

A creative thinking workshop in a vocational education classroom

University : Griffith University

Course: 5285 Master of Digital Design

Subject: 7047QCA - Digital Design, Theory and Practice

Lecturers: David Keane, Donald Welsh, Rae Cooper

Student Name: Cathy Stephens

Student Number: s368645

Date: May 12, 2013

Copyright: © of Cathy Stephens 2013. Cathy Stephens has referenced information used in the development of this project.

Title: What is FRED—or why MDD flies the FREDly way

Stacking: This item is not yet stacked at May 2013, although I aim to investigate this theme further as part of my MDD.

Contents

Abstract:	3
FRED ref :	4
Web keywords:	4
Content	5
A personal introduction—scope of this FRED	5
Types of creativity	6
Creativity and graphic design	6
Context of the creative thinking workshop	9
Content of the workshop	13
Self-reflection/Critical Analysis	16
Possible future investigations	24
Q&A	25
References	27
Appendices	30
Appendix 1—Workshop introduction visuals	30
Appendix 2—Feedback questionnaire	31
Appendix 3—Photographs of idea box	32
Bibliography	33

Abstract:

The Vocational Education sector is one of Australia's largest educational sectors.

Based on the idea that the best method to educate a workforce is to train them for tasks they will encounter in their day-to-day work, competency based training focuses on students attaining a broad range of skills for workplace competence.

As graphic designers use little-C and pro-C creativity on a day-to-day basis of their career, learning to think creatively, on demand, should be a priority component of any graphic design vocational training. The question for Vocational educators is how can we develop creativity as part of the curriculum. With its focus on accelerated learning, delivery of competency units of content that are directly related to workplace tasks and are accessible against a standard competency matrix, cultivation of creative thinking must be expedient.

This paper examines the delivery of a short creative thinking workshop delivered to vocational training students which concentrated on divergent thinking, risk, randomness and reflection.

In the accelerated learning, workplace-orientated environment of the vocational training sector, is there support for creative thinking education, and can this education improve student assessment task outcomes?

FRED ref :

Creative thinking, vocational education and training, competency based training, idea box, attribute listing, big-C creativity, little-C creativity, pro-C creativity, mini-C creativity, divergent thinking, graphic design education,

Web keywords:

Creative thinking, mind mapping, idea box, risk, randomness, creative thinking techniques, creative thinking tools. graphic design, graphic design education,

Content

A personal introduction—scope of this FRED

As a trainer in the area of vocational education, I have noticed that the internet has had a profound effect on the research and graphic design development. Whereas many years ago, a student would be given a practical graphic design assessment, they would probably chat to their fellow students, doodle, flip through magazines, make lists and eventually find their way to the library for inspiration, now Google is the first port of call to search for existing solutions to similar design problems.

Though this may assist design students with maintaining the currency of their understanding of design trends, it does not encourage originality of thought, nor improve problem-solving skills. There is also a growing concern about the prevalence of visual plagiarism: as the students are so used to immediately accessing Google images for their “inspiration”, the line between drawing ideas from a published source and copying these ideas verbatim has been blurred for them (though not necessarily in the eyes of the law).

This all-embracing subject of the seeking of originality is perhaps too broad for this FRED. Rather, this is an examination of the implementation of one creative thinking workshop in a Vocational Education and Training setting, with the aim of replacing this mind-set with a more productive one for future designers.

Creativity

Types of creativity

Cognitive Psychologists have defined common distinctions of creativity: Big C (eminent)/little-c (everyday) dichotomy. “Big-C Creativity refers to unambiguous examples of creative expression (e.g., Dickinson’s poetry, Coltrane’s jazz, Freud’s psychology). In contrast, little-c creativity focuses on the creativity of everyday life (Richards, 2007)—experiences and expressions accessible to most anyone, for example, the novel way a home cook includes ingredients in a recipe, which is later praised by family and friends.” (Kozbelt, Beghetto, & Runco, 2010, p. 23) As Lin (2011, p. 151) notes, “Instead of highlighting remarkable achievements, little c creativity (LCC) focuses on the agency of ordinary people and recognizes everyone’s potential to be creative in terms of everyday problem-solving.”

Kozbelt et al, 2010, p. 24 note that there are limitations to this dichotomy, which are not inclusive of many forms of creativity. To account for the interim grounds between the extremes of these categories, Beghetto and Kaufman (2009) also included two additional labels. The mini-c category is the more internal form of little-c, internalization, interpretation and transformation of learned knowledge, and the pro-c applies to professional level creators who may not yet or may never attain eminent or genius status, say Beghetto and Kaufman (2009, p. 73).

Creativity and graphic design

Some would define graphic design as being about presenting pleasing layouts of text and graphics, (Judy Litt quoted in Smith, 2001, paragraph 18), skills which may be taught through theories and software training. However, the broader understanding of graphic design in the digital world involves a sophisticated process of professional communication and development of innovative concepts (Graham & Whalen, 2008, p. 75-78).

It is also part of the designer's vocation to "seek innovative ways of dealing with problems" and "challenge the status quo" states Welch (2008, p. 3).

