SPECULATIVE DESIGN FUTURES – BLUE SKY FUTURE FORECASTING WITHIN AN UNDERGRADUATE DEGREE PROGRAMME

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ABSTRACT

The 'traditional' design activity relies heavily on an experiential reaction to a given problem or situation. A greater body of 'prior experience' provides the designer with a catalogue of response, whether that be mechanical solution or formatic reference. Within the context of student design, an instant dichotomy exists – a need to demonstrate creativity originality, limited by a relatively shallow experiential pool, based almost entirely on their reactions to the work of others.

The 'futures' activity forces the student to approach the activity with a truly ' blank' sheet of paper. Individuals are required to confront the fact that they are unable to bring preconceived ideas or prior reference to the creative process. Students begin the activity by identifying a number of broad areas. Related to general themes or activities.

Based on these initial areas students undertake a 'state of the art analysis' of those areas to establish, as the name of the activity suggests, a current overview of the area in term of activity, usage and user. Based on information gathered at this stage, a single preferred area is selected. Students begin to develop an historical research strategy based on issues identified. Information is gathered based on historical development and statistical change relative to the chosen area. It is expected that as research is gathered, new avenues and topics of enquiry will open up. By gathering an understanding of the historical background to the chosen area, the individual is able to analyse this data in terms of recognisable patterns or 'trends' within the gathered information. The discovery of these patterns allows the student to apply extrapolatory techniques to establish possible future routes or directions

The student can now begin to define a theoretical design specification for the proposed product area. In the case of future prediction, referencing the wider 'picture' of their future is essential, as it is this 'bigger picture' that will shape the specification characteristics of the future product. Once the specification is complete, the student can ironically begin to use a modification to the traditional format of the design process to actually begin to create the future product. Even once the design is begun of the product itself, it is essential that reference is continuously made to the research and prediction data, as this is their only link with the future that they have defined.

Keywords: Future forecasting, Design methodology, Referenceless design, Concept generation

1   SPECULATIVE DESIGN FUTURES – BACKGROUND

The speculative Design Futures module was originally conceived in 1998, partly as a reaction to Phillip's 'Visions of the Future' project, but mainly as a device to force

separation between the two courses of Bsc(Hons Product and BA(Hons) Industrial Design. As the module was developed, it became clear that there existed an opportunity to use it as a vehicle to explore and develop an alternative strategy to the traditional structure of the 'design process' regarding both methodology and work generated. Up until this point, there had always been a strong focus the traditional 'design process', with a particular emphasis on the research and processing stages. This approach required the student to use gathered information from third parties as a method of validating their own design proposals. Whilst the focus is on forecasting and referenceless design generation, the students are also afforded an opportunity to enter into a 'concept heavy' activity, that for most individuals will more truly reflect the roles they will occupy within a design environment upon graduation – additionally, the portfolio benefits from a clear demonstration of a heavily 'idea generation' based design activity.

2   SPECULATIVE DESIGN FUTURES – TERM 1 ACTIVITIES

Term 1 of the module is used to introduce the student group to the principles of the module, the techniques that will be used and the desired outcomes from the activities by the end of term 1 and term 2. The first session is initially a presentation of the module and a discussion related to the nature of future design and the methodologies applied.

2.1   Initial area selection

Students are presented with the list below, to allow them to consider the 'design process' as they are familiar with it:

- Brief
- Research
- Design Specification
- Idea Generation
- Concept Development/ Refinement
- Preferred Concept Development

The students are asked to re-read the previous list and note how many times secondary information is brought to bear, regarding the direction, or existence of the product that is to be designed. They are then asked to see how far through the list they can get if they have no information. This is used as an introduction to the initial potential problems of the 'blue sky' design activity;

The first important realignment of thought centres on the fact that the activity cannot be based at a 'Product' level. The act of future forecasting might cause any 'product centred' focus to become redundant at a previous point in time to our actual forecasted target date. This danger of 'concept redundancy' is stressed and instead the attention of the group is turned to the identification of generic areas of activity, which in fact might currently employ a range of products. By focussing initially on the generic activity, rather than the object, the intention is to provide far more flexibility in terms of change over time.

