THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學

Form 12(05/2009)

Completion Report
Project Supported by LTC/OBA Funding*

(Period covered: June 10,2008 – August 15, 2010)

Part I: General Information

Funding Source (please tick ✓ as appropriate): ☐ LTC (X) OBA Funding

Project Code:	2007-08/OBA/SD4	**Host Department:**	SD
Project Title:	The Creativity Assessment Project		

	Project Leader (Name & Dept):	Team Member(s) (Name & Dept):
Project Team:	Roy Horan, SD	Siu King Chung, SD Yuen Man Wah, Eva, SD Lee Yu Hin, Brian, SD Tam Chi-hang, Keith, SD Wai Hon Wah, IC So Moon-Tong, Ernest, AMA* * left the PolyU as of Sept. 2009

Part II: Project Details

1. Financial Information

(a) Overview

Approved Funding:		Additional Funding Received (if any):		Total Funding Received:
	+		=	

Source of Additional Funding: School of Design (one-line budget) & School Board Reserve Fund

(b) Project Expenditure

2. Project Schedule

	Start date (dd/mm/yyyy):	Completion date (dd/mm/yyyy):
Dates as Stated in Original Proposal:	01/04/2008	15/05/2010
	Start date (dd/mm/yyyy):	**Completion date (dd/mm/yyyy):**
Actual Start and Completion Dates:	10/06/2008	15/08/2010
	Total no. of extension(s) obtained :	**Obtained during the project period:**
Project Period Extension(s) (if any):	1 time(s)	For a total of 3 month(s)

Reason(s) for Extension(s) (if any):

Although most of the originally proposed raw data had been gathered and processed before the extension, statistical analysis which began in Sept. 2009 indicated that the results were very complex and required much more analysis than imagined. For example, creativity performance by students exhibited abnormal distributions which tended toward a positive skew, complex relationships between variables were found, one of the instruments (IPsP) required some unusual statistical approaches (e.g. as used in signal processing) to test reliability and validity. Furthermore, although some results were comparable to other investigations in HK and abroad, others were not. There appeared to be an overall decline in divergent thinking, and some of its antecedents, in many departments. We could not take this finding lightly. It could simply be the result of test difficulty, or some other factors. So, we collected more raw data from students participating in another OBA project (under Prof. Howard Davies) in which a USA divergent thinking instrument was used and in which generally favorable results were found. The instrument used in our study (IGI, an abbreviated form of the Wallach-Kogan Creativity Tests) was also given to these students (76 responded). With this data, we could compare results between the two divergent thinking tests to find out wherein lay the discrepancy as well as where the students true strengths and weaknesses are. Furthermore, additional data was collected from this year's (2010) cohort of SD2982 (this subject forms the primary study in CAP) to see if some results are consistent across cohorts. We also received a bit of a setback when the investigator who was to oversee statistical analysis, Ernest So, left the PolyU. We had to consult other statisticians on campus to help, and the Research Associate had to do a considerable amount of additional research to solve some of the stats problems encountered. The additional 3 months requested was to provide the time to ensure that the findings are robust.

* *LTC: Learning and Teaching Committee*
OBA Funding: Funding for Promoting Outcome-Based Approaches to Student Learning

3. Project Implementation

***IMPORTANT:** This report is a brief summary of the detailed (300-page) Creativity Assessment Project Research Report, attached hereto. Within the Research Report is a section called 'How to use this document' which provides options for various readers in accordance with their area(s), and level(s), of interest.*

(a) Project objectives

The purpose of this project was to investigate an application of creativity assessment at the Hong Kong Polytechnic University. Several studies, involving students and staff, were conducted across different knowledge domains. The project's main focus was to test the *Creative Momentum Assessment Model* (CMAM) for assessing students' creative works and to make recommendations, or not, for its continued use on campus. In order to test CMAM, a standard form of creativity performance assessment was utilized (e.g. divergent thinking test) as well as some other new measures to study the relationship between the psychometrics of creativity and direct assessment of creative achievement. The value of psychometric testing for creativity was also addressed.

Creativity was declared a core competence in the University's Strategic Objective 1 and its position as a teaching and learning outcome in most PolyU programmes will become increasingly important over time. There are two factors involved in achieving this goal. One is the delineation of teaching methods that can effectively enhance creativity across multiple knowledge domains. The other is the ability to effectively assess students' creative works. This project is focused primarily on the latter in the context of an Outcome Based Approach (OBA) to education. Assessment, however, cannot be completely separated from the goal of creativity enhancement. The specific aim of the project is to develop and test a methodology to assess creative contribution which can be employed across all knowledge domains within the University and which also enhances creativity within the student populace. The overall goal is quite challenging. It has never been effectively achieved in any other institution and the repercussions within the education community of a successful outcome here at PolyU are expected to be significant.

In the process, it is hoped that the project findings will shed light on students' creative strengths and weaknesses as well as their capacity for effectively reflecting on their own creative works. It is also hoped that the project will illuminate tutors' capacity to understand and apply an OBA approach to creativity as well as delineate some of the strengths and weaknesses that may support or inhibit such understanding and application. Finally, the project aims to make recommendations for the teaching and learning of creative thinking at the PolyU, within the OBA context.

(b) Overview of specific work undertaken for achieving the project objectives (including any changes to original proposal)

To achieve the intended goals, a new General Education broadening subject *SD2982 Creativity in Cognition* was developed in which the *Creative Momentum Assessment Model* (CMAM) was introduced (in both 2009 and 2010 cohorts) along with many creativity tools. Students in the 2009 cohort also took pretests and posttests of the *Idea Generation Inventory* (IGI, an untimed measure of divergent thinking based on a well known instrument), the *Information Boundaries Recognition Test* (IBRT, a measure of the capacity of students to ask different types of questions), the *Integral Psychological Profile* (IPsP, a measure of creativity in the context of leadership, adaptability, organization, receptivity, discrimination, exploration and communication), and a pretest of *Unusual Gratitude* (Assign1, a measure of students' capacity for uncommon sense across a virtually unlimited knowledge and experience landscape). Most of these tests are new. They measure creative potential whereas CMAM measures creative achievement. Students (in both cohorts) had three main assignments that tested their creative abilities in terms of accepting paradigms (Assign2, individual assignment); rejecting paradigms (Assign3a, individual assignment); and merging paradigms (Assign3b, group assignment). Paradigms are defined as the particular context(s) to which a potential creative solution is associated. All student submissions were measured using 21 criteria by 12 independent expert judges with about 3 years of design or creativity-related experience. The judges used Amabile's *Consensual Assessment Technique* (CAT) in which they based their scores on only the names and subjective interpretations of the said criteria. The CAT has proven, over many years, to be a reliable method for assessing creative works within controlled conditions. It has not been tested for reliability in real-world creative works of a more complex nature. Student works were also assessed by three SD tutors who were familiar