Graphic designers use little-C and pro-C creativity throughout their careers and on a day-to-day basis. As Brandon said (of graphic designers), "After all, creativity is our job." (Graham and Whalen, 2008, p. 66)

Of special interest to graphic design educators is the idea that "later forms of creativity arise out of earlier little-c interpretations and this 'highlights the creative, transformative process involved in developing personal knowledge and insights.'" Welch, 2011, p. 3. As creativity is believed to be a life-long process, educators have a vital role to play in facilitating creative problem solving, to enable future designers to find the best solution quickly (Esquivel, 1995, quote in Lin, 2011, p. 151).

Vocational education of Graphic Design

Vocational education and training or competency-based training is based on the idea of preparing learners for the workforce by facilitating their acquisition of a broad range of abilities and skills to a level of workplace competence. Competency checklists specify what attributes a learner must demonstrate throughout the course, based on determined workplace skills and profession-specific expertise (Vorhees, S., 2001, p. 87). Vocational Educational and Training is industry-led, open access and designed to be suitable for adult learners (Harris, R. & Ramos, C. R., 2012, p. 390).

As Smith, E. (1999), p107 describes, the widely-accepted definition of CBT is "Training geared to the attainment and demonstration of skills to meet industry-specified standards rather than to an individual's achievement relative to that of others in a group (VEETAC, 1992:5-8)."

While competency based training focuses on the consideration of whether a learner is adequate to participate in the workplace on completion of the VET qualification, the emphasis is on competent performance, rather than extensive knowledge. Yet evidence—especially for vocations not directly related to business or service—suggests that employers and learners prefer a greater depth of knowledge. (Smith, 2010, p. 62)

Assessment

Traditionally, VET assessment tasks are based on the competency standards of the particular industry (in this case, graphic design). There has been a move towards Criterion-based, graded assessment in the past decade and this is becoming more common (Smith, E, 1999, p. 108).

Van Vyver (2007, p. 335) documents that “Many critics justifiably point to the often low levels of performance required to be certified competent” and there is the concern (Morgan & O’Reilly, 1999; Dunn, Parry, & Morgan, 2002) that criterion-referenced assessments reduce complex professional practice into a set of low-order, observable tasks. The notion of competency in graphic design can be problematic, as it assumes that a level of competency or basic adequacy in graphic design tasks is sufficient to become a qualified designer. Smith noted (1999, p. 112), “CBT offers no incentive to excel, as regardless of how well you do, you still receive a “competent.””

In a CBT design course such as the Certificate IV in Design, the majority of assessment tasks are based on a demonstration of skills (Smith, E, 1999, p. 112).

Fostering creativity in VET graphic design education

If we accept that graphic designers require creativity, then the question for Vocational educators is how can we develop creativity as part of the curriculum.

As Rowlands (2011, paragraph 27) notes, Amabile (1983) and Bohm and Peat (2000) insist that extrinsic motivation—rewards, punishments and arbitrary requirements—is detrimental to creativity, making the creative process repetitive and mechanical. Intrinsic motivation is conducive to creativity, so the challenge for the teacher is to create an environment rich in developing awe and internal motivation for creativity.

However, we also know that “creativity requires work, either in learning a skill or an academic subject, which is suggested by the old saying that creativity is 1% inspiration and 99% perspiration” Rowlands, 2011, paragraph 27.

As Welch (2006, p. 2) states, “Creativity needs exercising” and this must be included in design education requirements.

Context of the creative thinking workshop

The aim of the workshop

Rowlands (2011, paragraphs 25-37) asserts that, though the creative thinker challenges rules, assumptions and rejects the standard, they do so with meaningful knowledge and links to academic knowledge and rules of their interest area. However, as Logan (2006, p. 336) notes, graphic design educators have found that students who develop a pattern of reusing previously successful solutions for continuing design challenges may become limited in the breadth of their graphic design understanding and fail to enrich their design journey.

A further issue which has been identified (Sternberg & Lubart, quoted in Corcoran, 2011, p. 4) is that many students appear to “play it safe”, choosing the first solution which registers, which often leads to poor or unoriginal solutions.

The aim of the workshop was to introduce several creative thinking techniques appropriate to the assessment task, in a succinct workshop format. Noting that a cognitive style that involves “breaking one’s mental set during problem solving” is vital for cognitive development (Amabile quoted in Sternberg & Lubart, 1996, p. 683), this workshop would ideally build on knowledge already attained in the VET course while extending thinking beyond limited task orientated mind-set of the training thus far.

The course context

SGA1335: Design Principles and Concepts encompasses training package: CUVACD401A Integrate colour theory and design processes. This unit investigates “characteristics of the elements and principles of design, colour history, meaning and use of colour in other cultures, creative thinking tools and the creative process, the effects of composition on design, colour schemes and terminology colour models” (SGA1335_L6_10_12_Workbook.pdf, 2012, p. 4).

The assessment tasks related to this unit involve development of a gouache and digital colour wheel, creation of a pop-up card for a festive day as well as a 3D colour model. (SGA1335_L6_10_12_Workbook.pdf, 2012, p. 4).

Currently, the students are introduced to six creative thinking techniques via two PowerPoint slides within a 10-slide presentation with no accompanying notes. It is up to the discretion of the trainer presenting the unit to elucidate their own creative thinking experiences and conduct classroom discussions (SGA1335_PowerPoint_2.pptx).

