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DEVELOPING INTERDISCIPLINARY VISIONARY THINKING USING UTOPIAN SCIENCE FICTION

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ABSTRACT
Students in the final year of London South Bank University undertook an interdisciplinary group project, combining students from various Product Design and Special Effects Design degree courses. This project involved visionary thinking whereby students developed scenarios for city transport fifty years hence using inspiration from utopian science fiction. Part of the inspiration for the project came from a paper by Ratner in the 2007 E&PDE conference [1]. The paper explains the necessity for visionary thinking, outlines the assignment, explains how the group selection process took place, details the assessment regime and then describes and illustrates some of the project outcomes. It compares and contrasts the project with the one Ratner undertook.

Keywords: visionary thinking, science fiction, group project, interdisciplinary

1 INTRODUCTION

Final year students at London South Bank University have had a group project for some years. This started as a group project with single-discipline groups, and in 2005 it was developed so groups contained students from several design disciplines. In particular, students from Special Effects Design were now included. Initially the project was to develop the University's design degree show, but this was not making best use of the interdisciplinary nature. At the 2007 E&PDE conference Esther Ratner presented a paper on teaching visionary thinking using utopian science fiction as an inspiration[1], and this was used to inspire a revised approach to the project.

2 THE NEED FOR VISIONARY THINKING

Designers need to be visionaries. They need to develop fantastic, allegorical and fictional analogies – simply because these generate alternative strategies for creative thinking and ways of developing alternative scenarios. Designers need to look to the future because they are creating it. Real projects tend to return practising designers quickly to reality; so that it is usually only as students they can escape from the constraints of the real world. In practice, futurists look in the first instance at trend analysis for the immediate future, predicted (roughly speaking) as an interpreted extrapolation of the currently emerging scenario, and then follow that with a more concentrated set of futures research methodologies as outlined by Jensen [2]. Ramirez [3] suggests that "most of the information that we receive about the future comes from science fiction movies" without qualifying this significantly – and accordingly

dismisses that source. However, if this is so, then science fiction is a view of the future that should be easily accessible to students: but, in contrast, Orson Scott Card [4] indicates that science fiction is not simply future-gazing, but is a particular view of science, complete with sheet metal, plastic and rivets – and perhaps little green men, but he doesn't say that so explicitly.

Blue-sky thinking is more than simply deciding your personal belief system and vision that will drive you forward into professional life – it sets up seemingly impossible scenarios. Future-gazers are those who impart thinking to others and allow them to dream about things that may (or may not) be what they wish to see on the horizon. These distant visions turn science fiction into combinations of science fact. Yes, there are things in science fiction that are deliberately designed to be unrealistic and things that are designed NOT to happen.

Vision is not taken as a religious experience of future prophesy and neither as developing competence at three dimensional thinking, but is a process of working out possible future directions as individuals, thinking what might be and dreaming up scenarios – these generate excitement, personal goals about involvement in the vision and plans – long term – to allow scenarios to be developed.

> We are all visionaries. Each of us has dreams of how the future might be. Already in childhood we have fantasies of being a famous athlete, a doctor or a fireman, a ballerina or a singer. Child prodigies often speak of such dreams. Your Vision is a personal fable, a story you tell yourself about how you want to be in the future. A statement about possibilities and potential, it looks beyond the limitations of the present [5].

In that sense vision becomes belief. These develop into realistic goals, time plans for implementing goals, and then develop into specific plans to achieve the original goal. That is the use of the term vision in the coaching sense [6].

This is encapsulated in the thought-action continuum introduced by Petty [7], and which becomes powerful and empowering for the designer to change the world around them. Beliefs influence thought, which produces goals and develop into plans that produce concrete performance and behaviour. If thinking doesn't include moving forwards then it will be short-term and the action will simply be putting it into practice. Orthodoxy results in orthopraxis, not only in the terms of liberation theology, but also in real life.

3 THE ASSIGNMENT

Ratner's presentation awakened another ingredient. A final year unit had been developed with the title *Blue Sky Design*, this being a metaphor for open-minded optimistic gazing into the future. Students were supposed to project design ideas, taking on completely unfamiliar situations, utilising radical thinking skills and design abilities, thinking creatively in an unfettered manner and developing unrealistic and improbable design solutions, using fantastic, allegorical and fictional analogies.

