Towards the development of guidelines for the design of experiential learning environments.

Introduction

In 2004 I decided that the time was right to establish a company that would specialise in providing learning-design services to client organisations. This would create a vehicle for my central professional motivation - the bespoke design of predominantly experiential approaches and materials to address stated client learning needs. This company was launched under the name of RSVP Design.

Until 2004 I had adopted a very intuitive, eclectic approach to designing materials against any given set of desired learning outcomes. A combination of experience, a willingness to experiment, and a strong track record of success combined to create an approach that owed no allegiance to any given design model or theory. The establishment of RSVP Design brought about a consciousness that my credibility as a designer of learning environments would be enhanced by the formal adoption of a core design approach that would be applicable across the broad range of different client needs. At that point in time I began to read widely in the research literature looking at what models and approaches already existed and if any of these models resonated with the intuitive design approach that I knew to be a successful platform for the design of experiential learning environments.

The initial search of available literature proved to be relatively fruitless and led me to two initial conclusions:
A)That there was no well researched and/or commonly adopted approach to the design of constructivist, experiential learning environments available in published literature
B)The intuitive approach that I had developed appeared to have the potential to be developed into a model that could be published and made available to designers of learning environments.

At this point it seemed apparent that the definition of my approach as a credible model, or the discovery of an existing model from a deeper literature review was going to be a substantial task and one that would need both support and advice. It was suggested to me that embarking on a programme of doctoral research would be appropriate. Furthermore the extent to which this research initiative would be instrumental in further developing the theoretical and empirical nature of my design model gave a strong pointer towards an action research approach.

The problem that this Research sought to address

On undertaking this research the situation I faced could be summarised as follows:

> "there appears to be an apparent lack of any published source of guidelines for the design of constructivist learning environments that specifically had experiential education methods as their central pedagogical / andrologogical approach."

This had an obvious impact on my work as a designer of learning environments, but it seemed apparent that other interest groups would also be negatively affected by this omission, i.e.

1.There was a strong potential for an inconsistency of approach between different experiential learning designers and practitioners.
2.There was little by way of published approaches that would promote comparison and development
3.No guidelines for new designers were available in the body of published material.
4.There were no accessible guidelines that would allow stakeholders to examine, compare and/or contrast the design of specific learning environments.
5.No foundation for further research or development was offered by the published research.

It seemed clear that the benefits of having an available set of guidelines for designers of experiential learning environments lay in its potential to address the problems listed above. Whether the guidelines were written as an original piece of research, or adapted from existing research, seemed less important than the fact that these guidelines were made available to researchers, practitioners, designers and consumers.

For researchers the guidelines would offer a platform for evaluation and comparison of existing designs, as well as providing a reference point and vocabulary that could be used to inform further research and development.

For practitioners the guidelines would offer reassurance and confidence that the learning environment that they seek to be part of has the potential to deliver compatible learning objectives. In addition the development of their own practice would be accelerated through the knowledge of a set of common design principles that were applicable to multiple experiential learning environments, thus allowing for a structured professional development process.

For designers, and aspirant designers, a well researched set of guidelines would serve as a template for their own designs, or a vocabulary and point of comparison through which they could differentiate their own designs. The extension of this could be the segmentation of experiential learning environment designs according to particular patterns of adherence to, or divergence from, an accepted norm.

For clients and consumers looking to access experiential learning environment designs, a set of guidelines would allow for much greater levels of convenience and security in that different designs could be compared according to a single reference framework. In addition the availability of these guidelines would substantially ease the process of developing evaluation questions through which the design and efficacy of any experiential learning environment design.

The Research Objectives

In response to this situation, and recognising the potential benefits of undertaking this research, the following research objectives were defined

1. Is there in existence any model that could be suggested as a basis for the development of defined guidelines for the design of constructivist learning environments that specifically have experiential education methods as their central pedagogical / androgogical approach?

2. If there is no fully developed model that would answer these needs - is there a model that could be adapted?

3. If such a model was found to be available, or can be adapted, can the efficacy of the existing or adapted model be proved empirically?

Examination of the available literature led me to the conclusion that a previously published model that would address the needs of this research, and the needs of the identified stakeholder groups, did not, in fact, exist, There was, however, a published model that had the potential to be adapted to the range of specific needs. This was the Rich Environments for Active Learning (REALs) model originally developed by Scott Grabinger and Joanne Dunlap in the University of Colorado in the early 1990's. (Grabinger and Dunlap 1996) At this point the decision was taken to begin the action research process that would

a) adapt Grabinger and Dunlap's REALs model to the specific application being researched and
b) determine the efficacy of the adapted model when deployed empirically.