While the nominal duration of the unit is 40 hours, blended learning attributes mean that there are actually 27 hours of trainer delivery time to initiate learning of crucial design principles and make significant progress regarding the three assessment tasks. Within those hours, there is approximately 30 minutes allotted to cover creative thinking and creative processes (SGA1335_F1_10_12_Facilitator_Guide.pdf, 2012, p. 24).

Teaching for creativity has been defined as including “the objective of identifying young people’s creative abilities, as well as encouraging and providing opportunities for the development of those capacities (Jeffrey & Craft, 2004: p. 81). “ quoted in Lin, 2011, p. 152. Since the 1990s, it has been acknowledged that educators play a great role “in enhancing the creative potential of every student. “ Lin, 2011, p. 151.

While it is recognized in the training package that creative thinking is a vital behaviour used in the vocation of graphic design, there is no formalized strategy to initiate student experience of creative thinking techniques. The course materials are limited to simple listing of the common techniques of brainstorming, mind mapping, oral presentation, accidental art, attribute listing and visual metaphors. This is followed by an activity involving students collecting fonts, colours and images to form an online, digital visual diary (Mahara). There are no prescribed creative thinking activities. (SGA1335_F1_10_12_Facilitator_Guide.pdf, 2012, pp. 21-37).

Ideally, students would have the opportunity to experience a range of creative thinking strategies and techniques. As Welch, (2010, p. 2) mentions, “any one method of enhancing creativity may be more effective for one person than for another.”

By their very nature, most creative thinking systems are “techniques that jar our normal problem solving patterns and shift them to entirely new starting points. These techniques lead to “provocations which, through “movement,” lead to alternative approaches to the problem that otherwise may not have been conceived.” Tanner, 1992, p. 24.

However, the current SGA1335 activities are limited to a brief introduction and then a return to the online Google harvesting techniques most students do without extensive thought (SGA1335_F1_10_12_Facilitator_Guide.pdf, 2012, p. 24), rather than a shift or movement to new approaches.

The assessment task—Making a pop-up card

The assessment task was chosen for its timeliness to this FRED, availability of the class and the breadth of the task allowing for creative design (rather than merely software) solutions. “With your newly acquired skills learnt from ‘Elements and Principles of Design’, create a Pop-up card for an occasion in a country of choice (i.e. Christmas in Australia, a wedding in Japan, Day of the Dead in Mexico).”(SGA1335 Design Concepts and Principles: Facilitator Guide, 2012, p. 12)

The students

The students were three international students studying CUV40311 Certificate IV in Design at Martin College.

It was unfortunate that in the timeframe of this study, the only class available to me was a very small class of three. All are under 23, with one Australian student and two international students—one French and one Swedish.

These students had all completed 1.5 “blocks” of their 10-block course, accounting for approximately 7 weeks of full-time study.

Content of the workshop

Workshop format

I chose four primary creative thinking tools, paced with particular acknowledgement of the specific task, suitable for the fast-paced and pragmatic nature of the unit courseware.

1

I presented a short PDF presentation (see Appendix 1), and discussed the ideas that to prosper creatively, the learner will require:

- Time and concerted effort to develop innovative solutions (Rowlands, 2011, paragraph 27)
- A work style characterized by “concentrated effort, an ability to set aside problems, and high energy” (Amabile quoted in Sternberg & Lubart, 1996, p. 683)
- A willingness to take risks is vital to genuinely novel solutions within the design industry (El-Murad & West, 2004, p. 196).

2

To energise and regroup the mid afternoon class, I included a children’s game of Zebedee, as utilized by Welch (D. Welch, personal communication, March 23, 2013).

The first technique engaged in the workshop was mind mapping, utilized to foster divergent thinking, As Kozbelt et al mention (2010 p20), a quantity of ideas can result from divergent thinking, though many of these are irrelevant ideas. The idea of this was to use brainstorming and mind mapping to generate an abundance of ideas regarding the occasion or celebration and “clear (the) mind of mental clutter” (Buzan, 2005, p. 9).

3

When the flow of mind mapping had stalled, I introduced random words (as advocated by Clegg, 2007, p. 72). Four random words were selected from De Bono suggestions (pp156-167) by rolling a dice. These were written on coloured card and put into four unmarked envelopes. A selected one of the random envelopes and opened it to reveal the random word and this word was appended to the words already generated allowing new connections to be made.

4

Moving away from the whiteboard, we commenced creating an idea box, as suggested by Michalko (2006, p. 118). This was designed to progress from divergent, quantity approach towards a more honed array of solutions. Regarding the structural possibilities of pop-up card, the attributes of: Materials, Shape, Finish, Position, were written and the students listed six descriptions of each category. Then the dice was rolled four times to choose one description from each category and these were combined to generate ideas. This introduction of randomness (the rolling of the dice to determine connected concepts), reinforced the concept that creativity is linked to the willingness to take reasonable risks (El-Murad & West, 2004, p. 196).

5.

Finally, homework was set that requested the students to reflect on the ideas they had generated while searching for outside inspiration, as outlined in Clegg (2007, pp. 280-32). Rowlands (2011, paragraph 38) suggests, “creativity can be engendered by encouraging pupils to reflect upon their ideas in relation to the subject matter”. Embracing the axiom that creative thinkers have a “prepared mind” (Tanner, 1992, p. 28), the students were advised to incidentally glance at the ideas generated by techniques through the commencement and development of the assessment task.

