning.

¹ Hypothesis 1: Teachers and students would have a different definition of creative thinking.

² Hypothesis 2: Teachers would think there is a positive relationship between LS and creative thinking.

³ Hypothesis 3: Students would think there is a negative relationship between LS and creative thinking.

⁴ Hypothesis 4: There are some difficulties of developing creative thing in Liberal Studies.

1.4 Significances of the Study

Throughout the findings from this research, our understanding of the relationship between Liberal Studies and creative thinking will be facilitated. Guilford (1968, p.147) stated "*creativity is the key to education in its fullest sense and to the solution of mankind's most serious problems*", it is convinced that creative thinking help facilitate students' learning and it is closely interrelated to education field. Meanwhile, studies upon Creativity in Liberal Studies are insufficient. This research pays attention to the relationship between Liberal Studies and creative thinking, thereby filling up the contemporary information gap.

The research primarily reviews the relationship of creativity and Liberal Studies, by then, the conceptions of creative thinking can be uncovered in the development of Liberal Studies. It helps understand teachers' and students' perception of creative thinking and discuss whether there is a concept gap in between. It is believed that the concept gap may affect the communication, even hinder the development of creative thinking.

By examining the perceptions and development of creativity in Liberal Studies, teachers would be more able to realize the views of students and difficulties of developing creative thinking. Thus, teachers can carry out some refinements, such as lesson plans, teaching materials, and/or teaching styles. In other words, this research can regard as an insight into educational implication.

CHAPTER 2 LITERATURE REVIEW

Despite the importance of creative thinking and long history of research, there are still no universal definitions upon creative thinking. There was no enough attention is being given to nurture creativity until these recent years that the importance of creative thinking has started to gain significance (Kilgour, 2008), “*The rapid pace of environmental change, and the need to develop a society that is open to that change, has necessitated the need for sound research into the field.*” In this following chapter, the diversified concepts of creative thinking will be generated for more understanding, especially in the educational dimension. The principles and techniques of creative thinking will also be presented in order to carry out a further discussion about the development of creative thinking in Liberal Studies and its difficulties.

2.1 Definitions of Creative Thinking

2.1.1 *General Definitions of Creative Thinking*

As mentioned before, “creative thinking” consists of a variety of definitions; but one of the agreements in the literature is that creative thinking is *multifaceted* (Anwar, Aness, Khizar, Naseer, & Muhammad, 2012; Chan, 2005 & Kilgour, 2008). It can be defined into different aspects, such as ability, skill, mechanism of thinking (i.e. process) and a state of production (i.e. result, outcome).

Historically, people believed creative thinking is a given talent that the study of creativity was linked with the idea of genius (Kilgour, 2008). Thus, some researchers suggested that creative thinking was an inherent talent that some people born with and needed to be recognized (Guilford, 1968). In addition, the relationship between creativity and academic achievement is consistent with each other that with higher achievement, creativity tends to be more positive (Anwar, Aness, Khizar, Naseer, & Muhammad, 2012). According to Sternberg and Lubart (1999), creativity is the ability to create product or produce work that is “*novel*”, corresponding to the context in which it exists, and “*appropriate*”. Ilyin (2009) suggested that it is the man’s ability to *generate unusual ideas*

from original solutions and to *deviate from traditional schemes of thinking*. While Ageyev (2012) regarded creativity as “*the man’s ability to make himself, his abilities, his psychic action the product of generation*”. Generally, to describe the ability of creativity, it involves four components: (a) Fluency (ideas generation); (b) Flexibility (multiple perspectives and variety of ideas); (c) Originality (novel/unusual elements); and (d) Elaboration (development upon existing ideas) (Anwar, Aness, Khizar, Naseer, & Muhammad, 2012; Chan 2005; Kilgour, 2008 & Torrance, 1988).

Meanwhile, with the attention to the study of creative thinking, some claimed that creative thinking is a skill that everyone has the potential to be creative (Craft, 2001) through teaching activities and strategies (Anwar, Aness, Khizar, Naseer, & Muhammad, 2012). For instance, in collaborative learning, more ongoing dialogue and social interaction among group can contribute to creativity (Clayburn, Ervay, & Albrecht, 2012 & Craft, 2008). In a sense, creative thinking is one of the generic thinking skills of “*flexibility, originality, fluency, imagery, associative thinking, attribute listing, metaphorical thinking and forced relationships*” (Anwar, Aness, Khizar, Naseer, & Muhammad, 2012 & Chan, 2005).

On the other hand, creativity is defined as the mental and cognitive process in mechanism of thinking. It is “*an interpersonal and intrapersonal process by which original, high-quality and genuinely significant products are developed*” (Van Hook & Tegano, 2002). Creative thinking is indeed a way of generating ideas and a locus of *curiosity, imagination, complexity and risk-taking* (Chan, 2005). Rowlands (2011) defined creativity as a construction process including “*rational insight*”, “*symbolic thought*”, and “*metaphoric perception*”. Consequently, creative thinking operates in the processes of “*conceptual combination, conceptual expansion, metaphor, analogy and mental model construction*”, apart from the formation of novel ideas only.

Differently from process-oriented creative thinking, some may believe in product-oriented one and suggest that creative thinking is a state of production (Sternberg & Lubart, 1999; Chan, 2005; Kilgour, 2007 & Lin 2011). Creative thinking is defined as a trait of human and product with originality and appropriateness (Kilgour, 2007; 2008 & Chan, 2005). Originality is the criterion to measure creative thinking, which was firstly recognized and widely agreed to. People look at the output of the creative thinking as final product for measurement in terms of unusualness. Nevertheless, there are some problems on evaluation due to the inappropriateness of ideas in the situation. Taking account of the problems, the concept of appropriateness was then suggested and extended to measure the values of ideas (Kilgour, 2007 & 2008).

2.1.2 The Importance of Creative Thinking

The ever-changing 21st century has a call for transformation and sustainability in economic, social or cultural aspect. Creative thinking is regarded as a force or capacity to “*think beyond constraint, and then to render as real*” (Diamond, 2007). Kilgour (2007) also supposed that creative thinking is essential “*human capital*” in this turbulent global environment, for example, fostering creativity can stimulate curiosity and promote divergence (Anwar, Aness, Khizar, Naseer, & Muhammad, 2012) in order to help deal with ambiguous problems, cope with fast changing world and uncertainty of future, and get rid of intensifying competition (Shaheen, 2010). The way to deal with this rapidly changing society is to get used to and understand the creative process, hence, to discover how globalization, social imaginary influence our society, culture and to improve daily life (Appadurai, 1999).

2.2 The Principles of Creative Thinking in Liberal Studies

Creativity has been raised concerns in education and put into practice of educational policy. In Hong Kong, creative thinking is one of the generic thinking skills to be developed in preschool, primary and secondary education (Shaheen, 2010). It is set as an aim in Liberal Studies Subject so as to prepare students for the competitive era by training up their life-long learning skills (CDC, 2007). Stated in the curriculum guide, by the end of learning Liberal Studies, students would be able to:

identify the values underlying different views and judgments on personal and social issues, and apply critical thinking skills, creativity and different perspectives in making decisions and judgments on issues and problems at both personal and social levels; analyze issues (including their moral and social implications), solve problems, make sound judgments and conclusions and provide suggestions, using multiple perspectives, creativity and appropriate thinking skills (CDC, 2007, 124)

With regard to its objective, creative thinking is viewed as a skill and/or ability correlating to problem solving, judgment and suggestion, multiple perspectives and critical thinking skill which links to the components of creative thinking – fluency, flexibility, originality and elaboration (Kilgour, 2008).

Some researchers had conducted studies in discussing the relationship between creativity and education; they shared the same ideas about the principle of creative thinking in the context of education as well as in Liberal Studies, where creativity is promoted for the sake of higher-order thinking skills like problems solving skills and critical thinking skills (Ageyev, 2012; Anwar, Aness, Khizar, Naseer, & Muhammad, 2012; Craft, 2001; Chan, 2005; Lin, 2011 & Shaheen, 2010). Kilgour (2008) introduced a creativity process model: with creativity, people can identify ill-defined problems (Stage 1 – Problem Definition), generate multiple ideas or possibilities (Stage 2 – Idea Generation), justify and evaluate the ideas (Stage 3 – Idea Refinement) and thus come up with solutions to the problems (Stage 4 – Idea Expression) in the end (Craft, 2001; 2005; Kilgour, 2008 & Marjala, Kisko, & Haapasalo, 2007).

According to the creativity framework of the Qualification and Curriculum Authority (QCA) in England (Craft, 2005), creativity involves students in:

- *questioning and challenging;*
- *making connections, seeing relationships;*
- *envisaging what might be;*
- *exploring ideas, keeping options open; and*
- *reflecting critically on ideas, actions, outcomes.*

The constructive, problem-based and collaborative learning serve another way in contributing to the development of creative thinking (Clary, Brzuszek, & Fulford, 2011& ICE House, 2011), which are encouraged in Liberal Studies as well.

2.3 Creative Thinking Techniques in Education

Creative thinking is considered as skills or process in education field that it can be trained up or fostered by pedagogical approaches. Nonetheless, unlike traditional teaching or content instruction, enhancing creative thinking process requires different techniques. There are plenty of techniques used by practitioners, namely *free association, divergent thinking, synectics, analogies, metaphors and the like* (Chan, 2005; Kilgour, 2007; 2008 & Parnes, 1992).

Osborn Parnes Creative Problem Solving process (CPS) is a widely used application for divergent thinking and creativity pedagogy (Clary, Brzuszek, & Fulford, 2011; Kilgour, 2007; 2008 & Zhou & Luo, 2012). Teachers can use real cases and situations to encourage students' problem identification skills so as to create own understanding of knowledge.

While some techniques are put into pedagogical practice in order to stimulate pupils' creativity on idea generation, for example, six thinking hats developed by Edward De Bono and brainstorming technique developed by Osborn (Lin, 2011). These are commonly exercised in schools to inspire students and generate more alternative ideas for the development of innovation and imagination. In the meantime, synectics treats as further move for idea refinement to help bring novel information and ideas into recognized context (Chan, 2005). In Liberal Studies curriculum guide (CDC, 2007), it is suggested that teachers can make use of mental tools (e.g. mind maps, thinking models) or apply skills to tasks (e.g. problem solving tasks, creative processes) optionally for the development of generic skills.

Apart from pedagogical approaches and strategies, including creative and innovative practices, environment and teacher ethos are also concerned in nurturing creativity (Lin, 2011). It is believed that environment should not be neglected to stimulate learners' motivation and creative behavior; at the same time, teachers' open attitude and humanistic values upon creative ideas and behaviors also play role in encouraging students' creative thinking (Craft, 2005 & Lin, 2011).