2.2   State of the art analysis

Having identified a preferred area for the project, the student undertakes a data gathering activity focussed on information that is termed 'state of the art'. The objective of this activity is to define a clear view of the current position and associated terms

linked with the chosen area. Initially areas to research are typically defined using 'spider' or 'mind map' diagrams.

There is clearly a potential to expand this definition of areas beyond that of just technology, to encompass larger areas, such as economic, social or political issues that when brought together result in a by-product. Initially, that by-product might not be a product itself, it might be a situation that requires a product, or defines a user.

The beginning is the Product. Next to be considered is Technology – products are literally the physical manifestation of technology. In turn, Technology is defined by a need, or in other words a user requirement. There must be a need for the user to *use* the product, this is the Environment. The defined environment will be a result of a larger more complex set of systems, relating to the society and economic situation. Beyond this area, is the Global picture, whether relating to national or international issues.

The list reads as follows; Product, Technology, User, Environment, Socio/ Economic, Global.

The difficulty of making the future view 'Product' centred has been noted, so the list as it stands must be reversed, it should instead read the other way: Global, Socio/ Economic, Environment, User, Technology, Product.

This order, or 'tiering' means, each area contains the issues below it and in this context can be said to effect, or be an 'effector' of those lower areas. Working from the right of the second list, each is essentially a summary of all areas to the left of it – this 'largeness', is better described as 'macro'. By definition, regarding a large 'macro effector', the systems within it must be smaller and, relatively speaking, less complex – they can be described as 'micro systems'

2.3   Historical backcasting activity

We must next undertake a thorough historical analysis of our effector areas related to our area of interest. It is essential that this activity is carried out in as much detail as possibly. The more information gathered at this stage, the greater the chance to forecast with confidence. During this research, the focus on 'macro' issues. Accurate prediction is based on establishing patterns and repeating cycles, or *Trends*.

2.4   Pattern/ trend identification

Put simply, trend analysis looks to define patterns of repeatability, or predictability within data. Clearly, certain areas of research and types of data lend themselves more easily to this type of analysis, however when used appropriately, it can be quite successful. Crucially, it cannot state or predict anything categorically, it can only look to imply trends or patterns.

2.5   Initiation of forecasting activity

It is important at this stage to clarify an issue associated with forecasting and a potential problem linked to it. By its very nature, forecasting is an imprecise activity, at best, we can only try to minimise the risk of getting things wrong, but it cannot be guaranteed. Juxtaposed against this basic fact is that designers are constantly expected to justify themselves. Justification is based on a belief that the individual is right. This belief is usually associated with the fact that enough hard facts have been gathered to make the individual 'bullet proof' under cross-examination. The same protection is not always available in future prediction.

Clearly, it is unlikely, that all of the individual scenario effectors will be able to be developed as far as others – some areas will be more 'predictable' than others. A fundamental restriction exists with the activity of future forecasting, the further one travels from the termination point of informed knowledge (today), the less supportable

information is able to be referenced to back up, or support a proposal. Rather, therefore, it is more useful, to accept that there will be variability in the degree to which predictions can be comfortably made. However, a framework is required to control this 'variability of prediction'. This framework, or set of operational rules, should ultimately assist in the robustness to the final scenario. It is better to accept the limitations of what can be achieved, clearly stating them and then working to them, than attempting to claim equality of research when in some areas it does not actually exist.

2.6   Utilisation of effector areas
Once the retrospective research of scenario effectors is complete, the acquired data must be processed to develop the future scenario. As we have already discussed, the likelihood of varying degrees of 'assured prediction' will occur. The level of confidence, or the *strength* of the prediction will be given a value, from 0 to 5, as a way of formally identifying its forecasting accuracy.

A value of 0 is of no real interest to us for this activity as it represents 'current day' knowledge or data. A value of 5 identifies a highly speculative proposal, that whilst allowable within the framework of the project, represents far more of a personal desire, than reasoned or logical argument. To give the final product an interesting spark of originality it is probable that at least one effector has a value of 5, however, this should be 'balanced' with the remaining areas falling on a range between 2.5 to 3.5.