with full definitions of the criteria and who had rubrics and access to students' Creativity Reflection Reports (CRR) in which students employ CMAM criteria to validate their creativity self-grades. CRR had its own separate criteria and counted for 60% of each assignment's final score. CRR, and its scoring system, held students accountable for self-grades. Students' self-grades contributed 30% to each assignment's final score. In short, the tutors were better informed of the students' intentions, perceptions etc. in relation to the works. Tutors had ultimate control of the grading process but their scores did not contribute substantially to students' creativity assessment, per se. This method was designed to enhance student confidence, empower them creatively, and hold them accountable. SD2982 was offered again in 2010. Twenty-nine students completed all assignments. The capacity of CMAM to align tutors' and students' assessments was studied.

To investigate the reliability and validity of two key psychometric instruments designed to measure divergent thinking and the psychological component of creativity respectively (IGI and IPsP), a control group from another General Education subject, GEC2806 *Science and Technology, Medicine, and Environment in China,* was created. The SD2982 cohort had 77 students complete all assignments and instruments while GEC2806 had 86 students complete both IGI and IPsP.

Additional testing of CMAM was done in 1) a SD4323 *Final Project (VC)* study in which 26 students using the model for their final projects were supervised by tutors, some of whom supported the model while others didn't. 2) an *IC367 Industrial Centre Training II* experiment in which 38 engineering students used the model in a simplified form without self-grading counting to a final score 3) a HTM510 *Training & Development in Hotel & Tourism Industry* experiment in which 26 students did a creativity exercise using a pared down version of the model with self-grades accounting for only a very small portion of the final grade, and where accountability was relatively absent. 4) a COMP5323 *Web Databases and Applications* experiment in which only 6 students of a large class chose to complete a design project using the entire model (with virtually no training) and in which self-grades didn't count to a final score. The purpose of the variety of CMAM applications was to see how tutors might naturally wish to employ it in their subjects, as well as the results of such implementation. The IGI was further validated by 76 FB students who had previously taken the *Abbreviated Torrance Tests for Adults* (ATTA), a well-known divergent thinking test.

The data was analyzed using SPSS statistical software. The relationship between judges/tutors/students scoring of creative works; an intra-instrument/inter-instrument comparison of the various psychometric instruments for reliability and validity; and a comparison between creative works and psychometrics was conducted. The reliability of CMAM for assessing students' works in the other studies and experiments was also undertaken. The amount of statistical information generated was quite substantial. A detailed 300-page Research Report was written to include all aspects and findings of the project.

(c) Difficulties encountered, if any, which have affected progress, and remedial actions taken

The only real difficulty encountered was insufficient time to complete the analysis of the immense amount of data, and write the Report. This was effectively remedied by a 3-month project extension. There were areas, however, in which the project could have been improved had we the opportunity to do it again. For example, the sample sizes in SD2982 (2010), SD4323, HTM510, and COMP5323 were all under 30 subjects, making the results more indicative than conclusive. This could have been remedied if study replications were conducted over at least two years. SD2982(2010) suffered poor word-of-mouth from the previous year because students complained that the workload in the initial offering was extraordinarily high (due to the research component), so 2010 registrations fell dramatically. Future offering of the subject should not have this problem as we excluded research from the 2010 delivery. Students felt comfortable with the adjusted workload. SD4323 was a smaller class to start with and one of the supervisors refused to participate for reasons unknown (though we did collect valuable data via a video interview with one of the supervisor's students). HTM510 was supposed to have two creativity exercises but the first didn't use CMAM because most of the students forgot to refer to the criteria and grade themselves! This oversight was corrected during the next exercise. The entire class participated, but as a masters class, it was small. The COMP5323 tutor, to his surprise, discovered that most of his students would rather write a term paper than engage in creative work! All of these issues are, nonetheless, real tests of how others tend to interface with the model, especially where tutor/student communication is insufficient. The results, regardless of the shortcomings of sample sizes, were quite encouraging.

The project could also have been improved if *Unusual Gratitude* were offered to SD2982 (2009) students in a posttest version. This was not possible due to workload issues. It would have also been useful for the IBRT and *Unusual Gratitude* to be completed by the control group (GEC2806). Again, workload was a major concern. The results that we have garnered, however, are significant enough to draw some rather safe conclusions.

(d) Deliverables/useful findings/good practices emerged

I. USEFUL FINDINGS

MEASURING CREATIVE ACHIEVEMENT - OBA & CREATIVITY

Perhaps one of the foremost questions addressed by this project is, "Can a criterion-based approach work for the assessment of creativity, a construct generally considered to involve high levels of subjectivity?" The reliability of the scoring of students works over 21 criteria by 12 independent expert judges were compared to results of a panel of 3 School of Design tutors. From Table 1, which lists Cronbach alpha results, we can see that the judges' reliability range was higher and more consistent than the tutors'. Judges' reliability averages were also considerably higher than tutors. We noticed differences in all assessors' scoring of creativity-related criteria including *novelty* (ideas & materials), *creativity* (measured as a quick impression of students' works) and the *overall creativity grade* (a measurement taken after 20 criteria had been considered). The *overall creativity grade* had the greatest reliability across all assessors (better than the other creativity-related criteria). This suggests that creativity may be assessed differently, depending on how it is approached as a construct. The more comprehensive the analysis of the construct, the better the reliability. Amabile and Hennessy (1999) noted that their *Consensual Assessment Technique* (CAT) when used to assess creativity by a significant number of expert judges consistently reached high reliabilities. Our results confirm this. Furthermore, CAT also seems to work with complex real-world creative works. The tutors assessment used averaging which model's the PolyU's (and other school's) expert panel-based system for attaining objectivity in creativity assessment. According to our results, this method is not reliable. However, we discovered that the tutors did improve in reliability over time as they became more familiar with the criteria and scoring system. They could not, however, attain the higher reliability of the larger panel of expert judges. This indicates that though student creative works exhibit a socially shared reliable perception of creativity within a specific field as measured by experts, at the individual and small panel level, there are personal biases and other issues that affect objectivity. This result was expected. We discovered that the tutors' own capacity for divergent thinking (DT) influenced their scoring. [All assessors completed the IGI posttest.] That is, if a tutor is more adept at DT in the verbal mode, that tutor is disadvantaged in recognizing student originality in the figural mode. However, if a tutor is adept at both figural & verbal DT, the tutor's ability to recognize originality in complex works is quite good. Overall, the data seems to favour higher figural DT scores (over verbal) in the accurate assessment of creativity. In other words, strong visual-spatial perception and reasoning (brain's right hemisphere processing) capacity is a key element in objectively assessing creativity. This presents a problem for PolyU academic staffs that score low on DT tests, or low on the figural portion of DT tests. In short, accurate assessment of creativity cannot depend solely on 'experts'. Single tutors are at the greatest disadvantage. CMAM addresses this problem.