2.4 Difficulties Faced in Creativity Development in Formal Education

No standardized definitions and assessments to creative thinking imply the complexity and challenges on the development of creativity. Guilford (1968) mentioned, "*we have little actual knowledge of what specific steps should be taken in order to teach students how to think*", due to our lack of understanding, it is difficult to develop a consensus of opinion towards the teaching strategies and assessments (Craft, 2005; 2008 & Kilgour, 2008).

The perspectives of creativity (Craft, 2005; 2008) raise tension of creativity development in formal classroom. Some view creativity as marketized discourse and socially valued product, in the assumption that creativity contributes to social development. It emphasizes the individuality, competitiveness and market-oriented values, where the value of ideas and behaviors are judged by market and social values. By the end, education serves as status quo and means rather than encouraging independence of judgment.

Another dilemma arises from the relationship between knowledge, the curriculum and creativity (Craft, 2005). Curriculum works as guidance for practitioners to follow, the aims and educational goals in curriculum are focus for teachers to consider their scheme of work, pedagogy and frameworks. In other words, it is a question on what should be emphasize in the curriculum and the way that practitioners interpret the curriculum. If creativity is not highly prioritized in the curriculum, teachers may not pay attention to creativity development. Moreover, teacher knowledge and the way to deliver knowledge may influence creativity. Some studies (Craft, 2005; 2008) showed the evidence that insufficient or inadequate knowledge of both teachers and students would limit their creativity; however, spoon-feeding or rote knowledge cannot foster creativity. Hence, questions of "*how deep should teachers understand on the subject? How much knowledge do students need? How can teachers teach in order to promote creativity?...*" raise concern in creative education.

CHAPTER 3 METHODOLOGY

3.1 Research Sample

The research lasted from the Late October 2012 to the Middle of May 2013. Since the research targets on the views of teachers and students, it involves teachers' and students' opinions that both are the targeted group in the data collection part.

Due to the limited resources and the small scale of study, the data collection carried out in the contemporary teaching practicum (TP) school (SKHCYSS), ex-TP schools (SKHMSTSS and IHMC) and the University of Hong Kong during the teaching practicum, from the Middle of February to the Middle of April 2013.

Around 80 senior secondary students (S.4 – S.6 in the school year of 2012-2013) in SKHCYSS and IHMC were involved in the study; while Liberal Studies teachers (25 teachers from SKHCYSS, SKHMSTSS and IHMC, and student teachers of the University of Hong Kong) took part in the research to express their ideas.

3.2 Research Instruments & Procedures

3.2.1 Research Instruments

A quantitative approach is used in a format of questionnaire for both teachers and students. The questionnaire contains three major parts – Part (1) Own interpretation of Creative thinking; Part (2) Creative thinking in Liberal Studies (LS) subject; and Part (3) Difficulties in applying of Creative thinking upon Liberal Studies.

80 questionnaires (See Appendix I & II) were distributed to students in SKHCYSS and IHMC during the teaching practicum. 50 questionnaires (See Appendix III & IV) were distributed to 25 teachers who teach Liberal Studies in SKHCYSS, IHMC and SKHMSTSS, and 25 student teachers who study Liberal Studies in the Faculty of Education at the University of Hong Kong. Both English and Chinese Versions of questionnaires are available for participants.

3.2.2 Pilot Study

Before setting up the questionnaire, a pilot study was conducted in order to evaluate feasibility, time, cost, and variability so that improvement of the study design could be made prior to the actual research project. 15 participants were asked to take part in the study that only 13 participants had made valid responses. Those participants were picked randomly from relevant population, but did not involve in the final sample to avoid any influence of the research. Generally, more options of the conceptions of creative thinking and the difficulties of applying creativity in the light of Liberal Studies subject were added in the final questionnaire.

3.2.3 General Questionnaire Design

In the questionnaires, they were asked: (Part 1) to clarify their own definition of creative thinking; (Part 2) to examine their views and assessments of students' creativity in Liberal Studies; and (Part 3) to discuss the difficulties or constraints towards the development of creativity in Liberal Studies. Students were asked to respond to the multi-item statements in part 1 and 2 using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

3.2.4 Design of Part 1 Questions

In part 1 of the questionnaire, participants need to rate their extent of agreement on the (i) general definitions of creative thinking, (ii) the conditions of creative thinking and (iii) the functions of creative thinking.

3.2.5 Design of Part 2 Questions

Part 2 considers the relationship between Creative thinking and Liberal Studies; participants will examine the (i) aims of Liberal Studies subject, (ii) the assessment of Liberal Studies and (iii) the Liberal Studies lessons to evaluate the importance of creative thinking in the subject.

3.2.6 Design of Part 3 Questions

Twelve possible difficulties and one "others" option are listed in part 3 of the questionnaire. Participants may discuss the difficulties and constraints upon the development of creative thinking in Liberal Studies.

3.3 Rationales of Methodology

In order to compare and contrast the views of teachers and students, two sets of questionnaire are set up. Albeit the changes of the subject in the questionnaires (e.g. "I assess students' creative thinking" in teachers' questionnaire changes into "Teachers assess students' creative thinking" in students' questionnaire), the questions are asking for the same points of view. In this way, a holistic picture among teachers and students can be shown and compared after the data collection.

3.4 Data Collected for Analysis

In addition to the descriptive statistics, reliability, validity and correlation measure would be used to verify the hypothesis with analysis; and the 5% level of significance will be used for the statistical test. The results were interpreted by investigating the following hypotheses:

- HO 1.** Teachers and students would have a different definition of creative thinking.
- HO 2.** Teachers would think there is a positive relationship between LS and creative thinking.
- HO 3.** Students would think there is a negative relationship between LS and creative thinking.
- HO 4.** There are some difficulties of developing creative thing in Liberal Studies.

CHAPTER 4 DATA FINDINGS AND RESULTS

In this chapter, the data gathered from the teachers and students in response to the research questions (see Chapter 1.3) and hypothesis (see Chapter 3.4). The scores of both questionnaires and data's reliability and validity were analyzed by Cronbach's alpha coefficient and factor analysis techniques respectively. Before the analysis and discussion, descriptive statistics (e.g. response rate and respondents' demographics) would be presented. The conduct of this study entails a detailed account of the demographic profile of the respondents. It is assumed that the attributes of the respondents influence their behaviours and answers on the questions. Hence, the Pearson Correlation Coefficient was also calculated to investigate the correlation between teachers' and students' conceptions and other possible correlations between different demographic profile and their views. While Independent sample *t*-test was used to compare the gender variances in the conceptions.

4.1 Reliability & Validity

4.1.1 Reliability

The reliability (using Cronbach's alpha) for all questions on the two questionnaires was examined. A figure of .866 emerged for students' questionnaire and .847 for teachers' questionnaire. It is suggested that the questionnaires were well constructed and the scales have a high level of internal consistency, given that an alpha of .8 is reasonably desirable (George & Mallery, 2003).

For two groups, scopes of part 1 and part 2 were taken out to determine different conceptions mentioned in previous chapters, and the reliability scale with descriptive statistics are shown in Table 1. The correlation coefficient of subscales for students group ranged from .644 (Definitions scale) to .880 (LS Aims scale) with a mean of .742. The coefficient for the teachers group ranged from .660 (Definitions scale) to .853 (Benefit scale) with a mean of .745. The mean scales are above the level of .7 represent the reliability is acceptable (George & Mallery, 2003).

Table 1: Reliability Scale and Descriptive Statistics

Scope	Subscale - Conceptions	Descriptive Statistics			Descriptive Statistics		
		Students Group (n=68)			Teachers Group (n=41)		
		α	M	SD	α	M	SD
Part 1. Concepts of Creativity	Definitions	.644	3.7104	.38222	.660	3.5891	.36350
	Relationship in Learning	.675	3.3739	.46112	.690	3.5122	.42735
	Benefits	.694	3.9534	.51418	.853	4.0163	.50663
Part 2. Creativity in Liberal Studies (LS)	LS Aims	.880	2.8277	.72237	.829	3.2822	.63285
	LS Assessment	.859	2.8627	.74921	.762	3.1463	.63486
	LS Lessons	.699	3.1897	.48319	.674	3.5268	.38212

4.1.2 Validity

The validity of the scale for both students and teachers groups were obtained from a Principle Component factor analysis, with a rotation in a Varimax with Kaiser Normalization. Tables 2 and 3 reflected the results of the factor analysis for the students and teachers groups. The subscale were arranged and referred to two parts: own interpretation of creative thinking and the views upon creative thinking development in Liberal Studies (LS) subject. For the students group, Factor 1 was dominated by Part 2 Perception (LS Aims, LS Assessment and LS Lessons) in highly positive value. Factor 2 was directed by Part 1 Conception (Definition, Relationship in Learning and Benefits). All factors loading are positive. The factors explained 66.3% of the variance. For the teachers group, the results were similar to the students group, while Factor 1 was mainly Part 1 Conceptions with LS Aims in Part 2, and Factor 2 was dominated by Part 2 Perception. The factors explained 71% of the variance.

Table 2: Factor Structure for the Students Group

Part	Subscale	Factor Structure Matrix	
		Factor 1	Factor 2
Part 1	Definitions		.815
Part 1	Relationship in Learning		.492
Part 1	Benefits		.766
Part 2	LS Aims	.926	
Part 2	LS Assessment	.939	
Part 2	LS Lessons	.796	
Variances explained (%)		41.076	25.217
Cumulative (%)		41.076	66.293

Note: (1) Extraction Method: Principal Component Analysis. (2) Rotation Method: Varimax with Kaiser Normalization. (3) Variables with factor loading of less than | .30 | were omitted.

Table 3: Factor Structure for the Teachers Group

Part	Subscale	Factor Structure Matrix	
		Factor 1	Factor 2
Part 1	Definitions	.857	
Part 1	Relationship in Learning	.794	
Part 1	Benefits	.803	
Part 2	LS Aims	.302	.821
Part 2	LS Assessment		.868
Part 2	LS Lessons		.820
Variances explained (%)		35.931	35.289
Cumulative (%)		35.931	71.220

Note: (1) Extraction Method: Principal Component Analysis. (2) Rotation Method: Varimax with Kaiser Normalization. (3) Variables with factor loading of less than | .30 | were omitted.