The notion of 'balancing' is important at this stage, it is essential to remember that the work produced during the project will eventually be viewed by a large and diverse audience. There must also be a degree of accessibility, or believability attached to that product. A simple analogy can be drawn;

Two objects of equal weight, placed the same distance from the pivot point will exist in equilibrium and the arm will remain balanced. If one of the objects is removed and replaced with an object of half the weight, the balance will move accordingly. To return the arm to a balanced situation, the lighter object, must be moved to a position along the arm that is equivalent to twice the distance from the pivot point of the other, heavier weight. The same is true for the generated future predictions and the 'weight' of research that underpins them. The 'further out' the prediction, from the central 'pivot point' of the present day, by necessity, the lighter its researched argument is likely to be. The balancing of the scenario is achieved by a counteracting a scenario that perhaps whilst not as speculative, is more tangible. Ultimately, the objective is to generate 'robustness' to a predicted scenario, which in turn will give enhanced validity to the resulting product proposals.

2.7   Definition of template manual
As part of the submission for the activities of the first term, students are required to 'publish' their findings in a Template Manual. As well as providing the assessor with a clear and structured review of the proposed future scenario, it provides the student with a self-contained reference manual for term 2 activities. This manual is submitted at the end of a formal viva based on activities to date at the end of the autumn term.

3   SPECULATIVE DESIGN FUTURES – TERM 2 ACTIVITIES
Term 2 provides the student with the opportunity to begin to realise, in design terms, the directions and forecasts defined by the end of the first term of studies. As already noted, the approaches in terms, of at least the early stages of the design activity, have to be significantly modified, relative to what we might be familiar with regarding 'standard' design process methodology. The main focus is now on the individuals creativity.

In this context it is possibly best to define 'creativity' as 'speed of thought'. The process of forecasting and the generation of possible future scenarios, by its nature generates a lot of waste – ideas are generated, they are evaluated and then kept, or discarded. The number of ideas that are discarded, invariably out ways the number that are retained. Hence, an ability to think quickly and effectively is vital, as is the ability to record and communicate these ideas to others.

3.1 Initial concept phase

The first problem encountered relates to the 'generalisation' of the area of study. In order to minimise the danger of *concept redundancy*, the focus is on a generic area or activity. Whilst this in practical terms is durable regarding the initial research and forecasting activities, more often than not, it represents a significant hurdle for the student to cross regarding the instigation of the concept activity. The first critical step is to get the students to begin drawing – a term of researching and discussion usually fosters the belief that the activity will not use drawing as a development tool. The primary design activity, looks to engage the student with the abstract idea of proposing and recording characteristics that might be pertinent for their chosen area, in addition to the drawn idea, students are also required to name the idea/ sheet, so that in later discussion, the group can more easily identify and discuss specific ideas.

Hence, if for example a student has begun the project with the topic area of domestic cleaning, this first stage might elicit concept sheets with names such as *brush*, *sweep*, *hoover* and *wipe*. However, once the obvious semantic triggers have been used up, typically far more interesting sheets should begin to appear, such as *absorb*, *eat*, *dissolve* and *filter*. As the activity continues, the ideas and their inherent sophistication begin to increase, instead of the sheet titling being literal, the names begin to represent complex scenes, with sheet titles evolving to *autumn leaves*, *late for work*, *put your feet up* or even *upstairs down stairs*.

The transition through these phases are categorised as follows:

Table 1. Concept evolution – domestic cleaning

Phase	Phraseology	Manifestation
1	Brush, sweep, hoover	Literal representation based on preconceived ideas or understanding
2	Absorb, eat, dissolve	Lateral representation based on modifications and subsequent development on these new themes
3	Autumn leaves, put your feet up, late for work	Abstract representation based on complex scene creation to represent multiple aspects of a single idea

Once this initial phase is over, discussions lead to the categorisation of the existing sheets under the effector area headings used in the forecasting activities of the previous term.

Table 2. Redefinition of concept areas (continued over)

Area	Definition
Use	What the product will do
Operation	How the product will achieve its intended operation
Appearance	Aesthetic issues associated with the product, either overall form definition or specific detail aesthetics

Features	Specific secondary characteristics of operation/ product physicality
Environment	The 'arena' within which the product will 'typically operate
User	Who will use the product – this will be defined to some degree by issues identified within the Template Manual from term one, however further 'creative embellishment is acceptable

Review allows the student to firstly confirm they are pursuing usable routes and secondly to initiate discussion associated with the grouping of sheets from each area to develop the idea of a 'concept' proposal.