The Action Research approach.

The research objectives were thus determined as:

1 Do the authors "REALs for Experiential Learning" guidelines, extracted from the original REALs model of Grabinger and Dunlap, constitute a credible and effective approach that could be adopted by designers of experiential learning environments?

2 Can a process of action research further develop the authors "REALs for Experiential Learning" guidelines, with a view to increasing their credibility and effectiveness?

On commencement of the research it was clear that the initial guidelines for the design of Experiential REALs were crude, incomplete and imprecise. When considered pragmatically, but also developmentally, an action research approach seemed to be indicated as the best approach to their evolution and examination.

The action research approach that was agreed and engaged upon was intended to test and develop the Experiential REALs model through an iterative cycle of application, review, revision and re-test. This involved applying the latest version of the Experiential REALs guidelines to a different experiential design opportunity to test the model across a broad range of environments, participant groups and learning outcome requirements. At each stage the efficacy of the model was to be examined and, where necessary, the guidelines amended and updated in light of the research findings. Ultimately the guidelines would be published together with the research data that offers support for the suggestion that they provide designers of learning environments with a suitable model for use when designing learning environments that utilise experiential learning methods.

Through the research period the Experiential REALs model was applied on multiple occasions. Only four of these were selected for inclusion in the research as these were felt to be the occasions in which some aspect of the emergent model was tested and significantly benefitted from the data collected.

The four experimental applications of the Experiential REAls model were as follows:

1.The design and delivery of an outdoor executive development event for the top 600 leaders from a global financial-services company.
2.The design of an experiential module based around a behavioural simulation delivered within a leadership programme under the auspices of a private business school.
3.The creation of multiple one-day events designed to give practical encouragement to Year 9 and 10 pupils from UK schools in considering careers in manufacturing.
4.The design of an experiential learning environment for a major UK manufacturing company, delivered to supervisory teams and based around an interactive-spreadsheet driven, electronic simulation.

The choice of these experimental groups was also influenced by a desire to test the Experiential REALs model in a diverse range of circumstances. This diversity is demonstrated in **Figure 1**.

Within each of these experiments there was the need to generate two distinctly different types of data in order to address the needs of this research. As a mixed-methods approach each experiment had initially to be shown to determine the effectiveness of the learning environment in delivering its pre-determined learning objectives - a quantitative measure of success. Subsequent to this there was the need for qualitative data that could be used to determine improvements to the Experiential REALs model and hence contribute to the iterative development process.

It was determined early in the action research process that no single system of evaluation would achieve the required data output from each of these experimental situations. This decision was subsequently endorsed by Michael Q. Patton in his book Utilization-Focused Evaluation (1997) in which he emphasises the importance of designing and implementing evaluations in ways that maximise the use of their findings.

“Program evaluation is the systematic collection of information about activities, characteristics, and outcomes of programs to make judgements about the program, improve program effectiveness, and/or inform decisions about future programming. Utilization-focused program evaluation (as opposed to program evaluation in general) is evaluation done for and with specific, intended primary users for specific, intended uses”

(Patton 1997, p. 23)

The Experiential REALs model - Proposed guidelines for the design of learning environments that are centred around experiential activity.

In **Table 1** and **Diagrams 1 and 2** are detailed the guidelines that formed the basis for the experimental activity undertaken during **t**his research. It should be noted that this is the version of the guidelines that were prevalent at the end of the research period, having been developed over a seven year process of action research. Previous iterations of the guidelines have not been included as these are considered to be examples of 'work in progress'.

The model consists of a structural model of the learning environment (**Diagrams 1 and 2)**, together with a checklist (**Table 1**). The intention is that the model should be used to inform the design of the learning environment by focusing due attention on the sequence of learning process, at each stage introducing considerations relating to the Required Learning Output, the Learning Environment, the Learners, and the subsequent Application of the Learning. Once the development process has passed the design stage, the checklist (Table1) is intended to be used to determine whether the learning environment that has been created is compliant with the requirements of an Experiential REAL.

Table 1: A proposed checklist to determine whether a learning environment design can be considered to fall within the definition of a REAL.