Feedback

The students filled out feedback forms five days after completion of the workshop. The questions were contrived to ascertain whether respondents had been familiar with the techniques prior to the workshop, whether they had utilised the techniques since completion of the workshop and whether they could envisage any benefit to the techniques. There was also a question to gauge their perceptions of the unit in general and an open ended area for further comments. (See Appendix 2.)

Self-reflection/Critical Analysis

I believe the workshop could have been more effective in several regards. While some of these factors were determined by the work environment circumstances—for instance, in the timeframe for the FRED assignment, there were only a limited number of student classes at Martin College available for me to incorporate a creative thinking workshop, there are other aspects that could have been enhanced.

Student numbers.

It is challenging to initiate vitality and group-zeitgeist with only three students. I feel that the workshop perhaps would have been more involved and energetic with more students—say, 5 or more. However, as this is also a concern worth addressing—how to maintain group energy when teaching such small numbers—I believe there was a benefit to running a creative thinking group workshop with this small group.

Teacher familiarity

In the short time frame allowed for the workshop, I reflect now that I should have allowed more time for the students to become familiar with me. Ideally, I would have initiated the activities within a class group which I already knew and who were already comfortable around me. In the absence of that option, more time spent on icebreaker activities could have expedited a more relaxed mood, conducive to free-flowing of thoughts and words.

The presence of the camera

The curriculum co-coordinator at Martin College Brisbane requested that they film the workshop for future classes. My position as a casual employee means that I seldom say no to requests and it seemed perhaps mutually beneficial that I could perhaps refer to the film to analyse and review the workshop. In retrospect, I should have tactfully declined the suggestion, as the presence of the camera and a further staff member whom they did not know was not encouraging for this reserved group of students. It also impacted on my teaching

to a small extent, as I was constantly aware of the camera and of not blocking it, nor moving too quickly etc. and this slowing of momentum was detrimental to the intensity of these activities. On top of that, their usual teacher insisted on staying in the room (without engaging in the workshop), so for a small group of three students, the presence of three staff may have been somewhat stifling to their freedom of expression, as it was to mine as well.

Short presentation/ introduction

Students are accustomed to most tutorials commencing with a PowerPoint/PDF presentation. As such, I included a very short introduction (see Appendix 1) Acrobat presentation that I could talk over. As is my preferred training style, I personalized the introduction, touching on Big-C and Little-C creativity in terms of enhancing (their) career as a creative and using examples from my own where I have undervalued the emphases of creative thinking and my creative output—as well as my own self-worth as a designer—have suffered. I believe it was successful to personalize the introduction, though effectiveness would have been enhanced by the class already knowing me.

The ice-breaker

The students were very timid and reluctant participate, which is precisely why I incorporated a playful activity. Being the mid afternoon, and traditionally being the time when students start to procrastinate, web surf or just leave, it was necessary to inject some fun and energy into the space, as well as serving as a good excuse to get students out of their chairs and away from the computer. It was successful on this count. It was perhaps more challenging for the ESL students, but it is such a foolish game that the intention was to dispel any idea that this was a serious or competitive workshop. Again, the presence of the camera and the extra (non-involved) staff stifled the fun somewhat, though I did request the camera be turned off during this activity. I think that I could have extended this activity longer until there was more laughter and perhaps a bit more physical activity.

Mind mapping

After introducing the concept of mind mapping, we embarked on the activity, focusing on the term “celebration”. The whiteboard became the scribbling space and I scribed. Though I initiated the first few thoughts and continued to add in connections throughout, the students were initially reluctant to add thoughts to the map. I called on students in turn to add suggestions, but two out of three were very reticent.

I believe the students would have been less reticent if a) I had delegated scribe duties to one of the students; b) the ideas were transcribed on butchers paper instead of the whiteboard, which is usually seen as the domain of the trainer; c) the camera and other staff were not in attendance; and d) there were more students and several groups working simultaneously and independently rather than as one group with me.

Once we had filled the screen with ideas, we commenced making connections. Again, their hesitance meant that I contributed more than I had intended, but they participated well.

In retrospect, I think the main failing was the generality of the term “celebration” to mind map. Though it generated many concepts which would have led me to creative drawing, the hesitant and nervous students seemed unsure how the ideas could be directly pertinent to them. I think perhaps a more concrete quest—for instance for ideas for celebrations/festive occasions for the cards to be themed—would have been more useful, would have generated ideas the students would more fearlessly apply directly to their assessment, thereby encouraging them to adopt the technique on a regular basis.

Random Word

Once the mind map had reached its natural conclusion, I introduced the random word (see above). The word chosen, “Athletic”, was posited near some of the more dominant words from the mind map. For example—

What would athletic chocolate be? (leading to energy bar ideas, foil wrappers, jelly babies)

How can gold be athletic? Leading to medallions or prize-winning cups,
etc

The students seemed to be more willing to participate by this stage and we discussed concepts which could readily be associated with a greeting card idea. This was successful, I believe.

Idea box/attribute list

The idea box (see above) eventuated to be the most successful facets of the workshop.