This review of ideas to date is conducted as a group, using a 'table top' review process. In this way, sheets are able to be moved and removed in a more dynamic way than if they had been pinned up on a wall. Discussion is open, however, the student presenting his/ her ideas leads it. The notional target is to reduce each area to 5 preferred directions.

3.2   Definition of concepts based on sheet grouping

Once each area has been reduced to 5 self-contained ideas, sheets are gathered to sets of 6 sheets, each sheet representing one area from table 2. In this way, a product concept is defined, based on a composite of the individual sheet ideas.

3.3   Creative activities

As previously mentioned, students have spent the first half of the activity researching and developing their future scenario. In order to stimulate and maintain creative activities, a number of half day activities are inserted into the first few weeks of term 2 to maintain the creative 'head of steam' that will be so important in the realisation of effective proposals. The purpose is to introduce alternative strategies for creative problem solving based on different starting points for concept definition and also associational thinking techniques.

As an example, the cohort is split into groups of 4 and are given a title or phrase – one such title that has been used in the past is 'Ghetto Blaster'. The students are then asked to work through the following activity;

Table 3. 'Ghetto Blaster' concept activity (continued over)

Stage	Activity	Result *(based on real example)*
Title	Exploration of reaction to given title. Initially word association, as discussion develops, subtlety and sophistication develops .	Initial definitive exploration – ghetto blaster – music/ sound – hip hop - youth culture – graffiti/ tagging – cultural groups – impenetrable by outsiders – communication of cultural/ social group – art – advertising of values – marginalisation – opposite to suburbs – inner city – fly posting – bill boards
Scenario	Development of a mini scenario that looks to explain and support the ideas that have been generated previously.	Increased social subdivision regarding affiliation of adolescents and under 30's. Positive in terms of cultural diversification. Extremely complicated communication and structure that is highly graphical but typically short lived owing to limited *legal* space. Graffiti is now a complex cultural art form and communication device, containing on secondary levels information such

Scenario (continued)		as music, poetry, recommendation of a new clothing shop etc. The artists use complex, computer controlled 'wands' that allow a single sweep of a surface to lay down complex graphics or illustrations that contain additional data in the form of bar-coded motifs or binary code patterns.
Abstraction	Re-exploration of scenario to identify a secondary aspect of the developed idea to date to focus on a secondary or subsidiary aspect of the future picture.	The audience of this new art form become like fans of the artists and the groups they represent. A new form of creative and expression and appreciation occurs, ignoring historically established distribution routes. The artwork is read, collected, modified and 'republished' based on modification and evolution.
Concept 1	Consideration of the newly identified product/ area in terms of similes/ characteristics of existing objects.	Like a – video camera but with detectors in it, maybe like a Geiger counter, but with other readers for things like barcodes. Maybe it can play back the music as you scan the images. Portable made up of different bits, some you wear, some you carry in your hands, on your heads – maybe just like sunglasses – you see what you can't 'see'…. You can read in, remix and republish.
Concept 2	Manifestation of product based on the literal representation graphically of the characteristics defined in the previous stage based on products/ objects that exist today.	
Concept 3	Reworking of concept regarding the individualisation of the physical characteristics to make it a 'standalone' concept, rather than a derivative of aspects of the present.	
Review	Presentation of scenario and final concept idea. Free discussion is encouraged at this point by the whole group.	

3.4 Continuation and realisation

As the concept proposal continues, the activities begins to mirror the more standard idea development and refinement activities that we are familiar with in terms of 'traditional' concept evolution. The relatively abstract nature of the activity in terms of the accessibility of the proposal to a non expert audience (initially at degree show, or through portfolio) means however, that students are encouraged to develop depth to the concept in the form of range development and badging/ graphic development of the object and any user interface issues that have arisen.

3.5 Final submission

The final proposal is presented in the traditional format of presentation boards, a model of the concept and the Template Manual from the previous term. Additionally, the presentation also includes a 'scenario' board that set the seen in terms of the overall future predictions and a justification of the resulting product.

4 CONCLUDING REMARKS

By abstracting product development to the point that a 'referenceless' design environment exists, students are able to explore and define product proposals far more freely, than they might if they are required to 'design against' the work of currently

active professional designers. Ultimately the work generated provides a viable body of work in terms of concept/ idea generation in terms of employment upon generation.

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