This had never fulfilled its potential and students were being set problems that were not visionary, tending to become ways of entering design competitions.

It was felt more appropriate to move the future gazing approach to the group project unit. This became a nine-week project, with the main output communicated using film presentation inspired by utopian science fiction. Students also had to produce a personal reflective report.

Rather than copy Ratner and design food products, this assignment looked at future urban transport: not seventy five years into the future, as she had done, but fifty years, commenting that most of them would be around at that point as pensioners.

The film was only thirty seconds long: enough to demonstrate film development and visionary capabilities but not too long so time was spent watching the computer render screens – rather like ‘watching paint dry’ adding little to the learning outcomes.

4 THE GROUP PROCESS

Because students were a mix of disciplines and some had only worked independently of the others beforehand, it was necessary to select students for the groups and not allow self-selection to achieve the required degree of interdisciplinarity. Groups were larger than the ideal size simply for administrative reasons, with about seven per group.

The selection process used was on a combination of course discipline and Belbin’s criteria [8]; even though these were developed by Belbin himself to include the additional specialist role, it was felt that this gave a reasonable starting point. It was assumed that the specialist areas were course disciplines and this was borne out to some extent as the project developed. No account was taken of gender or ethnicity as this was felt to be irrelevant (probably true, judging by the results).

Assessment had to take account of individual students’ performances. The one used has been developed over a number of years in many projects and consisted of an overall group mark and a peer assessment multiplier, normalised for each student and for each group. Criteria developed by Paul Wellington at Monash University in Melbourne [9] were used: used: *initiative*, *reliability*, *cooperation* and *citizenship*.

5 THE PRACTICE

The students owned the topic well, developing an enthusiasm for the subject and the film medium that they using. The University’s London base gave a natural and obvious focus for the transport, with optimism generated by providing the transport for city slickers and professionals. Ratner noted that the required utopian nature of the science fiction tended to be lost and the future visions veered towards the dystopian, and this seemed to have been the case here; three groups out of eight took the scenario of flooded London and sought to make utopia from dystopia by inventing transport that coped with the disaster. Some groups developed such an enthusiasm for the project, as it gained momentum towards the end, that they spent long hours perfecting and polishing the techniques and even spent some time producing useful documentation that wasn’t needed but which backed up the film work well. One group produced a humorous selection of clearly edited outtakes.

In practice, the difference between seventy five years fifty years seems to have made little difference – it was simply construed as ‘a long time into the future’ by most groups and whether they were going to be part of the vision as pensioners or not was totally ignored, although they argued that the fifty year period would leave a relatively large proportion of London looking very similar to the way it looks now which enabled them to shoot footage relatively easily, adding extra high-rise buildings and architectural features as necessary.

The interdisciplinary nature of the groups allowed students to ‘muck in’ well, with the special effects design students generally better able to demonstrate skills in film making while the product design students were active earlier in developing the form of transport products. Both groups seemed equally involved with the early work to develop future scenarios – although special effects design students coped better with the science fiction approach.

Two groups, however, produced a somewhat disappointing performance, largely through the failure of the groups to gel properly, and one of these groups did not engage

with the science fiction nature of the assignment, looking instead at developing the small car beyond the Smart: their film works quite well and is humorous despite this lack of engagement.
An interesting feature of the student engagement with transport, but somewhat disappointing, was the tendency to engage with private transportation more than might have been imagined, only two of the groups putting forward mass transport solutions and systems – one being based on airships and the other on monorails.