4.2 Response Rate

80 student's questionnaires were distributed to students that 68 surveys were collected and valid, the response rate is 75%; while 41 out of 50 teacher's questionnaires (21 were student-teachers and 20 were contemporary teachers) were considered to be legitimate for this research, resulting in a 82% response rate. Those invalid or unusable questionnaires were either blank or only partially completed with major portions of the questionnaires blank or all the options were blacken in which the extent of agreement on the statements cannot be interpreted and analyzed.

4.3 Respondents' demographics

4.3.1 Age of Respondents

Students

Among students, most of the respondents were 16 years old (54%), 22% of respondents were 15 years old, 18% of them were 17 years old and only 6% of the respondents were 18 years old.

Teachers

61% of respondents in teachers' survey were 20-29 years old, which were the majority within the participants. 10 teachers were in 30-39 year-old age group (24%); and 5 teachers in 40-49 year-old group (12%). 3 % of them were 50 years old or above and no teachers aged below 20 years old.

4.3.2 Gender of Respondents

Students

The number of the female respondents (51%) is closed to the male (49%) with the total of 35 for female and 33 for male.

Teachers

The dominated gender among the respondents is male. Based on the collated questionnaires, over a half of the population (61%) is composed of male respondents while 39% are females.

4.3.3 Student's Parents Socio-Economic Status

In students' questionnaire, students were required to respond to his/her parents' socio-economic status, and the results are shown below (Table 4).

Table 4: Students' Parent Socio-Economic Status

Socio-Economic Status	Respondent's Father (%)	Respondent's Mother (%)
Junior Secondary School or below	28 (41%)	25 (37%)
Senior Secondary / High School	24 (35%)	39 (57%)
Bachelor's Degree	8 (12%)	3 (4%)
Master's Degree	7 (10%)	0 (0%)
Doctor's Degree or above	1 (2%)	1 (2%)
Total	68 (100%)	68 (100%)

Table 4 shows students' parents mostly finished Senior Secondary or below. 41% of respondent's father studied junior secondary or below, 35% were senior secondary / high school level; while more respondent's mother attained senior secondary level than junior secondary or below, which were 57% and 37% respectively. More respondent's father has higher educational attainment than mother, 12% and 10% of respondent's father finished Bachelor's Degree and Master's Degree respectively, meanwhile, only 4% of respondent's mother finished Bachelor's Degree and no mother got Master's Degree. Only one respondent's father or mother has Doctor's Degree or above.

4.3.4 Teacher's Teaching Experience

Teacher's teaching experience was one of the possible factors in influencing teachers' view upon the research questions, thus, years of teaching (up to 2012-2013 academic year) were asked in the survey. In Table 5, 32% of the teachers had just taught for less than 1 year, 29% and 17% of them had 1-5 years and 6-10 years teaching experience accordingly. 3 teachers had taught for 11-15 years (7%) as the same proportion as for 21-25 years. Only 5% and 3% of them had taught for 16-20 years and 26-30 years respectively. No teachers had been teaching for 31 years or above.

Table 5 Teachers' Teaching Experience

Teaching Experience	Percentage (%)
Less than 1 year	32
1 – 5 years	29
6 – 10 years	17
11 – 15 years	7
16 – 20 years	5
21 – 25 years	7
26 – 30 years	3
31 years or above	0
Total	100

4.4 Relationships between Different Conceptions

4.4.1 Relationship between Teachers' and Students' Conceptions

Teachers and students questionnaires were distributed to determine the conceptions of creative thinking and its development in Liberal Studies. In light of this, the correlation between students' and teachers' views was concerned by using the Pearson Correlation Coefficient (Pearson's r). From Table 6, there is generally a negative relationship between students' and teachers' views although some results were not statistically significant. It is significant to state that students' views on the creative thinking in learning was negatively correlated with teachers' definition on creative thinking ($r=-.370$, $p<.05$) and the benefits of creative thinking ($r=-.321$, $p<.05$). Therefore, there is a conception gap of creative thinking definitions between teachers and students, and hypothesis 1⁵ is valid.

⁵ Hypothesis 1: Teachers and students would have a different definition of creative thinking.

Table 6 Correlation Matrixes Amongst Students and Teachers (Definitions, Relationship in Learning, Benefit, LS Aims, Assessment & Lesson)

Variables	SDef	SRelation	SBenefit	SLS_Aim	SLS_Assess	SLS_Lesson	TDef	TRelation	TBenefit	TLS_Aim	TLS_Assess	TLS_Lesson
SDef	1											
SRelation	.257*	1										
SBenefit	.373**	.096	1									
SLS_Aim	.140	.175	-.105	1								
SLS_Assess	.080	.234	-.180	.837**	1							
SLS_Lesson	.144	.007	.081	.639**	.635**	1						
TDef	-.053	-.370*	-.019	-.162	-.283	-.201	1					
TRelation	-.167	-.211	-.075	-.115	-.154	-.099	.556**	1				
TBenefit	-.147	-.321*	-.040	-.042	-.128	-.110	.524**	.480**	1			
TLS_Aim	.154	-.179	-.074	.019	-.038	.025	.268	.273	.264	1		
TLS_Assess	-.027	.076	-.107	.223	.120	.083	-.163	.033	-.094	.576**	1	
TLS_Lesson	.018	-.195	-.179	.123	-.036	.069	.124	.078	.219	.568**	.535**	1

Note: (1) First Initial of the variables stands for either students (S) or teachers (T). (2) Names after the first initial of the variables are short form of all subscale categories.

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

4.4.2 Correlation between Definition, Relationship in Learning and Benefit

In Table 6, students' definitions of creative thinking were positively related to students' views upon the relationship of creative thinking in learning ($r=.257, p<.05$) and the benefits of creative thinking ($r=.373, p<.01$). There was a similar result in teachers' views; the definitions of creative thinking were significantly correlated to teachers' views upon the relationship of creative thinking in learning ($r=.556, p<.01$) and the benefits of creative thinking ($r=.524, p<.01$). Teachers' views on creative thinking in learning were also positively linked to the benefits of creative thinking ($r=.480, p<.01$)

4.4.3 Correlation between Creative Thinking in LS Aims, Assessments and Lessons

Table 6 also indicated the views on creative thinking development in the aims of LS, LS assessment and lessons. Students' views on the creative thinking in LS aims were significantly correlated to the views on creative thinking in LS assessment ($r=.837, p<.01$) and lessons ($r=.639, p<.01$). Moreover, students' views upon creative thinking in LS assessment were also positively related to one in LS lessons ($r=.635, p<.01$). Again, similar to the students' views, teachers' views on the creative thinking in LS aims were significantly correlated to the views on creative thinking in LS assessment ($r=.576, p<.01$) and lessons ($r=.568, p<.01$). And teachers' views in LS assessment with creative thinking were significantly correlated with views in LS lessons ($r=.535, p<.01$).

4.4.4 Correlation between Teacher's Age Group and Conceptions

Teachers' age group was negatively related to different conceptions, it is significantly stated in Table 7 that the teachers' age was negatively correlated to the views upon creative thinking development in LS aims ($r=-.361, p<.05$) and LS assessment ($r=-.332, p<.05$).

4.4.5 Correlation between Teachers' Teaching Experience and Conceptions

Similar to the result of Table 7, teachers' teaching experience (see Table 8) was negatively correlated to the views upon creativity in LS aims ($r=-.369, p<.05$) and assessment ($r=-.387, p<.05$).

Table 7 Correlation Matrixes Amongst Teachers' Age Group and Conceptions

Variables	Age Group	TDef	TRelation	TBenefit	TLS_Aim	TLS_Assess	TLS_Lesson
Age Group	1						
TDef	-.223	1					
TRelation	-.252	.556**	1				
TBenefit	-.188	.524**	.480**	1			
TLS_Aim	-.361*	.268	.273	.264	1		
TLS_Assess	-.332*	-.163	.033	-.094	.576**	1	
TLS_Lesson	-.058	.124	.078	.219	.568**	.535**	1

Note: (1) First Initial of the variables stands for either students (S) or teachers (T). (2) Names after the first initial of the variables are short form of all subscale categories.

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

Table 8 Correlation Matrixes Amongst Teachers' Teaching Experience and Conceptions

Variables	Teaching Experience	TDef	TRelation	TBenefit	TLS_Aim	TLS_Assess	TLS_Lesson
Age Group	1						
TDef	-.201	1					
TRelation	-.108	.556**	1				
TBenefit	-.199	.524**	.480**	1			
TLS_Aim	-.369*	.268	.273	.264	1		
TLS_Assess	-.387*	-.163	.033	-.094	.576**	1	
TLS_Lesson	-.151	.124	.078	.219	.568**	.535**	1

Note: (1) First Initial of the variables stands for either students (S) or teachers (T). (2) Names after the first initial of the variables are short form of all subscale categories.

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

4.4.6 Correlation between Students' Family Socio-Economic Status and Students' Conceptions

There were no significant relationships between students' family socio-economic status (SE status) and their views, neither the father's SE status nor the mother's SE status does.

4.5 Gender Differences in Conceptions

Independent sample *t*-test was used to explore the differences in gender upon the conceptions.

Tables 9 and 10 both indicated that there is no sex difference in all the six creative thinking scores.

Table 9 Means of Creative Thinking Scores for Male and Female Students

Variables	Gender	Descriptive Statistics			
		N	Mean	Std. Deviation	Std. Error Mean
SDef	Male	33	3.6667	.37570	.06540
	Female	35	3.7516	.38915	.06578
SRelation	Male	33	3.4675	.43488	.07570
	Female	35	3.2857	.47380	.08009
SBenefit	Male	33	4.0404	.42293	.07362
	Female	35	3.8714	.58170	.09833
SLS_Aim	Male	33	2.8009	.83065	.14460
	Female	35	2.8531	.61444	.10386
SLS_Assess	Male	33	2.8788	.82208	.14311
	Female	35	2.8476	.68525	.11583
SLS_Lesson	Male	33	3.1818	.54741	.09529
	Female	35	3.1971	.42182	.07130

Note: (1) First Initial of the variables stands for either students (S) or teachers (T). (2) Names after the first initial of the variables are short form of all subscale categories.

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

Table 10 Means of Creative Thinking Scores for Male and Female Teachers

Variables	Gender	Descriptive Statistics			
		N	Mean	Std. Deviation	Std. Error Mean
TDef	Male	25	3.5846	.35875	.07175
	Female	16	3.5962	.38256	.09564
TRelation	Male	25	3.4743	.42802	.08560
	Female	16	3.5714	.43331	.10833
TBenefit	Male	25	4.0067	.50799	.10160
	Female	16	4.0313	.52075	.13019
TLS_Aim	Male	25	3.1143	.57291	.11458
	Female	16	3.5446	.64990	.16247
TLS_Lesson	Male	25	3.4960	.36910	.07382
	Female	16	3.5750	.40906	.10227
TLS_Assess	Male	25	3.0133	.59884	.11977
	Female	16	3.3542	.65228	.16307

Note: (1) First Initial of the variables stands for either students (S) or teachers (T). (2) Names after the first initial of the variables are short form of all subscale categories.