I believe there are several reasons for its success: a) I appointed one of the more shy students as scribe, so they were directly responsible and involved; b) they all had to sit close; c) they appeared to find it less confronting to randomly say usual or less usual possibilities of a tightly defined attribute such as material the card would be made of than to pour out general, free ideas on mind map concepts; d) there was more of a physicality of one of them rolling the dice to choose which combinations were explored; and e) the leaps of thoughts had been partially done, so there was less risk of looking foolish. As a bonus, the scribe student, a French national, misspelled some words which led to more creative ideas (such as “ruff” leading to ideas of singing dogs, as well as meaning the opposite of smooth, etc.).

Some genuinely exciting ideas were generated from this exercise, the relevance of which the students could more immediately see. For example, they could visualize a fire+warm+globe+upright leading to a pop-up Chinese lantern type idea or a card which shoots sparks as it opens, etc. (See Appendix 3.)

This technique was extremely appropriate for the physical nature of a pop-up card, whereas it may not have been as relevant for a more conceptual issue such as a logo.

Homework—absorption, reflection and inspiration

I believe the homework task (see above) was a vital part of the workshop. It was necessary to show that creativity goes beyond the classroom or workplace and with active absorption of inspiration, a designer's life can continue to be inspired. Students were keen to ask about the specifics of the homework, and my hope is that they took it seriously and continued to look at the world for inspiration. However, factors outside of my control (see below) may have impacted negatively on this final consolidation process.

Workplace support of the workshop

Speaking to their usual teacher (for this unit) after the workshop, he announced that he does not use or advocate creative thinking techniques, because he believes his art background has been sufficient. He had also previously advised them that creative thinking techniques were “not for everyone”. Despite the post-workshop reflection of ideas being a crucial aspect, the teacher immediately rubbed everything off the white-board and moved the idea box sheets away to a table in the corner of the room, essentially obliterating the work we had accumulated.

This literal removal of all we had accomplished in the workshop perhaps conveyed the message that the particular portion of the lesson was completed (with an implied message being “now we can get on with the real business of learning”).

I have hesitation that the workshop, as a singular, isolated occurrence within this unit will not be as successful as if a more engaged and sympathetic teacher reinforced creative thinking through the unit.

As stated by Welch (2006, p. 95) teaching of creativity requires energy and dedication. If the group's usual trainer is passively or overtly averse to the precepts, this is likely to have a negative impact on the group's adoption of the techniques.

Further discussion

I communicated with the curriculum coordinator and communicated many of my misgivings. She was sympathetic to my situation and was enthusiastic to see the workshop repeated with many of these issues addressed. Although the curriculum manager was extremely encouraging of my proactivity in organizing the workshop, the reality of the workplace is that casual trainers (such as me) are rostered to teach different competency units each block and there is little time to communicate and coordinate non-prescribed activities. In the absence of a graphic designer training coordinator, organizing a workshop for another teacher's class within a tight (FRED assignment) time-frame relies on incidental communication between teachers and the engagement of other colleagues who feel they may have nothing to gain from the exercise.

Assessment outcomes

At the time of writing, the assessment task had not been completed, so these could not be compared with the previous group.

Feedback

The diminished size of the class restricted the range of feedback, with only two of the group of three available to provide responses for the questionnaire. Nevertheless, I was able to engage individually in informal conversations with them (without the presence of their usual teacher) to examine their impressions, which proved to be enlightening and affirming. Though the questionnaire feedback reiterated the same results, speaking to them in person was validating, as they demonstrated (non-verbally) more positivity about the experience than I had felt at the time of the workshop.

Asked about whether they enjoyed the workshop, both students were enthusiastic that it had been engaging and worthwhile.

- One of the students believed the prominent benefit of the workshop was that it affirmed the need to “take time out” to develop inspiration and ideas.
- Both had previously seen mind mapping in a limited way. One had utilised brainstorming regularly but found the extra step to mind mapping a great enhancement. Both found mind mapping to be the most useful strategy learned and would definitely adopt it again.
- One student believed the other techniques were useful.
- Interestingly, both were unsure or negative about the attribute listing, whereas in the workshop, I had perceived that this was the activity they most positively engaged in.

Students said they:

- would use (any of) these creative thinking techniques again,
- felt they had learned something new about creative thinking, and
- felt the unit in general had helped them develop new creative solutions.

Conclusion

Though many components of the workshop context were less than ideal, I believe it was a vital first step in the implementation of a more comprehensive creative thinking workshop being included in several units of this course. The student response was very positive overall, though it is worth investigating modifying the workshop.

I believe that several aspects of CBT diminish the incentive for creative thinking. The system that places emphasis on attaining job skills or abilities within a certain time-frame and places emphasis on practical assessments which demonstrate competencies can perhaps discourage risk-taking design processes. I believe that a certain amount of abandonment of practical considerations and time-pressure is necessary for real creative thinking. I am hoping to investigate this further as part of my MDD.

As a casual trainer, I do not have the power to change curriculum, but on a day-to-day level, I will utilize opportunities to present these concepts in the optimum manner within the framework of the VET units. I believe this will result in enhanced student outcomes for their particular assessments, as well as a more positive and energised outlook to their studies in general.

Possible future investigations

Encouraging creative thinking in international students.

Introducing mind maps to an unwilling audience.

Mind mapping as a tool for creativity.

Attributes lists and idea boxes as tools for targeted creativity.

Are aspects of VET graphic design training an anathema to broad design creativity in students?