Another finding from the 21 criteria is that the highest reliabilities were *overall creativity grade, problem resolution, elaboration and synthesis* and *effort evident*. Most of these criteria (except for *effort evident*) can be considered criterion composites. In short, all assessors performed better when assessing criteria that were composed of multiple sub-criteria. What is unclear is whether the composite criteria would be just as reliable if the sub-criteria had not been considered. This is an issue that an OBA system should consider carefully if reliable grading is a goal.

TABLE 1.
Ranges and Averages of Assessors' Reliability

Criteria	12 Judges (α)	3 Tutors (α)
Novelty (idea) Novelty (materials) Creativity **Overall Creativity Grade**	.705 - .926 (avr=.856)	.129 - .776 (avr=.538)
Paradigm (movement) **Problem Resolution** Logical Useful Appropriate Valuable	.737 - .895 (avr=.826)	.325 - .791 (avr=.524)

Elaboration & Synthesis Coherent Complex Communicative Appealing Perfected Elegant	.796 - .923 (avr=.859)	.234 - .819 (avr=.566)

Effort Evident Planning Organization Technical Goodness	.782 - .936 (avr=.874)	.494 - .804 (avr=.618)

As seen above, the tutors' creativity assessment performances were not good enough to claim that the criterion-based approach, in itself, is sufficient to reliably assess student creativity (only alpha over .700 should be considered reliable). CMAM was designed to overcome this expected shortcoming as well as, in the process, enhance student creativity. Students were asked to grade themselves and be held accountable for their grades by using CMAM criteria in interpreting and analyzing their works as well as in justifying self-grades. Accountability was designed into the percentages attributed to student self-grading and tutor scoring of both student creativity and their Creative Reflection Reports (CRR) such that either over-grading or under-grading would incur a penalty. CRRs were graded on separate criteria that bear more conventional interpretations and are easier to assess, reliably. What was most encouraging is that when tutors included the students' self-grades into the final score, the overall reliability made a significant leap (refer Table 2). For comparison, the *tutor total score* shows the reliability levels of the tutors' assessment alone. We can see that alpha increased over the assignments. Based on other trends in the data (to be discussed below), we realized that continued use of the criterion-based system by both students and their tutors (whereby students' creativity self grades are included in the final assessment) will lead to quite high reliabilities.

TABLE 2.
Tutors' Reliability for Overall Creativity, CRR and Final Scores

Tutor Scores	Description	Assign2 - α	Assign3a – α
Overall Creativity	Tutor Creativity Score, after 20 criteria considerations	0.513	0.575
CRR Total	Reflection Report score only	0.608	0.650
Tutor Total Score	Creativity Score & CRR score combined	0.604	0.652
Final Score	Creativity Score, CRR Score & Students' Self-Grades	0.695	**0.735**

To measure agreement between students' self-grades and judges/tutors scores, we looked at the frequency distribution of assessor/student scoring differences over increments of a half grade point. The differences were divided firstly into target grade (TG) that had an alignment range of +/- a half grade point. This range has been observed over many years where, in a panel of judges, individual judge assessments vary usually within a half grade point error. Larger negative differences indicated student over-grading (OG) while larger positive differences indicated student under-grading (UG). We discovered in SD2982 (both 2009 and 2010 cohorts) that, when using CMAM, there was a general tendency for the majority of the students to reach TG. The literature indicates that, to the contrary, students tend to over-grade their creativity. Our findings indicate that CMAM is working. Furthermore, TG generally increased with continued use of CMAM. An unusual finding occurred in SD2982 (2010) where in the second assignment the majority of students under-grading themselves! This is unheard of in the literature. In the following assignment, TG exhibited a major increase. The significant under-grading was probably due to students testing the system as opposed to thinking their work was somehow deficient. During student interviews, one student noted that CMAM could be perceived as a challenge for the more mathematically enlightened who want to 'beat' the system. This tendency was already considered in the model's

design...thus the return to objectivity.

The IC367 experiment found quite high inter-rater reliability for creativity scoring (two raters, α=.804), and a TG of 65.79% which was similar to the SD2982 (2009) study as well as to the high-end TG found in a single tutor's scores of SD2982 (2010) works. The IC367 students used a pared down version of CMAM (5 criteria only). COMP5323 had a TG of 83.33% via one tutor, but this was based on only 6 students, which is hardly indicative. Science-based students appear to be more objective in their self assessment but they also are less daring in their creativity (as seen in the types of paradigm movements they selected), probably because their final products must always be fully functional. It should be noted that both subjects provided substantial feedback to students which may have contributed to a higher TG. Additionally, students' scores did not contribute to their final grade, so there was little pressure to be less objective. At the same time, there was also little pressure to stretch themselves creatively.

HTM510 was an exception. TG was only 37.5% with the majority of students over-grading themselves. These results reflect the literature. The lower TG can be attributed to the fact that while the students' self-grades contributed to their final grade there was no significant accountability built into the scoring system because the self-grades counted equally with their CRR scores. Additionally, HTM510 is a master's subject in which students are expected to be proactive and highly competent. This may have led to agentic self-report bias, a display of independence as well as an attempt to make the self appear in a better light.

SD4233 was an interesting study in that supervisor resistance to CMAM automatically created a control group. Unknown to supervisors, project staff video interviewed (in Cantonese) at least one student from each supervisor, asking questions about their working relationship with their supervisor, whether they used CMAM and in what respect, and what they felt the model's strengths and weaknesses were, etc. Using this information, and an independent assessment of students' CRRs, students were divided into one of four quadrants of a matrix based on how engaged, or not, they and their supervisors were with CMAM. Quadrant I (experimental group) consisted of students and supervisors who were both engaged with the model. Quadrant IV (control) consisted of students and tutors who were not engaged with CMAM. Sample sizes in both quadrants were about equal. When comparing quadrants, Quadrant I students outperformed Quadrant IV students on the mean final grade (via an expert panel's assessment, 3.5 (B+) versus 2.25 (C)). The mean difference between students' self-grade and supervisors grade over two check points during the period of the final projects remained consistent for Quadrant I (mean difference=0.06) but increased for Quadrant IV (mean difference=0.65 to 0.75). This demonstrates that Quadrant I students were more in alignment with their supervisors in terms of grades while Quadrant IV students were not only less aligned but that alignment deteriorated over the period of the project. TG for Quadrant I ranged between 77.78% to 88.89% while for Quadrant IV, TG remained at 40.00%. All students worked on their projects in a high feedback environment. CMAM also made a significant difference in the actual achievement outcomes. Quadrant I students received 66.7% of all awards and recognition for their final projects while Quadrant IV received only 11.11%.