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

4.6 Different Interpretations of Creative Thinking

4.6.1 Different Conceptions between Students and Teachers

Since the correlation test showed there is negative relationship between students' and teachers' conceptions, in order to investigate students' and teachers' views upon the interpretation of creative thinking (Part 1 of questionnaire) more specifically, the means of students' view and teachers' views upon the concepts of creative thinking was calculated by independent sample *t*-test. There were significantly different between students' and teachers' conceptions in the selected items (see Table 11).

Table 11 Means of Interpretation of Creative Thinking for Students and Teachers

Items	Role	Descriptive Statistics		
		N	Mean	SD
1. Creative thinking is a self-learning ability. *	Students	68	3.65	.091
	Teachers	41	3.44	.144
2. Creative thinking is unique, innovative thinking skill. ***	Students	68	4.31	.073
	Teachers	41	4.15	.075
16. Creative thinking can be cultivated or trained up. ***	Students	68	3.31	1.040
	Teachers	41	3.85	.691
22. Creative think improves problem-solving skill. **	Students	68	3.78	.808
	Teachers	41	4.00	.632
23. Creative thinking builds up personal style or creation. **	Students	68	4.28	.730
	Teachers	41	4.20	.511
24. Creative thinking fastens human development. *	Students	68	4.15	.868
	Teachers	41	4.05	.740
26. Creative thinking is kind of indispensable ability. ***	Students	68	3.69	.885
	Teachers	41	4.00	.671

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

The means scores reflected the extent of agreement (1 to 5) upon the selected items from Table 11; the higher the mean score, the greater the agreement on the items. In part 1 of the questionnaire, students tend to have higher scores in items 1, 2, 23 and 24, they were more likely to agree on creative thinking as self-learning ability (M=3.65, SD=.091) and unique thinking skills (M=4.31, SD=.073) to builds up personal style (M=4.28, SD=.730) or creation and fastens human development (M=4.15, SD=.868). Meanwhile teachers have higher score in items 16, 22 and 26, they tended to agree that creative thinking is kind of indispensable ability (M=4.00, SD=.671) can be cultivated (M=3.85, SD=.691) to improve problem-solving skill (M=4.00, SD=.632).

4.6.2 Different Conceptions between Student-teachers and Teachers

From previous findings, there was negative correlation between teachers' age (also the teaching experience) and their conceptions. Table 12 revealed the different conceptions among student-teachers and teachers. Student-teachers have higher scores in items 12, 21 and 23, they believed creative thinking is not limited into any formats (M=4.29, SD=.171) and can builds up personal style or creation (M=4.24, SD= .136) that benefits learning (M=3.71, SD=.209). In the meantime, teachers have higher mean scores in items 9, 10 and 22, they suggested creative thinking is modern thinking that breaks tradition (M=3.80, SD=.138), old and builds up new (M=4.00, SD=.103) that improves problem-solving skill (M=4.05, SD=.088).

Table 12 Means of Interpretation of Creative Thinking for Student-teachers and Teachers

Items	Role	Descriptive Statistics		
		N	Mean	SD
9. Creative thinking is modern thinking that breaks tradition. ***	ST	21	3.52	.245
	T	20	3.80	.138
10. Creative thinking breaks old and builds up new. ***	ST	21	3.67	.211
	T	20	4.00	.103
12. Creative thinking is not limited into any formats. *	ST	21	4.29	.171
	T	20	4.20	.117
21. Creative thinking benefits learning. *	ST	21	3.71	.209
	T	20	3.65	.131
22. Creative think improves problem-solving skill. *	ST	21	3.95	.176
	T	20	4.05	.088
23. Creative thinking builds up personal style or creation. *	ST	21	4.24	.136
	T	20	4.15	.082

Note: ST: student-teachers; T: teachers

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

4.7 Different Views on Creative Thinking in Liberal Studies Subject

4.7.1 *Students' and Teachers' Views on Creative Thinking in Liberal Studies Subject*

Part 2 of the questionnaire was designed to find out students' and teachers' perceptions upon creative thinking development in Liberal Studies Subject. Table 6 had already disclosed a negative relationship between students' and teachers' viewpoints. In Table 13, selected items (Items 15, 18 and 21) were significantly revealed there were different mean scores of students' and teachers' opinions. Teachers held a more positive attitude than students did in applying creative thinking in Liberal Studies Lessons. They thought they appreciate students' creative thinking (M=4.15, SD=.615), use different materials to stimulate students' creative thinking (M=3.78, SD=.690) and appreciate the answers beyond standard answers (M=4.24, SD=.624). Hence, hypotheses 2⁶ and 3⁷ are valid.

Table 13 Means of Creative Thinking in Liberal Studies (LS) for Students and Teachers

Items	Role	Descriptive Statistics		
		N	Mean	SD
15. In LS lessons, teachers appreciate students' creative thinking. ***	Students	68	3.10	1.024
	Teachers	41	4.15	.615
18. In LS lessons, teachers use different materials to stimulate students' creative thinking. *	Students	68	3.21	.856
	Teachers	41	3.78	.690
21. In LS lessons, teachers appreciate the answers beyond standard answers. **	Students	68	3.53	.889
	Teachers	41	4.24	.624

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

⁶ Hypothesis 2: Teachers would think there is a positive relationship between LS and creative thinking.

⁷ Hypothesis 3: Students would think there is a negative relationship between LS and creative thinking.

4.7.1 Student-teachers' and Teachers' Views on Creative Thinking in Liberal Studies Subject

Tables 7 and 8 indicated a negative correlation between teachers' age (and / teaching experience) and the views upon creative thinking in Liberal Studies. Thus, Table 14 undeniably showed student-teachers had higher scores in item 2, 4, 17 and 18 than current teachers. Student-teachers tended to believe creative thinking achieves the goals in Liberal Studies that creative thinking helps students learn LS (M=3.86, SD=.573), on the other hand, LS emphasizes creative thinking more than other subjects do (M=3.38, SD=.851). Student-teachers were also more likely to agree that they use different activities (M=4.05, SD=.590) and materials to stimulate students' creative thinking (M=4.10, SD=.436) in Liberal Studies lessons.

Table 14 Means of Creative Thinking in LS for Student-teachers and Teachers

Items	Role	Descriptive Statistics		
		N	Mean	SD
2. Creative thinking helps students learn LS. **	ST	21	3.86	.573
	T	20	3.45	.999
4. LS emphasizes creative thinking more than other subjects do. *	ST	21	3.38	1.161
	T	20	2.75	.851
17. In LS lessons, I use different activities to stimulate students' creative thinking. *	ST	21	4.05	.590
	T	20	3.35	.745
18. In LS lessons, I use different materials to stimulate students' creative thinking. ***	ST	21	4.10	.436
	T	20	3.45	.759

Note: ST: student-teachers; T: teachers

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

4.8 Views on Difficulties of Creativity Development in Liberal Studies

In Part 3 of the questionnaire, respondents were requested to examine if there are any difficulties in applying creative thinking upon Liberal Studies Subject. 26% of students thought there are no difficulties while 54% of them held an opposite view. On the other hand, there is a large proportion of respondents (90%) in teachers' survey opined that there are difficulties; while 10% shared the opposite views. This represents that most of the teachers face constraints and obstacles in applying creative thinking upon Liberal Studies. Generally speaking, the majority believed the application of creativity has its pitfall; hence, the hypothesis 4⁸ is valid.

Tables 15 and 16 illustrated the agreements on the difficulties among students, teachers and student-teachers. Teachers had higher mean scores than students (see Table 14) to suggest that there are difficulties in applying creative thinking upon LS (M=.90, SD=.300). And within teachers group, current teachers had higher scores than student-teachers (M=.95, SD=.224).

Table 15 Means of Creative Thinking Difficulties in LS for Students and Teachers

Items	Role	Descriptive Statistics		
		N	Mean	SD
1. Are there any difficulties in applying creative thinking upon Liberal Studies (LS) Subject? ***	Students	68	.74	.444
	Teachers	41	.90	.300

Note: NO = 0; YES = 1

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

Table 16 Means of Creative Thinking Difficulties in LS for Student-teachers and Teachers

Items	Role	Descriptive Statistics		
		N	Mean	SD
1. Are there any difficulties in applying creative thinking upon Liberal Studies (LS) Subject? *	ST	21	.86	.359
	T	20	.95	.224