The role of teacher/trainer enthusiasm in harnessing creative thinking in design students.

Encouraging productive group dynamics in small and disparate VET design classes.

Q&A

Question 1

Q. What is the relationship of little-C, big-C and pro-C to definitions of creativity?

A. Little-C Creativity is commonly defined as relating to day-to-day creativity, big-C creativity refers to unambiguous examples of creative greatness and pro-C creativity refers to the creativity utilized by professionals engaged in creative activities that does not achieve genius status.

Question 2

Q. What is the purpose of vocational education and training?

A. Vocational education and training or competency-based training aims to prepare learners for the workforce and give learners a broad range of abilities and skills to a level of workplace competence. It is industry-led, open access and designed to be suitable for adult learners

Question 3

Q. Do experts such as Amabile, Bohm and Peat believe that external motivators are more conducive to creativity or intrinsic motivators?

A. Internal or intrinsic motivation is conducive to creativity.

Question 4

Q. List some factors that enhance creative problem solving.

A. Intrinsic motivation, exercising creative thinking (working at it), breaking one's standard mind-set during problem solving, time and concerted effort, high energy, a willingness to take risks.

Question 5

Q. What are some of the issues regarding the delivery of the workshop that may have been not favourable to an optimum outcome?

A. The class-size was very small, the presence of someone filming the workshop, the presence of uninvolved teaching staff, the facilitator not being well-known to the students, the facilitator scribing the mind mapping (rather than a student), the class's usual teacher being overtly dismissive of creative thinking techniques, limited communication between workshop facilitator and usual teacher prior to workshop, the ideas generated by the tools being removed immediately after the workshop, before reflection, the isolation of the workshop as a "one-off" rather than being viewed as an ongoing aspect of the course.

References

- Beghetto, R. A., & Kaufman, J. C. (2009). Intellectual estuaries: Connecting learning and creativity in programs of advanced academics. *Journal of Advanced Academics*, 20(2), 296-324. doi:10.1177/1932202X0902000205
- Buzan, T., (2005). *The ultimate book of mind maps: Unlock your creativity, boost your memory, change your life*. London: Harper Collins Publishers
- Clegg, B., & Birch, P. (2007) *Instant Creativity: Simple Techniques to Ignite Innovation & Problem Solving*. Retrieved from <http://library.books24x7.com/libraryproxy.griffith.edu.au/>
- Corcoran, K (2011) Enhancing Creativity. *Australian Art Education*, 2011, Vol.34(1), p.30-55
- De Bono, E., (2007). *How to have creative ideas: 62 exercises to develop the mind*. London: Random House Group Ltd.
- El-Murad, J., & West, D. C. (2004). The definition and measurement of creativity: What do we know? *Journal of Advertising Research*, 44(2), 188-201. doi:10.1017/S0021849904040097
- Graham, S. S. & Whalen, B., (2008). Mode, medium, and genre: A case study of decisions in new-media design. *Journal of Business and Technical Communication*, 22(1), 65-91. doi:10.1177/1050651907307709
- Harris, R., & Ramos, C. R. (2012). "The one less travelled": Adult learners moving from the academic sector to the vocational sector in singapore and australia. *Journal of Vocational Education and Training*, 64(4), 387-402.
- Kozbelt, A., Beghetto, R. A., & Runco, M. A., (2010) Theories of Creativity. In Kaufman, J. C., & Sternberg, R. J. (Ed). *The Cambridge handbook of creativity*. (pp. 20-47). New York: Cambridge University Press.



- Lin, Y. (2011). Fostering creativity through education – A conceptual framework of creative pedagogy. *Creative Education*, 2(3), 149-155. doi: 10.4236/ce.2011.23021
- Logan, C. D., (2006). Circles of practice: Educational and professional graphic design. *The Journal of Workplace Learning*, 18(6), 331-343. doi:10.1108/13665620610682062
- Michalko, M., (2006). *Thinkertoys: a handbook of creative-thinking techniques (2nd Ed)*. Berkeley:Ten Speed Press
- Rowlands, S. (2011). Discussion article: Disciplinary boundaries for creativity. *Creative Education*, 2(1), 47-55. doi:10.4236/ce.2011.21007
- SGA1335_L6_10_12_Workbook.pdf* (2012). Martin College Australia. Retrieved from Martin College StudySmart website: <http://studysmart.martincollege.edu.au/course/view.php?id=2901>
- SGA1335_PowerPoint_2.pptx* (2012). Martin College Australia. Retrieved from Martin College StudySmart website: <http://studysmart.martincollege.edu.au/course/view.php?id=2901>
- SGA1335 Design Concepts and Principles: Facilitator Guide* (2012). Martin College Australia. Retrieved from Martin College StudySmart website: <http://studysmart.martincollege.edu.au/course/view.php?id=2901>
- Smith, E. (1999). Ten years of competency-based training: the experience of accredited training providers in Australia. *International Journal Of Training & Development*, 3(2), 106.
- Smith, E. (2010). A review of twenty years of competency-based training in the Australian vocational education and training system. *International Journal Of Training & Development*, 14(1), 54-64. doi:10.1111/j.1468-2419.2009.00340.x

Smith, P. G., (2001). Hot jobs in design. *Career World*, 30(2), 28.