Students from SD2982 (2009) and SD4233 were both video interviewed and given a written survey. Key comments are as follows:

CMAM pros-

- helps students to *explore, define and select ideas*
- enhances *critical thinking, expression* and *communication skills*
- supports *motivation, introspection* and *abstract thinking*
- promotes the *creative/design process*
- requires an *early introduction into the curriculum* supported by appropriate *examples and references.*
- the ability to use it *improves with practice.*

CMAM cons-

- it's useful for writing reports (after project completion), *not useful for design development*
- *criteria are too limited*, they *don't communicate feelings* and don't allow for *quirky ideas*
- *standardized criteria block creativity*, students should reflect freely
- the criteria *don't reflect real-world design* issues
- it is *troublesome to evaluate one's designs*
- multiple CRRs on one project are a waste of time because *responses are similar*

The pros are actually important outcomes for the implementation of creativity in the PolyU. The cons are mostly the result of misunderstanding of CMAM. Students confused design process assessment with creativity assessment. This needs to be better clarified. They also did not realize that CMAM criteria, when used in both positive and reversed modes, allow for

almost 47,000,000,000 different creative solution types. For example, an exercise that asks students to reject an existing paradigm then develop an original product that is useless but has aesthetic appeal is, though unusual, also allowed by the model. In short, there are many creativity exercises that emerge from the model that could be used to teach students how to develop novel ideas that actually have value. The criteria can also be used in an organizational setting and applied to real-world products. The trouble with self-evaluating designs stems from a lack of critical thinking skills, a prevalent problem in most student submissions. This was also the source of many repetitive responses. The only potential challenge to CMAM is the comment that standardized criteria block creativity. Students, however, were not made aware of the vast possibilities of criteria usage or of the extensive context(s) that support them. A model for CMAM context (denoted as creative potential) has been generated by both project results and the creativity research literature. It can be found on page 257 of the Research Report.

Creativity requires the use of critical thinking in evaluating creative works. We found that most student CRRs (regardless of their field of study) involved descriptions of the idea/product, opinions, and some interpretation. Students were extremely weak in analysis, evaluation and making inferences. The original CRR criteria have been modified to help correct this problem. PolyU needs to expend some effort in enhancing critical thinking, especially when directed at students' evaluations of their own works.

Design students, as expected, significantly outperformed all other students in the experimental group in terms of creative works. There was a tendency for females to outperform males, though not significantly. Another finding was quite interesting. Females, in most studies (and experiments), had a tendency to be more objective in self-grading than males. This is attributed to cultural issues which channel females self-report bias toward a communal approach (the desire to affiliate better with tutors, society etc.) while males are generally more agentic in nature (independent, self propelled, self-glorified). This needs further study as females in certain environments (e.g. SHTM masters programs) may also display agentic bias.

Students reported the level of difficulty for each assignment. The results from this are quite consistent. Those that felt the assignments to be more difficult received lower creativity scores from their assessors. The finding mirrors Czikszentmihalyi's (1996) theory that in order to be in a state of creative flow, an individual's skills must match the challenges being presented. If students feel that a challenge is too high, they become de-motivated. The same students also had a tendency to grade themselves lower.

Overall, CMAM proved to be a successful model for not only assessing creative works but for motivating students to be more creative, for building their confidence and guiding them to realize the real value of their works. The tutors were encouraged by CMAM to think more deeply about students' works. An important factor in CMAM's success is that each assignment should receive feedback bearing the tutors' professional opinion about level and quality of creativity as well as about the students' capacity to reflect on their work within the context of CMAM criteria. As one student put it, "How can I learn to accurately assess my own work if the tutor does not provide feedback and grading based on the same criteria."

MEASURING CREATIVE POTENTIAL: INTRA-INSTRUMENT RESULTS

A. *Information Boundaries Recognition Test (IBRT)*

Students at the PolyU are not fond of asking questions in class so it is somewhat difficult to determine the types of questions they tend to ask themselves, whether open or closed for example. This instrument measures the ability of students to ask open-closed questions across nine question types in response to both figural and verbal stimuli. It also measures whether students' questions are tied to a specific stimulus, abstracted from the stimulus and/or bear affective content. Five judges scored the test and reliabilities were very high (α>.90) for both open-closed and nine basic question types conditions. Reliability for the cognitive reactions to stimuli required judges to have special language skills. The three selected judges' reliabilities (using Cohen's kappa) were good (k=.73-.80). We realized from the data that reliability can be improved with training. Overall, students scores appreciated from pretest to posttest; but this could be due to practice effects. Closed questions tended to predominate which is probably not a good thing. There was a drop in figural open questions which correlated most with creativity. The drop is attributed to the overall influence of students' selected fields of study on their questioning habits (tendency to ask closed questions and the predominance of text-based questions) as SD2982's creativity training actually increased student receptivity and creativity. The apparent reduction in questioning requiring visual spatial perception and reasoning is a bit alarming.

An unusual pattern emerged across all the data. Students faced with a figural stimulus tended to ask questions that are bound to the actual physical stimulus. They could not abstract from that stimulus and make external

associations. On the other hand, when faced with verbal stimuli they could abstract and make associations quite easily. Although this conjecture requires further research, it is perhaps feasible that the Chinese language itself has moulded such a response. For example, Chinese characters can be quite complex to read and write, so attention to detail is important; however, in terms of meaning, the characters use radicals and sounds which facilitate associations between words. The verbal stimuli used were Chinese characters. In English, attention to detail in reading and writing letters is less important and abstraction in terms of meaning takes considerable effort as the words themselves are often not linked visually. The inability to abstract visually-spatially is problematic for higher forms of creativity, especially when many variables are involved. It must be remembered that creativity is strongly linked with right hemisphere processing. Another finding was that students tended to ask more determiner-type questions (e.g. what?, how many? etc.) which points to strong semantic processing (the brain's capacity to name and memorize items). Again, abstraction is probably inhibited. 'Why' questions were generally much weaker than determiner questions, more so in the figural mode. Women outperformed men on most forms of questioning.