Andragogic Principle	Learning Technologies Operant within REAL	Questions relating to the Design of the Learning Environment to ensure that it fulfills the REAL design criteria
1. Social construction of knowledge - i.e. that learning is enhanced through the process of the communication of ideas, which involves interaction and reflection (Vygotsky 1962)	Co-operative Learning Generative Learning Problem-based learning.	a) Has the learning environment sufficient challenge, variety and complexity to encourage learners to collectively explore possible courses of action before deciding on actions to be taken? b) Has the learning environment an appropriate duration and degree of repetition so that learners have the opportunity and encouragement to revisit this exploration of possible approaches? c) Does the learning environment include periods of activity and times for reflection to allow the effectiveness and impact of current approaches to be experienced and reflected on, both at an individual level, and in groups?
2. Transparency of Action - learners need to know why they need to learn something before undertaking to learn it. (Knowles 1990)	Student-centred learning Problem-based learning.	a)Is there sufficient initial context-building that explores the concrete world imperative for the desired learning and which culminates in a clear statement about the need for the target learning? b) is there a progression of activities so that the consequences of particular courses of action may be learned in order to inform choices about subsequent action?

Andragogic Principle	Learning Technologies Operant within REAL	Questions relating to the Design of the Learning Environment to ensure that it fulfills the REAL design criteria
3. Experience is valued - experience is a subjective resource that can be applied to new learning. (Knowles 1990)	Generative Learning	a) Does the learning environment encourage and offer opportunity for learners' prior experience to be considered and selectively utilised? b) Do elements of the learning environment encourage learners, individually and collectively, to make connections with similar or parallel prior experiences?
4. Authentic activities - learning is oriented to the application of knowledge and problem solving that relates to the learners' real life contexts. (Dunlap and Grabinger 1993)	Generative Learning Student-centred learning Problem-based learning.	a) Has there been sufficient close examination of the learners' organisational or social context in order to design or select learning activities? b) Has there been appropriate simplification of the concrete world context to define, isolate and emphasise the desired learning outcomes? c) Is there a robust and comprehensive review process that bridges the synthetic world learning and its application in the real world?
5. Learning is Generative - there is a need to actively organise knowledge into a structure that reveals relationships between ideas, conflicts and gaps in existing knowledge. (Grabinger and Dunlap 1996)	Generative Learning Student-centred learning Problem-based learning. Co-operative learning	a) Does the synthetic world have a sufficient degree of attractiveness, complexity and responsiveness to allow full learner immersion and holistic engagement? b) Does the design allow sufficient time for the synthetic world to develop and emerge in response to the actions and needs of the learners who populate it?

Andragogic Principle	Learning Technologies Operant within REAL	Questions relating to the Design of the Learning Environment to ensure that it fulfills the REAL design criteria
6. Diversity of Voices - input from key writers, policy makers, practitioners and students are included to ground theory in practice.	Generative Learning Student-centred learning Co-operative learning	a) Does the design represent the design input of multiple stakeholders? b) Is there timely reference to the models and research that support the desired and actual learning and it's application in the concrete world?
7. Assessment encourages higher order learning and reflects REAL learning activities comprehensively - "contextualised, complex intellectual challenges rather than fragmented, static, multiple-choice measures" (after Wiggins 1989)	Student-centred learning Co-operative learning	a) Is the assessment designed to be an extension of the REAL methodology? b) Has every opportunity been taken to integrate the assessment into existing organisational or social practices (appraisals, peer observation etc)?
8. A truly androgogic approach to learning - the creation of a partnership between the learner(s) and the facilitator, negotiating goals and content in the course of knowledge delivery. (Knowles et al 1984)	Generative Learning Student-centred learning Problem-based learning. Co-operative learning	a) Are the facilitators and support staff willing and able to work within the demands of the REAL? b)Are the learners sufficiently well prepared for the style of learning they will experience in the REAL? Do they, or will they, understand the expectations that this style of learning places on them and the other actors in the REAL?
9. Intentional learning rather than incidental learning "the learners' purposeful, effortful, self-regulated and active engagement" (Palinscar and Klenk 1992)	Generative Learning Student-centred learning Problem-based learning. Co-operative learning	a)Will this design get the full and active engagement of the target learners for the full duration of the learning event and potentially beyond? b) Is there sufficient sufficient novelty in the REAL to make it memorable for more than just the content?