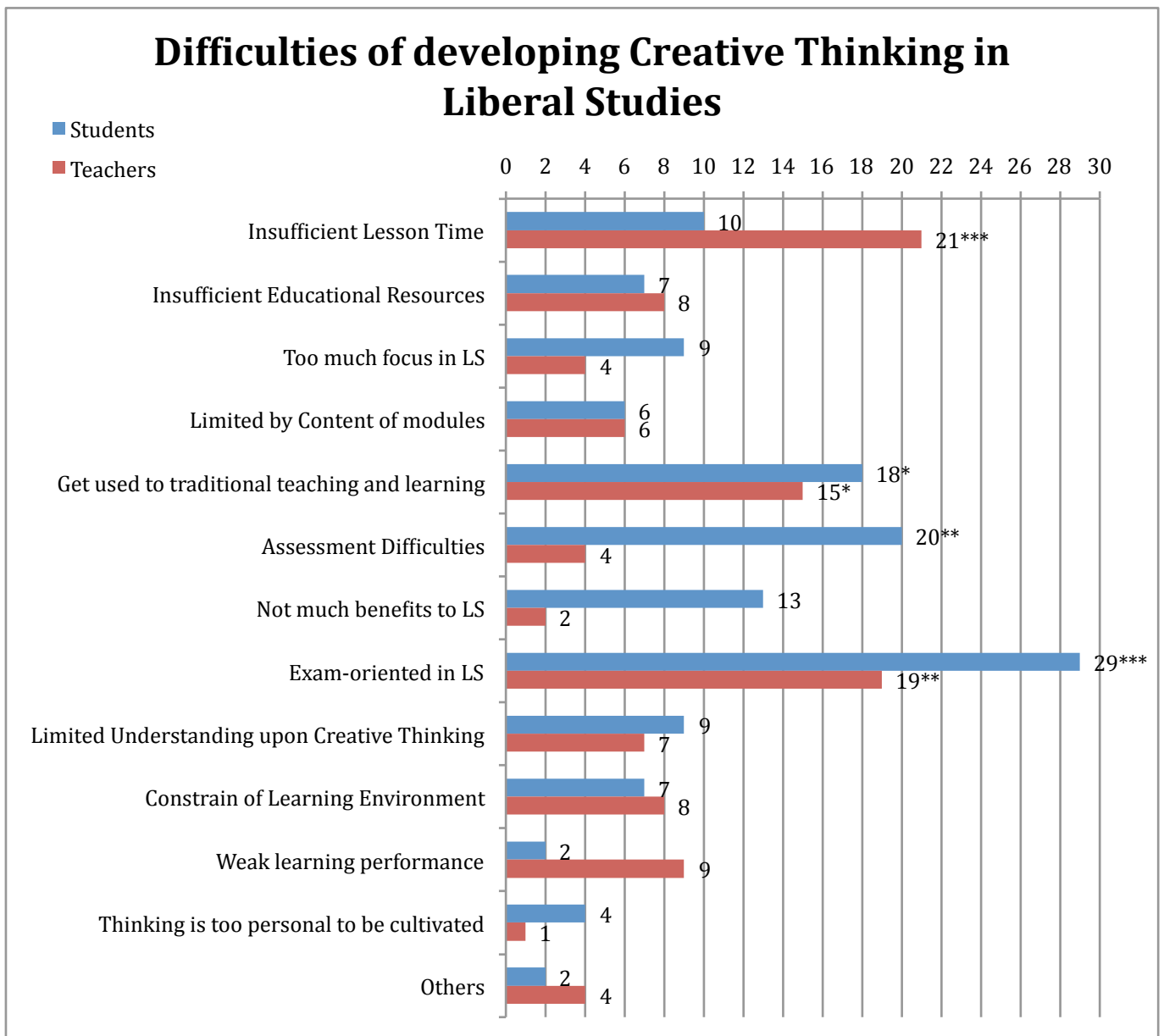
Note: (1) ST: student-teachers; T: teachers. (2) NO = 0; YES = 1.

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

⁸ Hypothesis 4: There are some difficulties of developing creative thing in Liberal Studies.

Figure 1 went further to describe the difficulties. The top 3 difficulties that students thought were “Exam-oriented in LS” (58% of 50 students), “Assessment Difficulties” (40%) and “Get used to traditional teaching and learning” (36%). While teachers considered the top 3 difficulties were “Insufficient Lesson Time” (57% of 37 teachers), “Exam-oriented in LS” (51%) and “Get used to traditional teaching and learning” (41%).

Figure 1 Difficulties of Developing Creative Thinking in Liberal Studies



*** Top 1 Difficulty; ** Top 2 Difficulty; * Top 3 Difficulty

CHAPTER 5 DISCUSSIONS

According to data findings and results, all the hypotheses are valid. There are statistically significances in reflecting different conceptions among students, teachers and student-teachers. Respondents' own interpretation of creative thinking, views upon creativity in Liberal Studies and difficulties of creative thinking application in Liberal Studies were further addressed and reviewed for discussion in this chapter.

5.1 Conceptions of Creative Thinking

The Conceptions of Creative thinking is varied by different cultures and social contexts (Niu & Sternberg, 2001), it could explain that different roles in education have different conceptions of creative thinking, including students, teachers and student-teachers.

5.1.1 Students' Conceptions of Creative Thinking

Students generally believed that creative thinking is a personal skill or unique ability that intrinsically owned by people. The results reflected that students regarded creative thinking as a creation or personal style, which is defined as "*a trait human and product*" (Kilgour, 2007; 2008 & Chan, 2005) rather than process to be cultivated. This can fasten human development with new products and creations are produced (Rojanapanich & Pimpa, 2011). Under this kind of conception, creative thinking is linked to products, which are social-valued for human development (e.g. new technical devices and inventions).

5.1.2 Student-Teachers' Conceptions of Creative Thinking

Student-teachers also agreed on the concept of product-centered in creative thinking, which is not limited into any formats. In their perspectives, creativity not only favors to human development, but also benefits learning. According to Guilford (1968), creative thinking focuses on variety and quantity of output to be measured, where shares similar ideas to the student-teachers' perspectives.

5.1.3 Teachers' Conceptions of Creative Thinking

Nonetheless, Teachers relatively believed that creative thinking is an indispensable ability for education. It is a mental and cognitive process that can be cultivated and trained up extrinsically (Fumoto, Robson, Greenfield, & Hargreaves, 2012). Teachers, unlike students, deemed creative thinking in terms of process (Torrance, 1988). They also suggested creative thinking is modern thinking that breaks tradition or old and builds up new ideas (idea generation process), which mutually benefits problem-solving skills through a process of developing novel solutions to complex problems (Chan, 2005). Craft (2001; 2005 & 2008) had identified that creative thinking is rooted to knowledge context, it is explained that new ideas generated from old framework require knowledge. Current teachers may believe experience and knowledge play vital roles in developing idea generation process to solve problems, thereby, shared different perspectives with students or student-teachers.

5.2 Creative Thinking Development in Liberal Studies

In addition to conceptions of creative thinking, teachers and students hold different perceptions in reviewing creative thinking development upon Liberal Studies.

5.2.1 Students' Perceptions of Creative Thinking Development in Liberal Studies

Students reflected that creative thinking is not much involved in Liberal Studies and teachers use traditional pedagogy, it is expected that Liberal Studies constrained by examination and traditional education context, cannot stimulate students' creativity. Kilgour (2008) also claimed that summative assessment, such as examinations, hinders students' creativity development. Moreover, the concepts of creative thinking may affect their views on creative thinking development in Liberal Studies. As mentioned above, students had productive thoughts (Newton, 2012) that treated creative thinking as product-centered that they would evaluate creativity by creations that Liberal Studies, however, emphasizes students' thinking skills and processes, which cannot be easily measured.

5.2.2 Teachers' Perceptions of Creative Thinking Development in Liberal Studies

Teachers stayed positive perceptions of creative thinking applications in Liberal Studies. They viewed creative thinking is process to develop students' ideas, therefore, they thought they had use different pedagogical approaches in stimulating students' creative thinking.

5.2.3 Student-Teachers' Perceptions of Creative Thinking Development in Liberal Studies

Student-teachers felt more sure of their creative teaching in Liberal Studies than current teachers did. It was more likely to related to student-teachers' roles and experiences. Student-teachers had less teaching experience than current teachers that they would try to explore their teaching styles and pedagogy (Lai & Lam, 2011), ergo they had more positive attitudes on applying creative thinking in Liberal Studies.

Liberal Studies, to a certain extent, is influenced by deep roots of traditional teaching and learning (Niu & Sternberg, 2001) that cannot be easily changed into a more innovative way, where both students and teachers consented to this practical constraint in developing creative thinking upon Liberal Studies.

5.3 Difficulties of Creative Thinking Development in Liberal Studies

Regarding to the perceptions of creative thinking development in Liberal Studies, some views on its difficulties were generated and expressed in the questionnaires. Generally speaking, the difficulties can be categorized into four major concerns: (1) Nature of Liberal Studies, (2) Limited Understanding, (3) Time Constraint, and (4) Learning Environment.

5.3.1 Nature of Liberal Studies hinders Creative Thinking

Students deemed to attribute the difficulties to the nature of Liberal Studies Subject, the assessment and traditional teaching. Most students believed that “*exam-oriented in Liberal Studies*” is the most crucial barrier to apply creative thinking and “*assessment on creativity*” was the second obstruction in developing creativity. Students got used to “*traditional teaching and learning*” made the application of creative thinking difficult. This implies that there is a negative relationship between Liberal Studies Subject and creative thinking. Liberal Studies is viewed as one of the subjects using traditional assessment, teaching and learning that slows down the development of creative thinking; in the meantime, creative thinking is served as a tool that does “*not much benefit to Liberal Studies*”. It can be explained that creativity is judged by social value on the development of Liberal Studies (Craft, 2001; 2005 & 2008); therefore, it is hard to foster creativity in Liberal Studies if people think there is no value on helping the development of the subject.

5.3.2 Limited Understanding to assess Creative Thinking

Students saw the difficulties in assessing creativity that may obstruct its application. It can be followed by the reason on its complexity and limited understanding upon creative thinking. Some students thought their “*understanding of creativity is poor to judge*” and both two students specified in the “*others*” option that teachers do not have enough training and knowledge about creative thinking, and standardized assessment to evaluate students’ creative thinking. In this sense, insufficient understanding and standardized assessment hamper the progress of creativity development (Craft, 2005; 2008 & Kilgour, 2008).

5.3.3 Time Constraint

While from the result, teachers thought “*insufficient lesson time*” would be the top obstacle and “*exam-oriented*” placed the second. Teachers also opined that “*traditional teaching and learning*” hinder the application of creative thinking in Liberal Studies. Instead of seeing a negative relationship between Liberal Studies and creative thinking or deficient understanding on creative thinking, teachers tended to concern the learning environment and teaching constraints in strengthening creativity. It is shown that applying creative thinking in Liberal Studies may need more time than using traditional teaching. Driven by examination, students were required to do excessive exercises that lesson time is insufficient to develop creativity (Lai & Lam, 2011).

5.3.4 Learning Environment constrains Creative Thinking

Learning environment in terms of supports from school, class size and students’ performance was a hindrance to the development of creative thinking. Some teachers pointed out in the “others” option that schools are unwilling to try a new method and the ratio of students to teachers is too high. All including insufficient educational resources and weak learning performance, which are some vital components in creative learning environment (Ramsden, 1979), may restrain creativity.

CHAPTER 6 LIMITATIONS AND SUGGESTIONS

6.1 Limitations of the Study

This research was limited by short period of time, the teaching practicum only last 8 weeks that teacher could not carry out a long detailed study. And with limited resources, the sample size was relatively small in scale. Still, the data collected are valid to reveal the views from students and teachers.

6.2 Suggestions for Further Research

The implementation of Liberal Studies in schools is not as long as other core subjects, implying the development and understanding of Liberal Studies are in an infant stage. The effectiveness of creative thinking in Liberal Studies is still in a consideration for future researches. Based on students' and teachers' view upon creative thinking and its difficulties, it is suggested that further study can go to the assessment of school creative learning environment, involving students' creativity and teacher' creative strategies in Liberal Studies.

CHAPTER 7 IMPLICATIONS AND CONCLUSIONS

7.1 Implications

This study is an attempt to unfold the conceptions of creative thinking and the perceptions of creative thinking development in Liberal Studies, among students and teachers. The results can be served as meaning implications for teaching and learning.