Results suggest that the effects of prior education coupled with any tendency within the PolyU to ask students to memorize and regurgitate information as opposed to engaging in open questioning (which may even challenge a field's basic assumptions) adversely affects creative thinking. Staff must also consider the types of questions they ask students. If they wish students to ask more open questions, they might want to do the same.

B. *Idea Generation Inventory(IGI)*

As expected, the experimental group (N=77) who were both interested in creativity and underwent creativity training performed better in DT than the control group (N=86). A group of FB students (N=76) who had also taken the *Abbreviated Torrance Tests for Adults* performed generally better on IGI tasks than the control group but less than the experimental group. Designers significantly outperformed nondesigners, and females outperformed males, but not significantly. The IGI posttest proved more difficult than the pretest. The added difficulty was attributed to similar task designs that involved subtle changes, for example, symmetrical figures replaced by asymmetrical figures, increased constraints on figural patterns and common objects, shifts from concrete to more abstract tasks, and comparisons that became increasingly constrained, requiring higher levels of abstraction. Test times followed the same pattern as performance with higher means for the experimental group, lower means for the control group, etc. We can conclude that motivation is a major factor in DT performance. Besides motivation, the experimental group's high performance cluster increased in size by 100% over the course of the semester providing evidence for the effectiveness of the creativity training intervention. This did not occur in the control group. Evidence indicates that timed DT tests exclude some creative individuals. This is a bombshell, if replicated, for the field of creativity assessment because all renowned DT tests are timed. Additionally, the difference in the rate of generating original responses over time between professional designers/creatives and students is generally not that large. This denotes that more life experience and a broader knowledge base is important for creative endeavour. The PolyU should seriously consider this factor in all its programme designs, and not just within its general education program or for first year subjects planned in the upcoming four year curriculum. In other words, information delivered within any program should be associated more diversely with other disciplines.

A significant weakness was observed in all the students, designers or not. They had difficulty with the *similarities* task in which they were asked to find similarities between a 'cat & mouse' and 'meat & milk'. To generate original responses requires students to transcend literal interpretations of these phenomenons, that is, abstract. The task measures the capacity to make original associations between things, a capacity which is the bedrock of creative performance. Poor performance in this respect probably indicates that originality is stymied by a more practical, pragmatic mindset.

C. *Integral Psychological Profile (IPsP)*

This instrument is based on the *I-Ching*, a ancient non-linear prediction system involving four complementary opposites (i.e. eight trigrams). The system is based on the idea that certain fundamental properties of nature interrelate with one another in a non-hierarchical fashion. At the same time, they are both independent and unified at a higher plane. Traditional predictions are based on random determinations of a single construct (i.e. hexagram). The *I-Ching* system was modified in the IPsP to measure all 64 constructs (as questions) all at once, via a self-report, with the following fundamental attributes serving as higher order properties: *leadership, creativity, adaptability, organization, receptivity, exploration, discrimination* and *communication*. Each attribute was measured in terms of aptitude and application. Statistical analysis of survey data based on such a system was very challenging because most statistical algorithms seek to define constructs as separate entities with some fixed

order in their relationships. Our data showed the 64 questions to be both independent and unified, depending on the algorithms used! Eventually, we settled on a signal processing approach to filter in the higher order variables (the eight trigrams). The IPsP proved to be accurate, very sensitive to changes and capable of providing depth analysis into the various constructs. Students in the experimental group exhibited a shift from *organization* and *creativity* aptitude at the beginning of the semester to *creativity-discrimination* and *receptivity* aptitude at the end of the semester. In terms of application, they moved from *leadership-adaptability* at the commencement of the semester to *exploration* and *communication* at semester's end. These qualities reflect the training that they had received, such as increasing their aptitude for creativity, learning to evaluate creative works, open-mindedness and learning to explore and communicate of new ideas. Designers showed some weakness in *discrimination* and *communication* when compared to nondesigners. The lower levels for designers' *discrimination* could be the result of enhanced *discrimination* in the control group because this sample studied the scientific method and practiced more critical thinking. Another possibility is that designers see more possibilities or interpretations of phenomena than nondesigners and may have trouble differentiating the 'best' solution. Females scored themselves higher than males in *receptivity* and *communication* which is not surprising.

IPsP, unlike many self-reports, is a very opaque instrument; that is, students responding to questions cannot determine exactly what is being measured. This is an advantage of the instrument because it reduces self-report bias. The level of transparency ranged between 7-12% above randomness. Responses on IPsP suggested that some students are more proactive than others. Proactivity (and reactivity) seem to follow scores above and below the mean respectively, and can be associated with any one of the eight attributes. Proactivity-reactivity levels may be important in determining students' capacity for self-learning. Problem-solving styles are also measured by IPsP but results need to be verified against known instruments for measuring these constructs such as the *Kirton Adaption-Innovation Inventory*. IPsP also should be tested against other psychological profiles such as the *Chinese Personality Assessment Inventory*.

D. Unusual Gratitude (Assign1)

The reliability in scoring Assign1 originality was quite good (12 judges α=.781; 3 tutors α=.707). Students when asked to provide unusual items that they feel grateful for employed a number of strategies to accomplish the task: atypical knowledge, elaboration, subtle observation, obviousness, uncommon scope, irony, aversion, reversed assumptions and remote associations. The ability to effectively use these strategies appears to develop uncommon sense which is important in both scientific and artistic creativity (and everything in between). Armed with this new insight into the instrument, we can develop better training for future assessors and therefore increase reliability. As Assign1 cannot use a typical scoring system based on a lexicon of responses (because this instrument employs a completely open task, i.e. gratitude for anything and everything), a new scoring system was developed that is both fast and effective. The instrument may be more effective than many existing DT tests to measure creativity because it involves affect, and by default implicit motivation. Implicit motivation is known to be a key component in creativity. Creativity, by definition, requires additional effort, and therefore motivation, in order to manifest something beyond what already exists. Designers significantly outperformed nondesigners in this measurement and females outscored males (though not significantly). Though not part of this project, we have used this exercise in a pared down version for interviewing masters' program applicants. Preliminary results suggest that it can be used effectively for quickly assessing a student's capacity for original thinking.