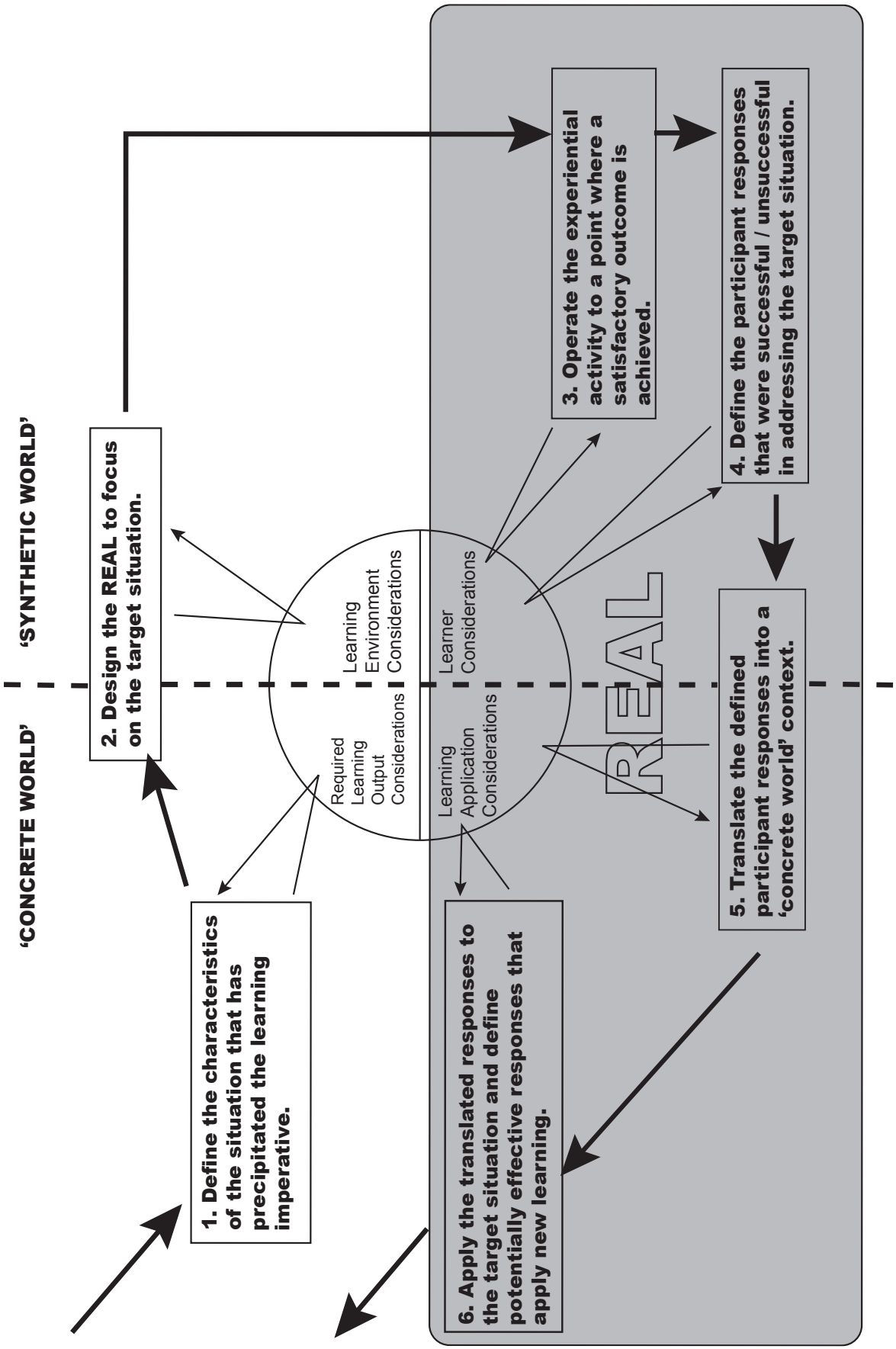
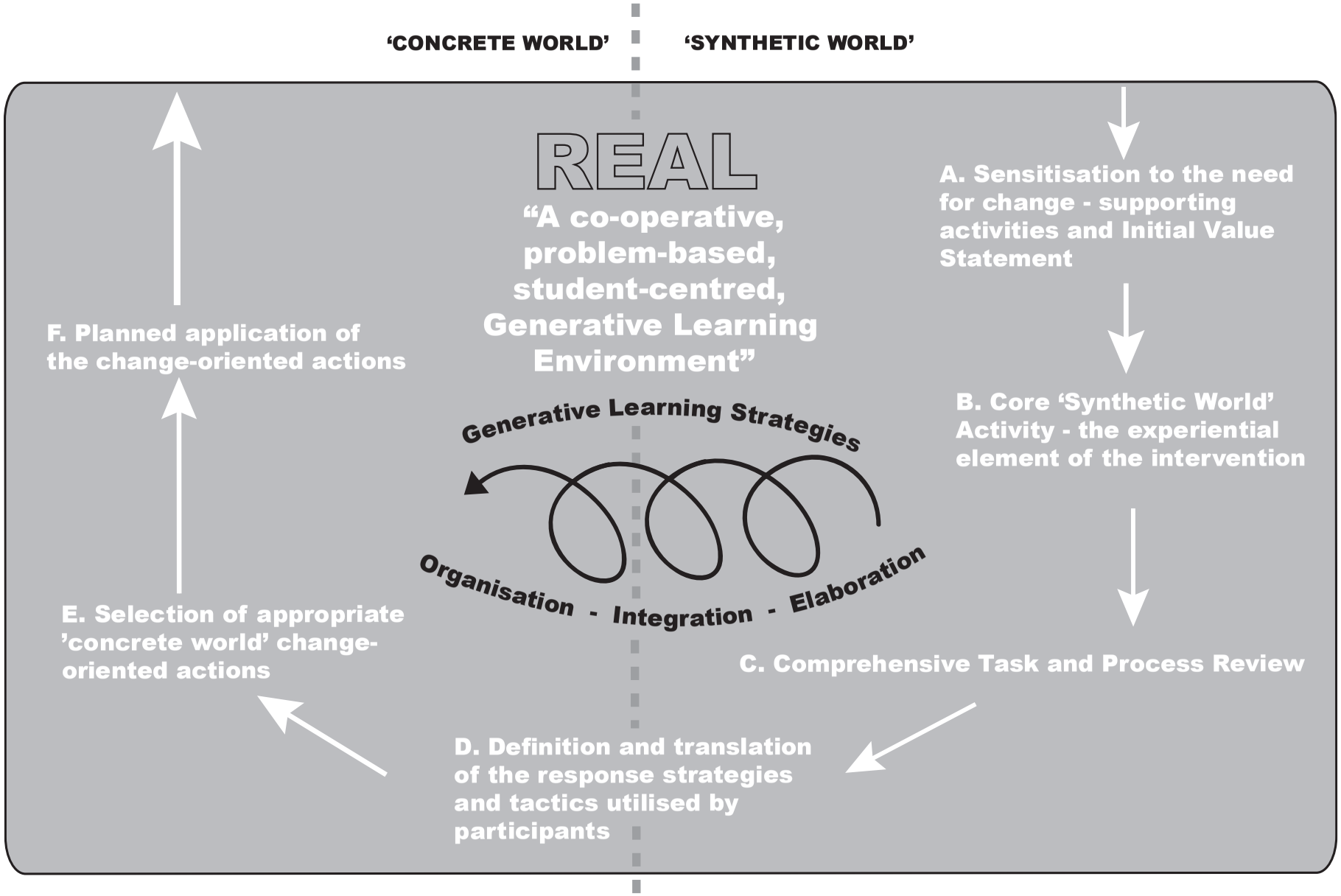