First of all, the definition gap within students and teachers affects their perceptions of creative thinking in Liberal Studies. Creative thinking is defined into different perspectives that may hinder the evaluation of creativity. In order to fill up the gap, Liberal Studies teachers and students need to construct a more standardized assessment together, which encompass both understandings upon the nature of Liberal Studies and dispositions of creative thinking. Also, they can express their views more explicitly to bring the attention to opposite views.

Furthermore, traditional teaching and learning greatly influence creative education in Liberal Studies. The usual practices and pedagogy save more time than creative teaching, teachers play role as knowledge delivers, while students as recipients in Hong Kong education system, and likewise in Liberal Studies. Notwithstanding that it is hard to uproot this social and cultural context by changing the whole-school approach, or even education system, changes can still be made by teachers and administrators to construct a humanistic learning environment for creativity (Ramsden, 1979). *“The facilitation of creativity in the classroom will be dependent on how the teacher structures the educational environment that makes it conducive to creativity”* (Diakidoy & Kanari, 1999). Before, teachers may need to re-examine their educational views and method (Lin, 2011). Using constructivist approach (Hussain, 2012) with positive and open-minded attitude can encourage students’ active and creative engagement.

7.2 Conclusions

The main purpose of conducting this research was to examine the teachers' and students' perceptions of creative thinking in Liberal Studies in terms of their conceptions of creative thinking, their review of creativity development upon Liberal Studies and the concerns on the difficulties of creative thinking applications in Liberal Studies. On account of these perspectives, four hypotheses were established to determine the validity. The results suggested that all hypotheses are valid.

First and foremost, hypothesis 1 stands. There is a gap between teachers' and students' conceptions of creative thinking. Students deemed that creative thinking is relatively intrinsic ability for products; while teachers emphasized more on thinking skills in regard to process mechanism. The ways of seeing creative thinking are different among teachers and students may act on their views on judge the creative thinking development in Liberal Studies.

Thus, hypotheses 2 and 3 sound that teachers stayed positive upon the establishment of creativity in Liberal Studies in contrast to students' views. Teachers tend to believe that they had appreciate students' response and stimulate students' creative thinking; however, students disagreed on. In one way, their conceptions affect their behaviors of assessing creative thinking in Liberal Studies; in another way, their perceptions embedded the obstacles of developing creative thinking in the subject. And hence, hypothesis 4 is valid.

It is said that creative thinking enhances learning and thinking capacity (Craft, 2001; 2005; 2008; Guilford, 1968; ICE House. 2011; Lin 2011; Newton, 2012 & Shaheen, 2010). The variances between students' and teachers' perceptions, and its difficulties may obstruct creative thinking in education. On this account, creative thinking still needs more educational practitioners' attention for development.

REFERENCES

- Ageyev, V. (2012). Psychological Foundations of Creative Education. *Creative Education* , 3 (1), 1-9.
- Anwar, M. N., Aness, M., Khizar, A., Naseer, M., & Muhammad, G. (2012). Relationship of Creative Thinking with the Academic Achievements of Secondary School Students. *International Interdisciplinary Journal of Education* , 1 (3), 44-47.
- Appadurai, A. (1999). *Globalization and the research imagination*. CA: Blackwell Publishers.
- Chan, M. K. (2005). *An Evaluative Study on the Learning of Creative Thinking in Visual Arts*. MPhil Thesis, The University of Hong Kong, Hong Kong.
- Cheung, C. K. (2009). Integrating Media Education into Liberal Studies: a Positive Response to Curriculum Reform in Hong Kong. *Curriculum Journal* , 20 (4), 437-446.
- Cheung, C. K. (2012). *The PowerPoint of Curriculum Orientations*. The University of Hong Kong, The Faculty of Education, Hong Kong.
- Clary, R. M., Brzuszek, R. F., & Fulford, C. T. (2011). Measuring Creativity: A Case Study Probing Rubric Effectiveness for Evaluation of Project-Based Learning Solutions. *Creative Education* , 2 (4), 333-340.
- Clayburn, C., Ervay, S., & Albrecht, N. (2012). Attitudes of American Teachers Preparing to Become Administrators toward Teaching Creative Strategies. *Creative Education* , 3 (1), 24-29.
- Craft, A. (2001). *An analysis of research & literature on creativity education*.
- Craft, A. (2005). *Creativity in Schools: Tensions and Dilemmas*. New York: Routledge.
- Craft, A. (2008, December). *Creativity in the School*. Retrieved from www.beyondcurrenthorizons.org.uk
- Curriculum Development Council (CDC). (2007). *Liberal Studies: Curriculum and Assessment Guide (Secondary 4 - 6)*.

- Diakidoy, I. N., & Kanari, E. (1999). Student teachers beliefs about creativity. *British Educational Research Journal* , 25, 225-243.
- Diamond, S. (2007). The Age of Imagination - Placing Art and Design at the Centre. In S. K. Laine (Ed.), *Call for Creative Futures Conference Proceedings* (pp. 6-14). Oulu: University of Oulu.
- Education and Manpower Bureau. (2005). *The new academic structure for senior secondary education and higher education—Action plan for investing in the future of Hong Kong*. Hong Kong: Education and Manpower Bureau.
- Education Commission. (2000). *Education blueprint for the 21st century: Learning for life, learning through life - Reform proposals for the education system in Hong Kong*. Hong Kong: Government Printer.
- Fumoto, H., Robson, S., Greenfield, S., & Hargreaves, D. (2012). *Young Children's Creative Thinking*. London, UK: SAGE Publications Ltd.
- Fung, C. L., & Yip, W. Y. (2012). The policies of reintroducing Liberal Studies into Hong Kong secondary schools. *Education Research Policy Practice* , 9, 17-40.
- George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference* (4 ed., Vol. 11). Boston: Allyn & Bacon.
- Guilford, J. (1968). *Intelligence, Creativity and their Educational Implications*. San Diego, California: Robert R. Knapp.
- Hussain, I. (2012). Use of Constructivist Approach in Higher Education: An Instructors' Observation. *Creative Education* , 3 (2), 179-184.
- ICE House. (2011). Teaching for Innovation, Creativity and Enterprise. *Innovation, Creativity and Enterprise (ICE) Conference*. ICE House.

- Ilyin, E. P. (2009). *Psychology of creativity and giftness*. St. Petersburg.
- Kennedy, K. e. (2006). Reforming the curriculum in a post-colonial society: the case of Hong Kong. In *Planning and Changing* (Vol. 37, pp. 111-130).
- Kilgour, M. (2007). Big C versus little C Creative Findings: Domain Specific Knowledge Combination Effects on the Eminence of Creative Contributions. In S. Karkulehto, & K. Laine (Ed.), *Call for Creative Futures Conference Proceedings* (pp. 15-35). University of Oulu.
- Kilgour, M. (2008). *Understanding Creativity: The Creative Thinking Process and How to Improve it*. Saarbrücken, Germany: VDM Verlag Dr. Müller.
- Lai, E., & Lam, C. C. (2011). Learning to teach in a context of education reform: liberal studies student teachers' decision-making in lesson planning. *Journal of Education for Teaching* , 37 (2), 219-236.
- Lee, W. O. (2008). The Development of Citizenship Education Curriculum in Hong Kong after 1997: Tensions between National Identity and Global Citizenship. (D. L. al., Ed.) *Citizenship Curriculum in Asia and the Pacific* , 29-42.
- Lin, Y. S. (2011). Fostering Creativity through Education—A Conceptual Framework of Creative Pedagogy. *Creative Education* , 2 (3), 149-155.
- Marjala, P., Kisko, K., & Haapasalo, H. (2007). Work, Well-being, Creativity and Successful Management - Mission Impossible? In S. Karkulehto, & K. Laine (Ed.), *Call for Creative Futures Conference Proceedings* (pp. 96-109). Finland: University of Oulu.
- Newton, D. (2012). Creativity and Problem Solving: An Overview. In L. Newton (Ed.), *Creativity for a New Curriculum: 5-11* (pp. 7-18). New York, USA: Routledge.
- Niu, W., & Sternberg, R. (2001). Cultural influences on artistic creativity and its evaluation. *International Journal of Psychology* , 36 (3), 225-241.

- Parnes, S. (1992). *Sourcebook for Creative Problem Solving*. Buffalo, New York: Creative Education Foundation Press.
- Ramsden, P. (1979). Student learning and perceptions of the academic environment. *Higher Education*, 8 (4), 411-427.
- Rojanapanich, P., & Pimpa, N. (2011). Creative Education, Globalization and Social Imaginary. *Creative Education*, 2 (4), 327-332.
- Rowlands, S. (2011). Discussion Article: Disciplinary Boundaries for Creativity. *Creative Education*, 2 (1), 47-55.
- Shaheen, R. (2010). Creativity and Education. *Creative Education*, 1 (3), 166-169.
- Sternberg, R. J., & Lubart, T. I. (1999). The concept of creativity: Prospects and paradigms. In R. Sternberg (Ed.), *Handbook of creativity* (pp. 3-15). New York: Cambridge University Press.
- Torrance, E. (1988). The Nature Of Creativity As Manifest In Its Testing. In R. Sternberg (Ed.), *The Nature of Creativity*. Cambridge, England: Cambridge University Press.
- Van Hook, C. W., & Tegano, D. W. (2002). The Relationship Between Creativity and Conformity Among Preschool Children. *Journal of Creative Behavior* (36), 1-16.
- Yang, M. (2005). The implementation and challenges of Liberal Studies in education reform in Hong Kong. *Hong Kong Teachers' Centre Journal*, 4, 43-53.
- Zhou, C., & Luo, L. (2012). Group Creativity in Learning Context: Understanding in a Social-Cultural Framework and Methodology. *Creative Education*, 3 (4), 392-399.

APPENDICES

Appendix I Questionnaire of Student's Perceptions (Chinese Version)



The University of Hong Kong
Faculty of Education
Bachelor of Education (Liberal Studies)

Declaration statement

I am pleased to invite you to participate in a research, "Teachers' and Students' Perceptions of Creative Thinking in Liberal Studies (師生對通識教育科的創意思考之看法)" by Year 4 student from Bachelor of Education (Liberal Studies), Faculty of Education, The University of Hong Kong. The research and development project aims at studying teachers' and students' views upon creative thinking in Liberal Studies and kindly supervised by Professor Zhang Li-fang. The research will be last for 7 months from October 2012 to May 2013. This questionnaire is going to be conducted in classroom during teaching practicum period. Your personal information will be anonymous and strictly confidential and used only for research purposes. Participation in the study is purely voluntary, you can choose to withdraw from the study at any time or apply to reclaim the research data. All research data will be stored and locked by researcher; also protected electronically and encrypted with password, that only the research person can access relevant information. Thank you for your participation.