MEASURING CREATIVE POTENTIAL: INTER-INSTRUMENT RESULTS

A. IBRT & IGI

IBRT had significant negative correlations with all IGI tasks while figural open questions had the most significant positive correlations with IGI *originality* (r=.342 - .504, p<.01) and *fluency* (r=.396 - .506, p<.001). Closed questions had the highest negative correlation with *pattern* (a figural task). This suggests that the capacity to ask open questions, particularly in the figural mode, is related to DT while closed questioning is not. Again, in order to enhance creativity, teachers need to promote open questions, particularly those which involve visual-spatial perception, logic and reasoning. Open questions like 'what?', 'where?', 'how?' and 'how many?' in the figural mode appeared to relate more strongly with DT than others. 'Why?' questions did not correlate significantly with DT. This is unusual because 'why?' questions allow for the transcendence of basic assumptions, a requirement in many forms of higher creativity. It is possible that students at PolyU use why questions in a more narrow sense (field specific) while most DT tasks are usually quite general in nature. At the same time, 'why?' questions in the figural mode showed a significant decrease between tests. This may have affected correlations with IGI tasks. 'Why?' questions, on the other hand, increased between tests in the verbal, or language, mode. This suggests, perhaps, a greater focus on text-

based learning. "What if?' questions were almost nonexistent in the data. This type of question has been recognized as important in generating alternative solutions to problems. Its absence was a bit disheartening.

B. *IBRT & IPsP*

In the pretests, verbal open questions correlated best with IPsP aptitude over the eight attributes. Both verbal and figural 'what?' and 'how?' questions correlated best with aptitude in the posttests. This makes sense because these questions most likely enhance aptitude by increasing knowledge about process. IBRT open questions (mostly verbal) correlated best with *discrimination* and *creativity*. *I-Ching* questions are notorious for their multiple interpretations. Traditionally, it took a fair amount of *discrimination* and *creativity* to interpret them. In the application condition, IBRT open verbal questions correlated best with *leadership*. In the *I-Ching* system, *leadership*, *creativity* and *discrimination* are considered *yang* attributes (more active than passive). In this respect, the ability to ask open questions in the verbal mode (especially) seems to enhance a more psychologically proactive position. Designers had more significant correlations with both instruments than nondesigners. In the pretests (before any creativity intervention), designers best predicted *organization* and *receptivity*. *Receptivity* is understandable as it involves openness to experience, a psychological factor known to correlate well with creativity. *Organization* is a bit of an unusual finding as designers aren't commonly perceived as being highly 'organized'. On the other hand, the ability to organize highly subjective material for analysis and presentation, which designers must do, is perhaps more demanding than other forms of *organization*. One question that arises from the data is, 'How important is the capacity to ask open questions to overall psychological integration?' It would appear to be quite important, especially with regard to *creativity*, *leadership* and *critical thinking*. This finding reflects the *I-Ching* theory that *yin* attributes (i.e. receptivity, open-mindedness, open questioning) stimulate their complementary opposites. There appears to be some need, especially for nondesigners, to develop these attributes. Open-questioning is a good start.

C. *IBRT & Unusual Gratitude (Assign1)*

Quite strangely, there was an increase in positive correlations between Assign1 *originality* (which was taken at the commencement of the semester) and the IBRT posttest's open questions but negative correlations for closed questions; that is, there appears to be a delayed effect as though the creativity intervention in SD2982 allowed unusually grateful students to ask more open questions. Designers' open figural questions correlated positively with Assign1 *originality* while nondesigners closed questions correlated negatively with the same. The effect of the design/nondesign condition was somewhat low (nondesigners, β=-223, $p<.05$) with designers significantly outperforming nondesigners. Again, we see the importance of visual-spatial perception and reasoning taking precedence in creativity. This finding is mirrored throughout the project.

D. *IGI & IPsP*

IPsP did not significantly correlate with IGI in the control condition; however, IPsP posttest *creativity* aptitude positively correlated with IGI posttest *line*, *instances* and *similarities* task *originality* as well as *line*, *uses* and *instances* task *fluency*. The effect sizes were low to moderate ($r=.275$ -.392, $p\leq.05$). Note that except for the *line* task, most of the mentioned tasks are verbal. In short, IPsP shows a much stronger verbal relationship with DT. The same level of correlation did not appear for *creativity* application denoting, perhaps, that students, though learning how to be more creative, did not feel that they were proficient enough to apply their new knowledge in their respective fields. [This was actually mentioned by some students as well.] The greatest effect size was for nondesigners who shifted their IGI correlations with IPsP from *receptivity* to *creativity* in the posttest; that is, nondesigners seemed to benefit most from the SD2982 creativity intervention.

We also looked at creative problem solving styles measured by IPsP. There was a significant drop in the *adaption* style at the end of the semester while *innovation* remained more constant...that is, students relied more heavily on their intuition to solve problems at semester's end. This finding fits the nature of the creativity intervention in which intuitive approaches were used more than systematic approaches. For nondesigners only, IGI's *pattern* (pretest) and *instances* (posttest) tasks correlated with the majority of IPsP's attributes. The former task is figural while the latter is verbal. Both these tasks require a fair degree of pattern formation and abstraction. It suggests that increases in pattern formation and abstraction in those who are nondesign-oriented enhances overall psychological integration, and vice versa. Again, the necessity to enhance abstractive capacity is highlighted in the data. It must be mentioned, however, that the findings are somewhat weak as they did not appear in a more rigorous regression analysis.

E. *IGI & Assign1*

Assign1 significantly correlated with all IGI tasks in all conditions including *originality*, *fluency* etc. (r=.230 -.453, p≤.05) and predicted, via regression analysis, the *line, pattern* and *uses* tasks (β=.229 - .323). The lower effect sizes indicate that Assign1 has quite good discriminant validity with respect to this DT test. That Assign1 is easier to score than lexicon-based DT tests makes it a good contender for assessing creative potential. Part of the benefit of Assign1 as a task is that it is not limited to a particular stimulus and can cover both general and specific forms of creativity. It may be very useful for assessing PolyU students' overall creative potential, particularly with respect to originality.

F. *IPsP & Assign1*

The relationship between these instruments showed no coherent pattern but the correlation effects reached higher levels than for other inter-instrument comparisons (r=.278 - .550, p≤.05). Designers' Assign1 originality scores had positive correlations with *exploration, adaptability* and *leadership. Exploration* is important for creative endeavour. *Leadership* has been associated with creativity because a creator, by definition, leads people from one point in idea space to a new point. *Adaptability* allows for individuals to change perspectives when required. In a more rigorous regression analysis, designers (when compared to nondesigners) exhibited significance effects in *creativity*, *receptivity* and *exploration* (all key attributes in creative thinking). *Receptivity* is related to open-mindedness (e.g. openness to experience) which researchers associate with creativity. Again, both instruments are validated by these results.