Diagram 1. Design and delivery sequence for a Rich Environment for Active Learning (REAL) that is built around experiential activity.

Diagram 2. Detail of process steps within a Rich Environment for Active Learning (REAL) that is built around experiential activity.



The experimental data

Experiment 1 - Testing the Experiential REALs Design Model in a large-scale, outdoor-based, executive development event.

After a initial phase of drafting an early version of the Experiential REALs model an opportunity to do some preliminary testing arose. The opportunity came about through a request from one of the worlds largest financial services organisations for me to design a developmental activity day that would be a central feature of their 2005 Senior Leadership Conference, a gathering of the top 600 people in the company, around a theme that would 're-connect' this population with the day-to-day operation of the business. The theme for SLC2005 was defined as Understanding – Commitment – Trust, and one of the key success criteria for the client was that this would need to be a "very impressive, very complex day of intense engagement".

As an experiment this event was impacted by a severe restriction on post-event access to the participants. However, the event was staffed by a team of 54 expert facilitators whose past experience in the field offered an excellent opportunity to determine whether version 1 of the Experiential REALs model formed a good basis for further development. This facilitation team was selected as exemplars of the code of practice set out in the DEEP document "The definition, ethics and exemplary practices of experiential training and development" (DEEP Task Force 1999). It was felt that this expertise would add weight to their critique of the event design in that they would be operating to a strong, though informal, mental model of what constituted good design of experiential events.

The final event design was forced by environmental restrictions or client requirement to deviate from the Experiential REALs model in a number of significant areas. The research basis for this experiment lay in determining whether the facilitators would make a comparison between their existing mental models of what constituted good design, and the design employed in this event, and identify where differences were apparent. The key design deviations were as follows:

1. Insufficient time for review, reflection and the processing of learning were allowed in the event design.
2. The complexity of the event design was not conducive to effective learning transfer.
3. The opportunities for the individualisation of learning were limited.
4. Lack of any defined assessment process.