Agreement

I am willing to participate in the research mentioned in the above and provide all the necessary information to the surveyors.

Signature: _____

Date: _____

學生的觀點問卷

根據個人想法及經驗，請回答以下全部問題，把每題最適當的一個選項圈填黑（例如：○●○○○）。

第一部分：對創意思考的理解

我認為…	非常同意	同意	中立	不同意	非常不同意
1. 創意思考是自身學習能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. 創意思考是獨特、創新的思考能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. 創意思考是突發的靈感。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. 創意思考是建基於舊有、固有的框架或概念。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. 創意思考是一種邏輯判斷的能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. 創意思考是一種批判性思考的能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. 創意思考是表達想法的渠道。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. 創意思考是資源運用的技能。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. 創意思考是打破傳統的前衛思想。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. 創意思考是破舊立新的能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. 創意思考是每個人都擁有的。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. 創意思考不局限於任何形式。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. 創意思考是抽象、不具體的聯想力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14· 創意思考需要多角度的分析。	○	○	○	○	○
15· 創意思考建基於批判性思考。	○	○	○	○	○
16· 創意思考可以培養、訓練出來的。	○	○	○	○	○
17· 創意思考會受外在因素影響。	○	○	○	○	○
18· 團隊合作有助發展創意思考。	○	○	○	○	○
19· 創意思考能力越高，批判性思考能力越高。	○	○	○	○	○
20· 學習能力越高，創意思考能力越高。	○	○	○	○	○
我認為…	非常同意	同意	中立	不同意	非常不同意
21· 創意思考對學習方面有極大幫助。	○	○	○	○	○
22· 創意思考有助提升解難能力。	○	○	○	○	○
23· 創意思考有助表達個人風格、創作。	○	○	○	○	○
24· 創意思考能促進人類進步。	○	○	○	○	○
25· 創意思考有助刺激思維。	○	○	○	○	○
26· 創意思考是人類不可缺乏的能力。	○	○	○	○	○

第二部分：創意思考在通識教育科（下稱：通識科）上的實踐

我認為…	非常同意	同意	中立	不同意	非常不同意
1· 創意思考是通識科的重點培訓項目。	○	○	○	○	○
2· 創意思考有助學生學習通識科。	○	○	○	○	○
3· 通識科有助發展學生的創意思考。	○	○	○	○	○
4· 通識科比其他科目重視學生的創意思考。	○	○	○	○	○
5· 通識科提供足夠空間讓學生發展創意思考。	○	○	○	○	○
6· 通識科的教學比其他科目較有創意。	○	○	○	○	○
7· 創意思考符合通識科的實際需要。	○	○	○	○	○
8· 通識科的評估要求學生展示其創意思考能力。	○	○	○	○	○
9· 通識科的問題較其他科目有創意。	○	○	○	○	○
10· 通識科的評估方法較其他科目有創意。	○	○	○	○	○
11· 通識科評估工具較多元化。	○	○	○	○	○
12· 通識科老師會評估學生的創意思考能力。	○	○	○	○	○
13· 通識科老師利用腦圖、概念圖等智力工具來評估創意思考能力。	○	○	○	○	○
在通識科課堂上，…	非常同意	同意	中立	不同意	非常不同意
14· 老師重視學生創意思考能力。	○	○	○	○	○
15· 老師讚賞學生的創意。	○	○	○	○	○
16· 討論時間比老師講授的多。	○	○	○	○	○
17· 老師利用不同教學活動刺激學生創意思考。	○	○	○	○	○
18· 老師利用不同題材刺激學生創意思考。	○	○	○	○	○
19· 老師能培養學生創意思考能力。	○	○	○	○	○
20· 老師希望學生說出標準答案。	○	○	○	○	○
21· 老師欣賞標準答案以外的答案。	○	○	○	○	○
22· 我希望得到標準答案。	○	○	○	○	○
23· 我多數提出有價值、邏輯的創意。	○	○	○	○	○

第三部分：實踐創意思考的困難

以下部份探討創意思考在通識教育科的實踐可能遇到的困難，根據問題，請在適當的□內加上✓。

1. 你認為在通識教育科上實踐創意思考有困難嗎？

有 沒有（如沒有，跳至「背景資料」部份）

2. 承上題，你認為實踐創意思考的**最大困難**是什麼？（可選最多**三項**）

- 課堂時間不足 教學資源不足 通識科有太多焦點 單元內容的局限
 習慣傳統教學 難評估學生創意 對學習通識科幫助不大 考試主導形式
 創意思考的認知有限 學習環境的局限 學生能力不足 思考屬個人層面
 其他，請列明：_____

背景資料

性別: 男 女

年齡：_____

就讀年級：_____

學校名稱：_____

父親教育程度： 初中或以下 高中、預科 學士 碩士 博士或以上

母親教育程度： 初中或以下 高中、預科 學士 碩士 博士或以上

【問卷完】

Appendix II Questionnaire of Student's Perceptions (English Version)



The University of Hong Kong
Faculty of Education
Bachelor of Education (Liberal Studies)

Declaration statement

I am pleased to invite you to participate in a research, "Teachers' and Students' Perceptions of Creative Thinking in Liberal Studies (師生對通識教育科的創意思考之看法)" by Year 4 student from Bachelor of Education (Liberal Studies), Faculty of Education, The University of Hong Kong. The research and development project aims at studying teachers' and students' views upon creative thinking in Liberal Studies and kindly supervised by Professor Zhang Li-fang. The research will be last for 7 months from October 2012 to May 2013. This questionnaire is going to be conducted in classroom during teaching practicum period. Your personal information will be anonymous and strictly confidential and used only for research purposes. Participation in the study is purely voluntary, you can choose to withdraw from the study at any time or apply to reclaim the research data. All research data will be stored and locked by researcher; also protected electronically and encrypted with password, that only the research person can access relevant information. Thank you for your participation.

Agreement

I am willing to participate in the research mentioned in the above and provide all the necessary information to the surveyors.

Signature: _____ Date: _____

Questionnaire of Student's perceptions

Part 1: Own interpretation of Creative Thinking

Base on your personal ideas and experiences, please answer ALL the questions below and blacken **the most suitable circle** in each question (e.g. ○●○○○).

I think...	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Creative thinking is a self-learning ability.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Creative thinking is unique, innovative thinking skill.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Creative thinking is sudden inspiration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Creative thinking is built upon existed frameworks or concepts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Creative thinking is kind of logical reasoning skill.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Creative thinking is kind of critical thinking skill.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Creative thinking is a way to express own ideas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Creative thinking is a resource-utilizing skill.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Creative thinking is modern thinking that breaks tradition.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Creative thinking breaks old and builds up new.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Everyone owns creative thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Creative thinking is not limited into any formats.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Creative thinking is abstract, indeterminate imagination.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Creative thinking needs multi-perspective analysis.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Creative thinking is built upon critical thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Creative thinking can be cultivated or trained up.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Creative thinking can be affected by external factors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Team-work helps develop creative thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Higher creative thinking skill, higher critical thinking skill	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Higher learning ability, higher creative thinking skill.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I think...	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
21 · Creative thinking benefits learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22 · Creative think improves problem-solving skill.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23 · Creative thinking builds up personal style or creation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24 · Creative thinking fastens human development.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25 · Creative thinking stimulates thinking ability.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26 · Creative thinking is kind of indispensable ability.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 2: Creative thinking in Liberal Studies (LS) Subject

I think...	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1 · Creative thinking is an emphasized goal in LS.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2 · Creative thinking helps students learn LS.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3 · LS helps students develop creative thinking skill.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4 · LS emphasizes creative thinking more than other subjects do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5 · LS provides enough space for students to develop creative thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6 · The teaching and learning of LS is more creative than other subjects'.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7 · Creative thinking fits the needs of LS.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8 · Assessment of LS requires students' creative thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9 · Questions of LS are more creative than other is more creative than other subjects'.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10 · Assessment methods of LS are more creative than other subjects'.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11 · Assessment tools of LS are more diversified.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12 · LS teachers assess students' creative thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13 · LS teachers use mental tools (e.g. mind map, concept map) to assess creative thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In LS lessons, ...	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
14 · teachers focus students' creative thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15 · teachers appreciate students' creative thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16 · discussion time is more than lecture time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17 · teachers use different activities to stimulate students' creative thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18 · teachers use different materials to stimulate students' creative thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19 · teachers can cultivate students' creative thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20 · teachers prefer standard answers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21 · teachers appreciate the answers beyond standard answers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22 · I wish to know standard answers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23 · I mostly produce valuable and logical ideas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 3: Difficulties in applying of Creative thinking upon Liberal Studies

The following questions will examine the difficulties in applying creative thinking upon Liberal Studies subject. Based on the questions, and tick (✓) in the suitable .

1 · Are there any difficulties in applying creative thinking upon Liberal Studies subject?

Yes No (If No, go to Background Information part)

2 · Based on the previous question, what are the main difficulties? (Can choose **no more than 3 options**)

- Insufficient lesson time Insufficient educational resources Too much focus in LS
 Limited by Content of modules Get used to traditional teaching and learning
 Assessment Difficulties Not much benefits to LS Examination-oriented in LS
 Limited Understanding upon Creative thinking Constrain of learning environment
 Weak learning performance Thinking is too personal to be cultivated
 Others, please specify : _____

Background Information

Gender: Male Female

Age: _____

Current Form: _____

School Name: _____

Father's socio-economic status: Junior Secondary School or below Senior Secondary / High School

Bachelor's Degree Master's Degree Doctor's Degree or above

Mather's socio-economic status: Junior Secondary School or below Senior Secondary / High School

Bachelor's Degree Master's Degree Doctor's Degree or above

【End of the questionnaire】

Appendix III Questionnaire of Teacher's Perceptions (Chinese Version)



The University of Hong Kong
Faculty of Education
Bachelor of Education (Liberal Studies)

Declaration statement

I am pleased to invite you to participate in a research, "Teachers' and Students' Perceptions of Creative Thinking in Liberal Studies (師生對通識教育科的創意思考之看法)" by Year 4 student from Bachelor of Education (Liberal Studies), Faculty of Education, The University of Hong Kong. The research and development project aims at studying teachers' and students' views upon creative thinking in Liberal Studies and kindly supervised by Professor Zhang Li-fang. The research will be last for 7 months from October 2012 to May 2013. This questionnaire is going to be conducted in staff room during teaching practicum period. Your personal information will be anonymous and strictly confidential and used only for research purposes. Participation in the study is purely voluntary, you can choose to withdraw from the study at any time or apply to reclaim the research data. All research data will be stored and locked by researcher; also protected electronically and encrypted with password, that only the research person can access relevant information. Thank you for your participation.