Sternberg, R. J., & Lubart, T. I. (1996). Investing in creativity. *American Psychologist*, 51(7), 677-688. doi: 10.1037/0003-066X.51.7.677

Tanner, D. (1992). Applying creative thinking techniques to everyday problems. *The Journal of Consumer Marketing*, 9(4), 23.

Van Vyver, G. (2007). Assessing for Competence Need Not Devalue Grades. *Issues In Informing Science & Information Technology*, 4343-351.

Voorhees, A. B. (2001). Creating and implementing competency-based learning models. *New Directions for Institutional Research*, 2001(110), 83-95. doi:10.1002/ir.13

Welch, D. (2006, April). *Pedalling creativity: A studio-based approach to teaching creative thinking to visual art & design students*. Paper presented at the Dialogues and Differences 2006 Symposium. Melbourne: University of Melbourne

Welch, D., (2008, October). *Edging closer to the creative core*. Paper presented at ACUADS 2008 Conference : Sites of Activity / On the Edge. Retrieved from <http://acuads.com.au/conference/2008-conference/article/edging-closer-to-the-creative-core/>

Welch, D., & McDowall, J. J. (2010, September). *A comparison of creative strategies in teaching undergraduate students in the visual arts and design*. Paper presented at ACUADS 2010 Conference Papers. Retrieved from <http://acuads.com.au/conference/2010-conference/article/a-comparison-of-creative-strategies-in-teaching-undergraduate-students-in-the-visual-arts-and-design/>

Welch, D. (2011). Issues in teaching creative thinking to design students. *Zoontechnica: The journal of redirective design*, Vol. 2011(1), pp. 1-8

Appendices

Appendix 1—Workshop introduction visuals

creative
THINKING

risk

**“A ship in
port is safe,
but that’s not
what ships
are built for.”**

Grace Hopper, Inventor
Quoted in Welch & McDowall, 2010, p97

- **mind maps**
- **random words**
- **idea box**
- **reflection**

References

Buzan, T., (2005). *The ultimate book of mind maps: Unlock your creativity, boost your memory, change your life*. London: Harper Collins Publishers

De Bono, E., (2007). *How to have creative ideas: 62 exercises to develop the mind*. London: Random House Group Ltd.

Michako, M., (2006). *Thinkertoys: a handbook of creative-thinking techniques* (2nd Ed). Berkeley: Ten Speed Press

Welch, D., & McDowall, J. J. (2010). *A comparison of creative strategies in teaching undergraduate students in the visual arts and design*. Retrieved from <http://www98.griffith.edu.au/dspace/handle/10072/16143?show=full>.

Appendix 2—Feedback questionnaire

SGA1335—Creative Thinking Workshop Questionnaire

Date: _____

(Please tick one answer)

YES

UNSURE

NO

Had you previously used/been experience with the following creative thinking techniques:

Brainstorming _____ [] [] []

Mind mapping _____ [] [] []

Attribute listing _____ [] [] []

Idea box _____ [] [] []

Reflection _____ [] [] []

Did you reflect on the creative thinking workshop ideas as homework?

[] [] []

Did you find any of the techniques used helpful

Brainstorming _____ [] [] []

Mind mapping _____ [] [] []

Attribute listing _____ [] [] []

Idea box _____ [] [] []

Reflection _____ [] [] []

Would you use any of these creative thinking techniques again? [] [] []

Do you feel you have learned anything new about creative thinking?

[] [] []

Do you feel the SGA1335 Design Principles and Concepts unit in general has helped you develop your creative solutions?

[] [] []

Any further comments?

Appendix 3—Photographs of idea box

(Note that no photographs are available of the mind map, as it was immediately removed.)

greeting card

materials	texture	shape	position
paper	rough x rougher	splat	upright
plastic	prickly	round	lying down?
souls.	soft	square x	hanging
fine	warm	star	up side down
song x	smooth	spherical	underneath
fabric	velvety	box	flying
ice	cold	triangle	in

open - sparks	cutesy dog - sings Shirley Temple
puffer lantern	
round vase/orb - fire	song starting at end
open - shoots glitter	melody
	fake for
- spiky ball	
- cactus - pop-up	
- porcupine	
- echidna	

Bibliography

Beghetto, R. A., & Kaufman, J. C. (2007). Toward a broader conception of creativity: A case for “mini-c” creativity. *Psychology of Aesthetics, Creativity, and the Arts*, 1(2), 73-79. doi:10.1037/1931-3896.1.2.73

Best, D. (1982). Can creativity be taught? *British Journal of Educational Studies*, 30(3), 280-294. doi: 10.1080/00071005.1982.9973633

Brinkman, D. J. (2010). Teaching creatively and teaching for creativity. *Arts Education Policy Review*, 111(2), 48-50. doi:10.1080/10632910903455785

Brumberger, E. R. (2007). Making the strange familiar: A pedagogical exploration of visual thinking. *Journal of Business and Technical Communication*, 21(4), 376-401. doi: 10.1177/1050651907304021

Christine Chin, & Anne Langsford. (2004). Questioning students in ways that encourage thinking. *Teaching Science*, 50(4), 16.

Cropley, D., & Cropley, A. (2010). Recognizing and fostering creativity in technological design education. *International Journal of Technology and Design Education*, 20(3), 345-358. doi:10.1007/s10798-009-9089-5

Cropley, D. (2010). *The dark side of creativity*. New York: Cambridge University Press.