The survey forms that were sent to the facilitation team two weeks after the event were designed to concentrate their thinking on the relationship between the design of the event, and the learning outcomes they were able to achieve. As most had not been party to the extended, iterative design phase that led to the ultimate design, they were provided with a summary of the design constraints that had shaped the game. They were then asked two short sets of questions – one that focused on the impact of the design on the participants' learning and experience, and one that focused on the impact of the design of the event as experienced by the facilitators.

Two of the areas where staff made comments and recommendations are seen as significant in relation to the emergent model, i.e.

- Opportunity to review and process learning - **38.2%** of all criticisms or suggestions for improvement mentioned this as an issue

- Complexity of design - **20.6%** of all criticisms or suggestions for improvement mentioned this as an issue

In addition, a third area of comment was apparent in the returns i.e.

- Clarity about purpose of event - **11.8%** of all criticisms or suggestions for improvement mentioned this as an issue

The conclusions drawn from this data indicated that there was a strong correlation between the informal concepts of what constituted good design held by experienced facilitators, and the emergent Experiential REALs model. This was demonstrated by the way in which the facilitators could clearly pinpoint where significant deviations had occurred. This was an encouraging result that led to appropriate revisions in the model. Version 2 was then ready for further experimentation.

Experiment 2 - Testing version 2 of the Experiential REALs Design Model in a Business School Environment - a Small Scale, Adult, Open Programme.

The context for this second experiment was part of an open enrolment, leadership-development programme delivered by a private Business School located on the outskirts of Dublin. This institution offers a range of programmes and has a particular role in supporting the development of expertise in the Irish automobile industrial sector.

The one year Leadership programme comprised of six modules with intervening assignments. Students undertook the programme in cohorts of between 16 and 20 representing a broad range of organisations from national government offices to waste management companies. The automotive industry was proportionally over-represented although this covered manufacturing, distribution, retail and support so the imbalance was not apparently a major influence. The participants were all either newly appointed to significant leadership positions, or were identified by employers as potential leaders in the near future. The male – female ratio was around 80% - 20% and average age was 30 – 35.

The particular element of the programme that was designed specifically in accordance with the Experiential REALs model involved an extended behavioural simulation called Shaping the Future. The delivery of this simulation came in Module 4 of the programme, about 7 months into the year and entitled Emotionally Intelligent Leadership. Smaller-scale experiential exercises had been delivered by me on two previous modules and these had been evaluated as successful in achieving their defined objectives.

The participants in two successive cohorts of the programme were surveyed: the first between January and November 2007 and the second between December 2007 and October 2008. The survey consisted of an e-mailed survey form with an endorsement from the Programme Director. The returned response forms were examined and, where necessary, the respondees were contacted by telephone to seek clarification in ambiguous entry situations. Each of the four simulation objectives were the subject of an overall quantitative grading to measure the perceived success of the simulation in meeting that objective, and two qualitative questions relating to design considerations that contributed to that success.

The responses indicated that across the two cohorts the simulation was perceived as being relatively successful in achieving its objectives, with responses averaging between 4.08 and 5.17 on a scale of 0-6. More significantly there were clear differences between the two cohorts, with Cohort 1 scoring the success of the simulation far higher than Cohort 2. This phenomenon was attributed to a discernible difference between the two cohorts in relation to their prior leadership experience, the learning environment was clearly responding to the needs of participants with greater prior leadership experience, than those with more limited prior leadership experience.

This conclusion, drawn from the quantitative data, was supported through textual analysis of the qualitative responses, and indicated that the way that the emergent model treated prior experience of participants needed to be made more robust. The overall conclusion, however, was that the model was worthy of further development and refinement through continued experimentation.

Experiment 3 - Testing the Experiential REALs Design Model with a Mixed Population of Young People and Adults - a Large Scale, Open Programme.

At no stage in the planning of this research was there any intention of testing the experiential REALs model with a population of young people. The androgogic principles that had been used to inform the development of the model had been chosen in preference to pedagogic principles in that the majority of my work exclusively involved adults. For that reason the initial response to this research opportunity with a mixed group of adults and young people was to plan the research to include only the adults involved, rather than include the young people also. However, the nature of action research, and the opportunity to test version 3 of the model with a large sample population proved too great a temptation to resist.

The client in this experiment was a charitable institution that had the remit of encouraging a greater percentage of young people in the NW of England to consider careers in manufacturing. They approached me to design a repeatable, one-day event that would prove to be an engaging, stimulating, and above all experiential way for the charity to interact with the young people. The design brief given offered an ideal opportunity to create a Rich Environment for Active Learning utilising version 3 of the REALs model developed internally.