Agreement

I am willing to participate in the research mentioned in the above and provide all the necessary information to the surveyors.

Signature: _____ Date: _____

老師的觀點問卷

根據個人想法及經驗，請回答以下全部問題，把每題最適當的一個選項圈填黑（例如：○●○○○）。

第一部分：對創意思考的理解

我認為…	非常同意	同意	中立	不同意	非常不同意
1. 創意思考是自身學習能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. 創意思考是獨特、創新的思考能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. 創意思考是突發的靈感。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. 創意思考是建基於舊有、固有的框架或概念。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. 創意思考是一種邏輯判斷的能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. 創意思考是一種批判性思考的能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. 創意思考是表達想法的渠道。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. 創意思考是資源運用的技能。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. 創意思考是打破傳統的前衛思想。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. 創意思考是破舊立新的能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. 創意思考是每個人都擁有的。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. 創意思考不局限於任何形式。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. 創意思考是抽象、不具體的聯想力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. 創意思考需要多角度的分析。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. 創意思考建基於批判性思考。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. 創意思考可以培養、訓練出來的。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. 創意思考會受外在因素影響。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. 團隊合作有助發展創意思考。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. 創意思考能力越高，批判性思考能力越高。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. 學習能力越高，創意思考能力越高。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

我認為…	非常同意	同意	中立	不同意	非常不同意
21· 創意思考對學習方面有極大幫助。	○	○	○	○	○
22· 創意思考有助提升解難能力。	○	○	○	○	○
23· 創意思考有助表達個人風格、創作。	○	○	○	○	○
24· 創意思考能促進人類進步。	○	○	○	○	○
25· 創意思考有助刺激思維。	○	○	○	○	○
26· 創意思考是人類不可缺乏的能力。	○	○	○	○	○

第二部分：創意思考在通識教育科（下稱：通識科）上的實踐

我認為…	非常同意	同意	中立	不同意	非常不同意
1· 創意思考是通識科的重點培訓項目。	○	○	○	○	○
2· 創意思考有助學生學習通識科。	○	○	○	○	○
3· 通識科有助發展學生的創意思考。	○	○	○	○	○
4· 通識科比其他科目重視學生的創意思考。	○	○	○	○	○
5· 通識科提供足夠空間讓學生發展創意思考。	○	○	○	○	○
6· 通識科的教學比其他科目較有創意。	○	○	○	○	○
7· 創意思考符合通識科的實際需要。	○	○	○	○	○
8· 通識科的評估要求學生展示其創意思考能力。	○	○	○	○	○
9· 通識科的問題較其他科目有創意。	○	○	○	○	○
10· 通識科的評估方法較其他科目有創意。	○	○	○	○	○
11· 通識科評估工具較多元化。	○	○	○	○	○
12· 我會評估學生的創意思考能力。	○	○	○	○	○
13· 我利用腦圖、概念圖等智力工具來評估創意思考能力。	○	○	○	○	○
在通識科課堂上，…	非常同意	同意	中立	不同意	非常不同意
14· 我重視學生創意思考能力。	○	○	○	○	○
15· 我讚賞學生的創意。	○	○	○	○	○
16· 討論時間比我講授的多。	○	○	○	○	○
17· 我利用不同教學活動刺激學生創意思考。	○	○	○	○	○
18· 我利用不同題材刺激學生創意思考。	○	○	○	○	○
19· 我能培養學生創意思考能力。	○	○	○	○	○
20· 我希望學生說出標準答案。	○	○	○	○	○
21· 我欣賞標準答案以外的答案。	○	○	○	○	○
22· 學生希望得到標準答案。	○	○	○	○	○
23· 學生多數提出有價值、邏輯的創意。	○	○	○	○	○

第三部分：實踐創意思考的困難

以下部份探討創意思考在通識教育科的實踐可能遇到的困難，根據問題，請在適當的□內加上✓。

1. 你認為在通識教育科上實踐創意思考有困難嗎？

有 沒有（如沒有，跳至「背景資料」部份）

2. 承上題，你認為實踐創意思考的**最大困難**是什麼？（可選最多**三項**）

- 課堂時間不足 教學資源不足 通識科有太多焦點 單元內容的局限
 習慣傳統教學 難評估學生創意 對學習通識科幫助不大 考試主導形式
 創意思考的認知有限 學習環境的局限 學生能力不足 思考屬個人層面
 其他，請列明：_____

背景資料

性別: 男 女

年齡□□: 20□□□ 20-29□ 30-39□ 40-49□ 50□□□□

□□□□ (□□2012-13□□□□): □□1□ 1 — 5□ 6—10□ 11—15□
 16—20□ 21—25□ 26—30□ 31□□□□

學校名稱: _____

【問卷完】

Appendix IV Questionnaire of Teacher's Perceptions (English Version)



The University of Hong Kong
Faculty of Education
Bachelor of Education (Liberal Studies)

Declaration statement

I am pleased to invite you to participate in a research, "Teachers' and Students' Perceptions of Creative Thinking in Liberal Studies (師生對通識教育科的創意思考之看法)" by Year 4 student from Bachelor of Education (Liberal Studies), Faculty of Education, The University of Hong Kong. The research and development project aims at studying teachers' and students' views upon creative thinking in Liberal Studies and kindly supervised by Professor Zhang Li-fang. The research will be last for 7 months from October 2012 to May 2013. This questionnaire is going to be conducted in staff room during teaching practicum period. Your personal information will be anonymous and strictly confidential and used only for research purposes. Participation in the study is purely voluntary, you can choose to withdraw from the study at any time or apply to reclaim the research data. All research data will be stored and locked by researcher; also protected electronically and encrypted with password, that only the research person can access relevant information. Thank you for your participation.

Agreement

I am willing to participate in the research mentioned in the above and provide all the necessary information to the surveyors.

Signature: _____ Date: _____

Questionnaire of Teacher's perceptions

Part 1: Own interpretation of Creative Thinking

Base on your personal ideas and experiences, please answer ALL the questions below and blacken **the most suitable circle** in each question (e.g. ○●○○○).

I think...	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Creative thinking is a self-learning ability.	○	○	○	○	○
2. Creative thinking is unique, innovative thinking skill.	○	○	○	○	○
3. Creative thinking is sudden inspiration.	○	○	○	○	○
4. Creative thinking is built upon existed frameworks or concepts.	○	○	○	○	○
5. Creative thinking is kind of logical reasoning skill.	○	○	○	○	○
6. Creative thinking is kind of critical thinking skill.	○	○	○	○	○
7. Creative thinking is a way to express own ideas.	○	○	○	○	○
8. Creative thinking is a resource-utilizing skill.	○	○	○	○	○
9. Creative thinking is modern thinking that breaks tradition.	○	○	○	○	○
10. Creative thinking breaks old and builds up new.	○	○	○	○	○
11. Everyone owns creative thinking.	○	○	○	○	○
12. Creative thinking is not limited into any formats.	○	○	○	○	○
13. Creative thinking is abstract, indeterminate imagination.	○	○	○	○	○
14. Creative thinking needs multi-perspective analysis.	○	○	○	○	○
15. Creative thinking is built upon critical thinking.	○	○	○	○	○
16. Creative thinking can be cultivated or trained up.	○	○	○	○	○
17. Creative thinking can be affected by external factors.	○	○	○	○	○
18. Team-work helps develop creative thinking.	○	○	○	○	○
19. Higher creative thinking skill, higher critical thinking skill	○	○	○	○	○
20. Higher learning ability, higher creative thinking skill.	○	○	○	○	○

I think...	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
21 · Creative thinking benefits learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22 · Creative think improves problem-solving skill.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23 · Creative thinking builds up personal style or creation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24 · Creative thinking fastens human development.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25 · Creative thinking stimulates thinking ability.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26 · Creative thinking is kind of indispensable ability.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 2: Creative thinking in Liberal Studies (LS) Subject

I think...	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1 · Creative thinking is an emphasized goal in LS.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2 · Creative thinking helps students learn LS.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3 · LS helps students develop creative thinking skill.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4 · LS emphasizes creative thinking more than other subjects do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5 · LS provides enough space for students to develop creative thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6 · The teaching and learning of LS is more creative than other subjects'.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7 · Creative thinking fits the needs of LS.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8 · Assessment of LS requires students' creative thinking .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9 · Questions of LS are more creative than other is more creative than other subjects'.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10 · Assessment methods of LS are more creative than other subjects'.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11 · Assessment tools of LS are more diversified.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12 · I assess students' creative thinking .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13 · I use mental tools (e.g. mind map, concept map) to assess creative thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In LS lessons, ...	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
14 · I focus students' creative thinking .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15 · I appreciate students' creative thinking .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16 · discussion time is more than lecture time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17 · I use different activities to stimulate students' creative thinking .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18 · I use different materials to stimulate students' creative thinking .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19 · I can cultivate students' creative thinking .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20 · I prefer standard answers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21 · I appreciate the answers beyond standard answers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22 · students wish to know standard answers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23 · students mostly produce valuable and logical ideas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 3: Difficulties in applying of Creative thinking upon Liberal Studies

The following questions will examine the difficulties in applying creative thinking upon Liberal Studies subject. Based on the questions, and tick (✓) in the suitable□.

1 · Are there any difficulties in applying creative thinking upon Liberal Studies subject?

Yes No (If No, go to Background Information Part)

2 · Based on the previous question, what are the main difficulties? (Can choose **no more than 3 options**)

Insufficient lesson time Insufficient educational resources Too much focus in LS

Limited by Content of modules Get used to traditional teaching and learning

Assessment Difficulties Not much benefits to LS Examination-oriented in LS

Limited Understanding upon Creative thinking Constrain of learning environment

Weak learning performance Thinking is too personal to be cultivated

Others, please specify : _____

Background Information

Gender: Male Female

Age Range : Below 20 years old 20-29 years old 30-39 years old

40-49 years old 50 years old or above

Teaching experiences (up to 2012-13 academic year) : Less than 1 year 1 - 5 years 6 - 10 years

11 - 15 years 16 - 20 years 21 - 25 years 26 - 30 years 31 years or above

School Name : _____

【End of the questionnaire】