G. *IGI & ATTA*

The correlation between these DT tests was unusually low (r=.236 - .346, p≤.05). After discussing the original norming sample (not published) with one of the authors of the ATTA, the low correlation can be primarily attributed to task differences. That is, whereas the IGI demands verbal responses to figural stimuli (*line* and *pattern* tasks), ATTA demands figural responses to figural stimuli (*Activities 2&3*). The fact that ATTA *Activity1*, which requires a verbal response to a verbal stimulus, had the highest correlation with IGI tasks supports this conclusion. Other factors involved in the discrepancy might be a) some cultural bias in the ATTA scoring system where common responses for the USA sample are uncommon in the Hong Kong sample and vice versa b) ATTA activities are scored with 1 point given for each unusual response while IGI uses a 5-point Likert scale and an extensive lexicon which gives different points for unusual and unique responses. If PolyU decides to use the ATTA in the future, it should consider its accuracy of use in Hong Kong. FB students taking the ATTA performed quite well against the USA norming sample, but only somewhat better on the IGI than the control sample. Does this mean that USA college students, especially females, are more deficient in DT than HK students? Previous studies have indicated to the contrary. However, Hong Kong's continued support of creativity coupled with local implicit theories that perceive business people as being very creative could contribute to a possible shift in international DT profiling especially in terms of business studies.

COMPARING CREATIVE POTENTIAL TO CREATIVE ACHIEVEMENT

IGI correlated positively and significantly with SD2982 assignments but the effect sizes were low to moderate (r=.220 - .361, p≤.05). Figural tasks again correlated better with each assignment's *overall creativity grade*. These findings support previous research. The low effect size may be due to the generality of DT tests contrasted to the field-specific requirements of most creative works. It must be noted that SD2982 assignments were complex in terms of their figural/verbal requirements, critical thinking and other factors. These could contribute to low effect sizes.

IBRT correlation effects with the assignments were even lower than those of IGI. Figural open and closed verbal questions correlated positively with Assign2 (r=.264 and .191, p<.05, respectively) while open figural questions correlated positively with Assign3a (r=.202, p<.05). The positive correlation with closed questions may be attributed to lower levels of creativity at the beginning of the semester. Creativity criteria often had a strong positive skew. The most important variable affecting these results was the design/nondesign condition (nondesigners β=-.369), with designers again outperforming nondesigners.

There were no significant correlations between IPsP and student works. This was somewhat expected because IPsP is a self-report that measures psychological constructs. Increases in students perception of their own creative potential and abilities does not necessarily translate into creative works, though it can enhance creative potential. In all cases, the design/nondesign condition took precedence; that is, designers had a better opinion and understanding of their creativity. They also did better on assignments, but their performance was not necessarily dependent on their self perceptions.

Assign1 had a low but positive and significant relationship (r=.297) with Assign2's *overall creativity grade* as well as all other novelty criteria (r=.255 - .297). [Note: Most effect sizes under r=.300 are significant at the p<.05 level.] Assign2 was the only assignment this instrument could viably be compared against (as they occurred at the same time). Assign1 did not correlate with *paradigm movement* or *problem resolution* criteria but had a positive correlation with *elaboration and synthesis* criteria (r=.243 -.280) as well as *effort evident, planning* and *organization*, also at similar levels. [Note: the latter criteria tend to load on *elaboration & synthesis* during factor analysis.] Assign1 appears to have some value in assessing creative works. The lower correlation effects can be the result of comparing *originality* constrained by a specific creative task as opposed to *originality* which spans the spectrum of human experience (provided the student is able to have a reasonable number of categories, or flexibility, in their Assign1 responses).

Overall, we can conclude that the measurement of creative potential has a significant correlation with creative works but the effect size is generally rather small. This supports the literature. On the other hand, motivation is a somewhat different story. SD2982 students were asked to keep creativity logs. Log page-counts were conducted and the correlation between the *overall creativity grade* on assignments was significant and had higher effect sizes than the psychometric instruments (r=.254 -.594). In other words, motivation is, again, a key indicator of creative achievement. That is, it is necessary to expend extra effort in creative endeavours and that requires motivation. Psychometric tests have their value but they cannot be construed as the last word in assessing an individual's creativity. They should be used with caution. On the other hand, CMAM appears to have a much greater value in assessing real world creativity.

RECOMMENDATIONS

A list of recommendations for applying CMAM within the various knowledge domains of the PolyU as well as for generally enhancing creativity in programs and subjects can be found in chapter XXI. of the detailed Research Report attached hereto.

REFERENCES

Amabile, T & Hennessey, B.A. (1999). Consensual assessment. In M.A. Runco and S.R. Pritzker (Eds.), *Encyclopedia of Creativity, Vol. 1.* (pp. 347-359), San Diego, CA: Academic Press.

Czikszentmihalyi, M. (1996). *Creativity: Flow and the psychology of discovery and invention*, New York: Harper Collins.

II. DELIVERABLES

The following deliverables have been developed by this project:-

1. SD2982 *Creativity in Cognition*, a 2-credit General Education broadening subject to teach creativity via CMAM and an assortment of creativity tools.
2. SD4323 *Final Project (VC), IC367 Industrial Centre Training II* , and HTM510 *Training & Development in Hotel & Tourism Industry* are subjects now prepped in using CMAM to enhance and assess creativity their future cohorts.
3. *Information Boundaries Recognition Test*, a psychometric instrument for measuring students' capacity to ask different types of questions. It is related to creative capacity. For future applications, a per-test labour charge must be levied for scoring this instrument according to sample size. Group results will require additional statistical analysis.
4. *Idea Generation Inventory*, an untimed divergent thinking test based on the *Wallach-Kogan Creativity Tests* which is delivered online. A substantial lexicon of responses has been generated and the instrument is close to being normed for use in PolyU and elsewhere. For future applications, a per-test labour charge must be levied for scoring this instrument according to sample size. Group results will require additional statistical analysis.
5. *Integral Psychological Profile*, a new psychological profile survey that measures key attributes in many soft skills promoted by the PolyU. It is useful for recruitment, assessing progress in departments, programs, subjects and for staff development. Scoring of individual results is handled automatically, online. Group results will require additional statistical analysis.
6. *Unusual Gratitude*, a psychometric instrument that measures uncommon sense. It allows for a very broad range of original responses and may prove to be of more value in assessing divergent thinking than existing tests as it incorporates affect and is easier to score. For future applications, a per-test labour charge must be levied for scoring this instrument according to sample size. Group results will require additional statistical analysis.
7. The *Creativity Momentum Assessment Model* (CMAM), an complete system for measuring creative works in an

educational context across all knowledge domains; for assessing creative products, expressions, processes and measuring creative problem finding. CMAM enhances creativity through the assessment process and empowers students to be more creative. CMAM may have considerable value in organizational contexts as well. CMAM provides a complete system of criteria, rubrics, and a template for Creative Reflection Reports. The attached Research Report makes recommendations for its use in various educational contexts.