The design of each event needed to accommodate around 120 Year 10 students from each of six geographical sub regions. This would comprise teams of 8 students from 15 different schools in each of the sub-regions who would travel to each of the sub-regional venues to compete. Each sub-regional event will then supply three teams of 8 to a grand final in a central venue thus giving a final event total of 120 students. Each of the teams will be accompanied by at least one teacher from their school. The other significant participant group was a team of employees from the manufacturing company who were the sponsors for each event.

The design of the REAL centred on a simulation that took the participant groups through a series of stages offering what I hoped would be a comprehensive demonstration of the complexity of modern manufacturing and the range of roles that are needed to take a product from design to commercial sale. This design was given considerable support by building in the active presence of employees from

the sponsoring organisation. They brought both expert advice and marketing materials that allowed the school pupils to rapidly build up an understanding of what the company did and what the customers expect from their products.

The evaluation of the events acknowledged the three participant groups, and the different learning objectives defined for each of them, i.e.
Pupils completed a pre-event questionnaire which explored their prior knowledge of manufacturing and their willingness to consider a future career in manufacturing. They then completed a post-event questionnaire that looked for changes in these dimensions.
Teachers completed a post-event questionnaire that explored their general impressions of the event and any changes in their attitudes towards manufacturing.
Employees of sponsoring companies completed a post-event questionnaire that explored their general impressions of the event and the potential benefit that they anticipated that their companies would get from the event.

For pupils the survey indicated a 24% shift in their willingness to consider a career in manufacturing, from a 27% pre-event level to a 51% post-event level. It was suggested, however, that the impact of the event would be more significantly affected by the response of the teachers as they were in a position to reinforce the positive attitude towards manufacturing across a greater time period and with a higher proportion of the school population Here an average 80.5% of the teachers indicated that the event had made a positive impact on their perceptions of manufacturing. In addition 86% of the teachers would recommend a career in manufacturing to all of their pupils as a result of the event.

The third experiment produced considerable evidence that the experiential REALs design model was effective as a design model for experiential learning environments that are targeted not only at adult participants, as has been shown across the two experiments previously undertaken, but also for experiential events that are targeted at school pupils aged 13 upwards.
Furthermore there was evidence that the experiential REALs design model was capable of producing learning environments that are successful in addressing the multiple and distinct learning objectives of several participant groupings simultaneously.

Experiment 4 - Testing the Experiential REALs Design Model with an externally developed, electronic simulation - a Small Scale, Corporate Programme delivered to a 'Blue Collar' audience.

The opportunity to test version 4 of the experiential REALs design guidelines was identified based on the key criterion of having as its core experiential learning activity a simulation that was not created by me. Rather it was developed externally and my role involved embedding the simulation into a REAL learning environment. The experiment was particularly important as it eliminated any potential bias in that it suggests that any experiential learning exercise can be utilised as part of a REAL and that it is the design of the learning environment, rather than the design of the experiential learning activity itself, that is generating the learning success. The opportunity had the additional attraction of allowing an opportunity to examine the way in which an electronic learning activity can be integrated into a REAL learning environment that is experiential in nature. The client was a UK based engineering and manufacturing company specialising in the aerospace sector.

As part of their extended induction training a group of 5 company graduates decided that they would focus on how factory managers should react to particular demands placed on them by a high pressure manufacturing environment, a project that they dubbed ‘How to Run a Factory’. The sheer number of variables involved in these considerations rapidly led the graduates to decide that a software solution was the best medium for them to use. Unfortunately the lack of a more appropriate shared software platform led them to a ‘lowest common denominator’ approach which saw the programme built as a very sophisticated, interactive Excel spreadsheet.

On presentation of the crude, but fully operational, interactive spreadsheet by the graduates, the Operations part of the business recognised its potential value as a tool for either modelling operational decision making, or in training middle managers to anticipate and react to particular manufacturing circumstances. The feeling in the company was that the software was too generic to be developed as a modelling tool, and so the decision was taken to further invest in the development of the software and to then embed it in a learning environment that would make it a viable training module for use within the company. At this point I was commissioned to design and develop the learning environment.

Ultimately the learning environment created using the Experiential REALs model centred around four, half-day scenarios, each one representing a type of crisis that a Plant Manager might face and which would require them to operate at a very high level of technical and leadership performance if they were to recover the situation efficiently. These scenarios represented multiple opportunities for participants - factory supervisory teams - to test their technical decision making as well as a range of appropriate leadership behaviours.