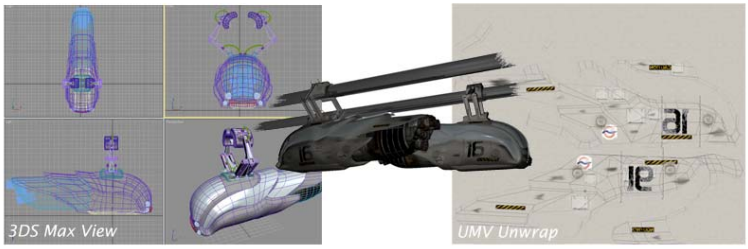

Figure 1 Monorail development

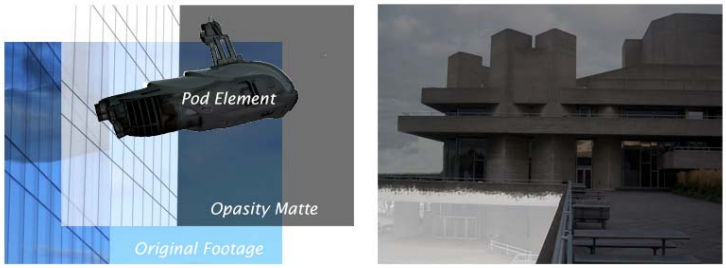

Figure 2 Monorail development showing reflections

Figure 3 Future London skyline with airship

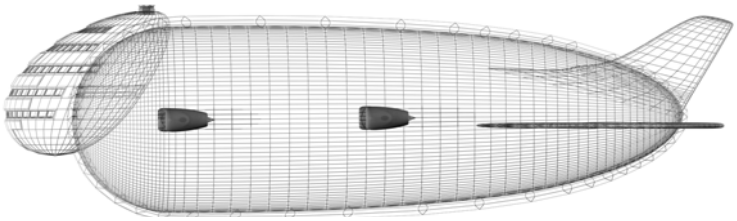

Figure 4 Airship under construction

Figure 5 Flycore taxi from film

Of the other groups, one concentrated on a flying taxi service and the others developed private transport vehicles, mostly cars and amphibians.

6 COMPARISON

This project set out to have different learning outcomes from Ratner's project, in spite of the similar inspirations: the group working requirements were articulated more clearly and the use of special effects design students added significant technical film-making abilities. However, the science fiction inspiration was not introduced so clearly and arguably not so effectively, making the outcomes more pragmatic in character. Cutting the film down to thirty seconds achieved the desired effect. It was long enough to demonstrate the film-making skills effectively and to differentiate these from each other but not long enough for students to spend interminably long hours in front of a computer repeating the same process of rendering scenes. Viewers and assessors were left wanting more. The University is ideally sited for students to shoot live footage of London street and river scenes if they needed to, and the transport subject engaged them more than the temptation of food might have done.

Similarities exist in the similar forward-reaching scenarios; the difficulty engaging utopian visions and the desire to incorporate elements of dystopia was similar.

7 CONCLUSIONS

This had been the most successful assignment undertaken during the group project unit so far. The students appreciated the forward-thinking approach and the interdisciplinary nature of each group enabled them, in general, to appreciate the specialist skills of the other discipline. The tendency towards dystopian visions may be something that needs more investigation.

Perhaps the most interesting and rewarding thing is how the inspiration was transferred from a 2007 paper and incorporated into a successful outcome.
It is clear that London is an ideal location for this particular topic, but congestion bites in most large cities in the world so other locations would be equally suitable: other congestion charging arrangements are in place and London has by no means the most successful urban transport network, simply one of the oldest and most care-worn. There is no reason why rural universities should not consider urban issues and vice versa.

REFERENCES

[1] Ratner, E. Teaching Visionary Thinking to Product Designers using Lessons from Utopian Science Fiction. *E&PDE 2007* (Northumbria University, Newcastle, UK, 2007).
[2] Jensen, C. *Future forecasts in product design: guidelines to predicting the future*. [PDF] Available: http://www.ivt.ntnu.no/ipd/forskning/artikler/2005/artikkel_Camilla_Jensen.pdf [Accessed on 11/04/2008], (2005).
[3] Ramirez, E.R., Fraser, S. and Stevens, R. *Future scenarios and product design*, [PDF] Available: http://www.dis.uia.mx/conference/HTMs-PDFs/edgar_ramirez.htm [Accessed on 11/04/2008], (2005).
[4] Card, O.S. *How to write science fiction and fantasy*. (Writer's Digest Books, Cincinnati, Ohio, 1990).
[5] Syer, J. and Connolly, C. *Think to Win*. (Simon and Schuster, London, 1991).
[6] Dowlen, C. and Ledsome, C. Design Coaching. *E&PDE 2007* (Northumbria University, Newcastle, 2007).
[7] Petty, G. *How to be Better at ... Creativity*. (Kogan Page, London, 1997).
[8] Belbin, R.M. *Management Teams: how they succeed or fail*. (Elsevier, Oxford, 2004).
[9] Wellington, P., Thomas, I., Powell, I. and Clarke, B. Authentic Assessment Applied to Engineering and Business Undergraduate Consulting Teams. *International Journal of Engineering Education*, 2002, 18(2), 68 - 179.

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