8. The *Creativity Assessment Project Research Report*, a 300-page detailed report on the entire project which is designed to be easily navigated by different types of readers in accordance with their specific needs and interests.
9. A 2-hour PowerPoint presentation seminar on the findings of CMAM (to be followed by others).

(e) Dissemination activities taken/planned to sustain impact

The results of this project are, and will be, disseminated in the following manner:-

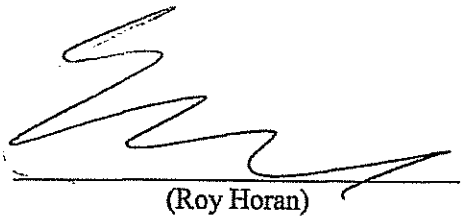
1. The *Creativity Assessment Project Research Report* is being distributed to all project members, key members in the School of Design who govern programs and academic development, the EDC, SHTM, COMP, FB, and IC. The Education Bureau has asked for a copy (and probably a presentation). The Hong Kong Institute of Education has a copy. Other departments can receive it upon request.
2. The Chinese University, Faculty of Arts, has scheduled an interview with the project leader about creativity assessment and enhancement as part of their initiative to enhance creativity on campus.
3. Creativity researchers at City University and CUHK are interested in the findings and perhaps future collaboration.
4. A recent TEDx talk by the project leader mentioned some of the results. The talk was streamed live worldwide.
5. The Wall Street Journal has asked for an interview with the project leader.
6. Seminars have been presented to SD staff and masters students on CMAM as an assessment model.
7. Seminars for PolyU staffs and students will be offered via EDC in the near future.
8. Seminars will be offered to the other universities in Hong Kong
9. The Hong Kong School of Creativity is interested to know the results and perhaps implement some of the recommendations.
10. At least six peer-reviewed journal papers in top creativity research journals will be published. One of the editors is already studying the findings.
11. Future research is expected to emerge from the project.
12. The findings can be incorporated in training for secondary school teachers in the art of introducing creativity into their syllabi.

(f) Self-evaluation or additional information/remarks

In general the project went smoothly, considering its complexity. It was a first attempt in the Far East to innovatively extend research methods that have emanated over the past 60 years within the USA and Europe. It takes a deeper look at assessing creativity in local university students and highlights some of their strengths and weaknesses. The results are expected to have ramifications within the Hong Kong education system and inspire future research.

To move forward, it is advisable for the PolyU to implement the findings herein as well as extend the research into longitudinal studies across its various departments. I would also be helpful to involve other universities so that the findings become more universal.

One observation that surfaced during this project is that creativity is not a simple construct. It is tied in with adaptability, receptivity, exploration, leadership and discrimination (critical thinking) as well as certain cognitive abilities such as visual-spatial perception/ reasoning, self learning in relation to the capacity to ask open questions and affect in terms of gratitude. In this respect, creativity is much more than the ability to generate novel concepts which have value. It is fundamental to the healthy growth and development of society. For this reason, it should be really nurtured in our education system, rather than given lip service in the form of institutional promotion (in the face of the accepted somewhat rigid exam-based system). In this regard, PolyU should be commended for its support of this project. As a university, it has taken a leap forward in the enhancement of creativity in Hong Kong, and perhaps even worldwide.

Name of Project Leader:  Date: 08-11-2010

(Roy Horan)

Part III: Evaluation by D/SLTC (or by HoD/Director of School^)

(a) Rating and comments/recommendations on the following areas of the project

(please put a ✓ in 1 of the following 2 ratings and provide comments)

Areas	*Rating*		*Comments and Recommendations*
	Satisfactory	*Needing attention*	
Overall financial management/ use of funding	✓		
Overall project progress	✓		
Outputs /deliverables / dissemination	✓		
Overall rating / comments on the project (Please suggest remedial actions if the rating is 'Needing attention')	✓		A very valuable outcome regarding creativity.

(b) Issues requiring the attention of FLTC/Director of School and/or the funding authority

(c) Outputs/deliverables/good practices of the project that can be shared with other subjects, programmes or departments within the Faculty, or with the wider PolyU community

The research report is full of useful materials that can be shared with colleagues and other departments. The PI is planning to deliver them in several journal paper.

(d) Additional comments/remarks

The PI is also applying for further funding to support his research in more depths in the coming years.

Name of D/SLTC Chair
(or HoD/Director of School): FUNG Ho Yin (in block letters) Date: 8/11/2010

^ *To be prepared by HoD/Director of School **if** the PI is also the D/SLTC Chair, **or if** the Centre/Unit/Office does not have a DLTC.*

Part IV. Evaluation by FLTC/Director of School#

(a) Overall rating on the project (please put a ✓ in 1 of the following 2 ratings):

☑ Satisfactory

☐ Needing attention

(b) Overall comments and recommendations on the project:

This has been an excellent project that helps to assess Creativity issues and how to address them for more effective outcomes. The multi-variate work will be the basis for other projects to come.

(c) Issues requiring the attention of the funding authority:

Name of ~~FLTC~~ Chair/
Director of School: Lorraine Justice Date: 11 NOV 2010
(in block letters)

 # The Director of School or HoD of the Centre/Unit/Office needs not fill this part if he/she has already commented in Part III.

Part V. Response & Follow-up Plan by Project Leader

(Response and follow-up plan is required from the Project Leader if there is any area rated as 'needing attention' in Part III and/or IV.)

Name of Project Leader: _____ Date: _____
(in block letters)

Signature of Project Leader	Signature of D/SLTC (or HoD)@	Signature of FLTC/ Director of School
(Name in block letters)	(Name in block letters)	(Name in block letters)

@ To be signed by HoD if the PL is also the DLTC Chair, or if the Centre/Unit/Office does not have a DLTC; leave this blank if the PL is also the SLTC Chair.

The Project Leader and D/SLTC Secretary should each keep a copy of this *Completion Report* for records.
A copy of this *Completion Report* will be submitted along with the *F/SLTC Annual Report (Form 20)* to LTC/WGOBE as a supporting document.