Between 2 and 3 weeks after the programme each participant received a comprehensive questionnaire focussing on four areas:

1. How relevant were the skills developed on the programme to the participants?
2. How well have participants been able to apply the skills since the programme?
3. How realistically the scenarios represented operational possibilities?
4. Would participants recommend the programme to other colleagues?

Initial responses proved extremely positive across all four survey areas, with a 90.06% positive response. If the questions that related to the participant experience prior to the event (i.e. before the engaged with the learning environment) were omitted from this analysis then this figure rose to an unprecedented 97.98% positive response.

With these initial evaluations to hand the project leaders undertook further review activity with the sponsoring Plant Managers. This activity took the form of structured interviews that asked the PM’s to consider three areas:

A. The combined experience of the teams who had attended the programmes as reported during their ‘return to work’ interviews.

B.Observation and recognition of any changes in technical decision making of individuals who had attended the programmes.
C.Observation and recognition of behavioural changes of individuals who had attended the programmes.

The results of these interviews indicated that the transfer of learning had also been extremely strong. After 13 programmes over a period of 12 months, the Plant Managers were seeing a **79.8%** success rate in the transference of learning from the programme into the workplace

The design of this learning environment came at the end of a period of about 7 years of continual development of my experiential REAL model. At this stage I had built a level of expertise at applying the model over multiple design projects with many different client organisations and differentiated learning outcomes. At the time of this project my view was that this project represented the 'purest' application of the model in that any deviations from the model checklist were so minor as to be negligible. Thus the most authentic application of the design model is seen to produce extremely high success ratings among participants.

Conclusions

The four experimental applications of the experiential REAls model cover a seven year development process. During this time there have been numerous other applications of the model in circumstances which did not, for many reasons, lend themselves to the rigor and discipline of this research, but which nontheless added insights and understanding into its development.

Surprisingly the model is not significantly different from it's first iteration. There have been no major revisions to include or exclude content in the light of research findings. Each experiment has allowed a 'tightening' of the language used so that it's meaning is more precise and explicit, but the model has negotiated 7 years of practical usage without major revision. Over this 7 years my colleagues and I have seen a definitive increase in the levels of success that have been produced through evaluation of the results of the learning environments they have designed using the model. The style, method and credibility of the techniques used to generate these measurements have been extremely varied, but the 7 years have shown a clear upward trend in success rates gained using the model. This research demonstrates some flavour of that trend with the latter two experiments offering substantially higher success measures than the first two, culminating in the unprecedented figures generated by the final experiment.

As yet it has not been possible to make the model available to those who are tasked with commissioning or purchasing experiential learning. The model has been well tested with designers, and by learners, but the needs of this specialist group have not been researched to date. A clear recommendation for further research is to put the model in the hands of e.g. learning and development managers, school managers etc to determine whether the model is successful in offering them a template against which to judge the potential of the learning environments they are either contemplating buying, or those that they have commissioned to be designed.

It is hoped that the publication of the model will bring it to the attention of a wider professional group so that additional research data will emerge regarding the reaction of these professionals to the model, and their levels of success in using the model to design

their own learning environments. This wider research will allow the model to be rigorously tested in practical circumstances so that it will further evolve to become more dependable and robust. Further research in the use of the model across a wide range of circumstances and user groups is strongly suggested for the future.

Bibliography

DEEP Task Force The DEEP Document :The Definition, Ethics and Exemplary Practices of Experiential Training and Development Version 6.2, 1999

Dunlap, J.C. Grabinger, R.S. and Heath S. (1993) A definition of Learning Environments. Paper presented at the Annual Conference for the Association for Educational Communications and Technology. New Orleans LA

Grabinger, R.S. (1996) Rich Environments for Active Learning. In Handbook of Research for Educational Communications and Technology. D.H. Jonassen Ed. (pp 665 – 692) New York Macmillan.

Knowles, M.S. (1990) The Adult learner: a neglected species. Houston, Gulf Publishing

Knowles, M. S. et al (1984) Andragogy in Action. Applying modern principles of adult education, San Francisco: Jossey Bass.

Palincsar and Klenk (1992)Fostering Literacy Learning in Supportive Contexts Journal of Learning Disabilities April 1992 vol. 25 no. 4 211-225

Patton, Q. M. (1997). Utilization Focused Evaluation: The New Century Text (3rd Ed.), London: Sage Publications.

Wiggins, G (1989). The case for authentic assessment. Practical Assessment, Research & Evaluation, 2(2)

Vygotsky, L.S. (1962). Thought and Language. Cambridge, MA: MIT Press.