De Bono, E. (1995). Serious creativity. *The Journal for Quality and Participation*, 18(5), 12.

Dorinda Elliott. (1999). Asians are trying to prepare kids for the information age. can creativity be taught?; learning to think: Atlantic edition. *Newsweek*, , 56.

- Elton, L. (2007). Developing creativity in higher education – edited by norman jackson. *British Journal of Educational Technology*, 38(2), 373-374. doi:10.1111/j.1467-8535.2007.00689_2.x
- GAUT, B. (2012). Creativity and rationality. *The Journal of Aesthetics and Art Criticism*, 70(3), 259-270. doi: 10.1111/j.1540-6245.2012.01518.x
- Gelman, A. (2007). Thoughts inspired by nassim taleb's 'fooled by randomness' and 'the black swan'. *Law, Probability and Risk*, 7(2), 151-163. doi: 10.1093/lpr/mgm034
- Gibney, K. (1998). Awakening creativity. *ASEE Prism*, 7(7), Kaufman, J. C. and Sternberg, R. J., (Ed.) (2010) *The Cambridge Handbook of Creativity*. New York: Cambridge University Press.
- Gonczi, A. (1994). Competency based assessment in the professions in australia. *Assessment in Education: Principles, Policy & Practice*, 1(1), 27-44. doi:10.1080/0969594940010103
- Gupta, N., Jang, Y., Mednick, S. C., & Huber, D. E. (2012). The road not taken: Creative solutions require avoidance of high-frequency responses. *Psychological Science*, 23(3), 288-294. doi:10.1177/0956797611429710
- Hargrove, R. (2011). Fostering creativity in the design studio: A framework towards effective pedagogical practices. *Art, Design & Communication In Higher Education*, 10(1), 7-31.
- Kolb, A. Y. & Kolb, D. A., (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. **Academy of Management Learning & Education**, 4(2), 193.
- Lau, K. W., Ng, M. F., & Lee, P. Y. (2009). Rethinking the creativity training in design education: a study of creative-thinking tools for facilitating creativity development of design students. *Art, Design & Communication In Higher Education*, 8(1), 71-84.



- Livingston, L. (2010). Teaching Creativity in Higher Education. *Arts Education Policy Review*, 111(2), 59-62. doi:10.1080/10632910903455884
- Ludwig, A. M. (1998). Method and madness in the arts and sciences. *Creativity Research Journal*, 11(2), 93-101. doi: 10.1207/s15326934crj1102_1
- Lundberg, D. (1994). Where are we?: Reviewing the training reform agenda. Adelaide: NCVER.
- Mannay, D. (2010). Making the familiar strange: Can visual research methods render the familiar setting more perceptible? *Qualitative Research*, 10(1), 91-111. doi: 10.1177/1468794109348684
- Panitz, B. (1998). Brain storms. *ASEE Prism*, 7(7), 24.
- Pocock, D. (1993). The senses in focus. *Area*, 25(1), 11-16.
- Rane, M. S. (2005). Rationalizing design sensitivity. *Visible Language*, 39(2), 145-166. Retrieved from <http://search.proquest.com.libraryproxy.griffith.edu.au/docview/232921898?accountid=14543>
- Rich, G. J. (2009). Big C, little c, big M, little m. *The American Psychologist*, 64(2), 155-156. doi:10.1037/a0014533
- Reijo, M. (2001) The concept of experiential learning and John Dewey's theory of reflective thought and action. *International Journal of Lifelong Education* 19 : 1, s. 54-72
- Scott, R., Root-Bernstein, M. M., (2001) *Sparks of Genius: The thirteen thinking tools of the world's most creative people*. Retrieved from <http://books.google.com.au/>

- Scott, G., Leritz, L. E., & Mumford, M. D. (2004). The effectiveness of creativity training: A quantitative review. *Creativity Research Journal*, 16(4), 361-388. doi:10.1207/s15326934crj1604_1
- Siu-Kay, P. (2009). Creative thinking through visual literacy. *Business Education & Accreditation*, 1(1), 97-108.
- Solomon, T. (2000). Dueling landscapes: Singing places and identities in highland bolivia. *Ethnomusicology*, 44(2), 257-280.
- Sutton, R. I. (2001). The weird rules of creativity. *Harvard Business Review*, 79(8), 94.
- Taleb, N. (2010). *The black swan: The impact of the highly improbable*. New York: Random House Trade Paperbacks.
- Welch, D., (2011) *Teaching Creative Thinking to Design Students as Future Proofing*. Paper presented at DesignEd Asia Conference 2011. Hong Kong: Polytechnic University. Retrieved from <http://www.designedasia.com/proceedings.php>
- Welch, D. (2011, September). *Lucid dreaming and the surreal: Accessing the unconscious through conscious methods to produce creative visual outcomes*. Paper presented at the ACUADS Annual Conference 2011: Creativity, Brain–Mind–Body. Canberra: Australian National University
- Yeshayahu Shen, R., Heard melodies are sweet, but those unheard are sweeter’: Synaesthetic metaphors and cognition. (2008). *Language and Literature*, 17(2), 107-121. doi:10.1177/0963947007088222