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Dramaturgical and communicative validities in the classroom: developing a simulation exercise for undergraduate social science classes

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Abstract

Many simulations in higher education demonstrate a limited range of validity measures. Communicative and dramaturgical validities are often ignored in favour of normative validity. A case study of a week-long simulation with undergraduate social science students shows how knowledge combinations based on dramaturgical and communicative validities can initiate a research agenda for simulation development. in a dialectical relationship can be used to improve the development of simulations for the benefit of learning. Such dialectical relationships are drawn from experiential learning theory.

Keywords: experiential learning theory; simulation development; social science; communicative validity; dramaturgical validity; meaning units

Simulations are often used to develop learners' performance skills as well as to model complex situations in different professional settings, e.g. airport security staff training for terrorist threats, natural disaster relief planning for key decision makers. The development of learners' performance skills both in work settings and in higher education classrooms is often associated with experiential learning theory, particularly the work of David Kolb and his associates.

There are extensive bodies of theory and research on both simulations and experiential learning theory and one conclusion from an overview study is that 'for computer-based simulations, there is a concentrated body of scholarly concern in which performance, validity, and cause and effect are discussed. And although experiential scholars are interested in assessing their teaching approach, a concentrated group with common conceptual concerns does not exist, and validity is not an explicit concern among them. Therefore validity discussions exist in the field of simulation research and not in the field of experiential learning research' (Gosen and Washbush, 2004: 276-7).

The purpose of this paper is to explore two forms of validity that might help in the development of a research agenda for simulation development as opposed to relying exclusively on normative validity measures.

The distinction between those simulations that model events in the world and call for measures of validity on the one hand, and those simulations, including non-computer-based ones, that are developed to offer means by which participants can practise new skills, without any apparent recognition of validity claims is perhaps too stark a contrast. We suggest there is room for both and there is a need to explore non-normative approaches.

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1. Simulations as models of validity

Simulation exercises, whether computer-based or face-to-face, demonstrate what the Society for Advancement of Games and Simulations in Education and Training (SAGSET) refers to as 'a working representation of reality; it may be [an] abstracted, simplified or accelerated model of a process' (cited in Ruohomaki, 1995: 13).

Simulations provide a controlled environment standing in relation to a realistic experience in the world. They may involve learners in working together on a specific subject-based inquiry where they have to solve problems, derive action plans, reflect on their learning. However, simulations can be developed as a package to calculate the implications of a particular set of actions. Economists model implications of changes in the housing market, or the consequences of a fall in currency values for different populations. In such situations individuals may appear as variables, e.g. as 'individual civilians [in an insurgency/counter-insurgency computer simulation] … characterized by a degree of anger at the government… the main agent transition in the model is that ordinary civilians may turn into insurgents under the right circumstances' (Bennett, 2008: 3). Simulations may be multi-dimensional; for example, increasing the number and complexity of variables in modelling responses to major disasters, developing more complex models of booking systems for hotel management on a global basis. These both present largely external views of the setting and the participants in the simulation do not have to care about the outcomes in a personal sense. Additional requirements can of course be relatively simple to incorporate including structured role activity, data analysis and report production within a prescribed time period. Several studies of what makes for effective simulations (Jones, 1995; Hertel and Millis, 2002) point out that simpler simulations with imprecise outcomes compensate for low validity by proving to be effective in improving learning outcomes for communication and interpersonal skills. Such studies still operate with a fairly simple normative model of validity which may not capture the complexities of communicative validity. To define communication skills only in terms of easily measured outcomes may be too restrictive. Effective use of social contexts requires an understanding of wider forms of validity.

2. Habermas and communicative action

Communicative action theory is particularly associated with Habermas. Drawing on his theory of communicative action we can identify four types of action evident in society:

Teleological action: 'the actor attains an end, brings about the occurrence of a desired state by choosing means that have promise of being successful in the given situation' (Habermas, 1984: 85).

Normatively regulated action: 'refers to action undertaken by members of a social group who orient their action to common values' (Habermas, 1984: 85)

Dramaturgical action : undertaken by people who are 'constituting a public for one another.. the actor evokes in his public a certain image, an impression of himself' (1984:85).

Communicative action: 'actors seek to reach an understanding about the action situation and their plans of action in order to co-ordinate their actions by way of agreement' (1984:85)

By and large research into simulations and their impact on learning such as that reported in Faria (2001), Gosen and Washbrook (2004) has concentrated on teleological and normatively regulated actions. Such validity claims can in part be assessed through learning outcome measures and by recording career changes in order to estimate longer-term impact. Of course such measures risk over-simplifying learning activities but they do capture powerful and important aspects of validity. However, they do not show how simulations might be organised to promote effective dramaturgical and communicative action within the simulation experience itself.

Phenomenological research approaches to meaning attributions provide a means of capturing experience for comparative purposes. Meaning units identified from the free flow of what is said provide an analytical description of the setting and experience. The transformation of such units into abstract relations captures relations between meanings, between what is said and what can be presented as an analytic description (Giorgi, 1985; Ashworth et al, 1986).

2.1. Simulations in higher education: theory and research

Increasingly simulation exercises are developed for online environments, such as the well-known 'Second Life' (http://secondlife.com) in which people move around using avatars to occupy a complete environment on an immersion basis. A number of universities throughout the world have created 'islands' to provide learners with opportunities for immersion approaches to simulation activity. However, face-to-face simulations sometimes incorporating computer-based activities are popular in higher education settings, usually either as part of subject content or as part of a range of general skill development, e.g. with reference to employability.

Reviewing the literature on simulation research (Faria, 2001, Gosen and Washbush, 2004) establish that business studies, marketing are key academic subjects using classroom-based simulations. They also show that research has shown high external validity for some simulations in marketing but that generally there is little clear research into how well learning outcomes are met through simulations. They also refer to the relative absence of simulations in social science from their studies.

There is a considerable social science contribution to the principles of simulating social organisation, whether through artificial societies or through reconstructions of the principles and practices of actual societies. A distinction can be made between simulating social organisations where the society is defined as a group, a societal approach on the one hand, and methodological individualism where it is the practices of individuals that form the focus (Neumann, 2008). While simulations can be provided at both levels, the primary emphasis in much sociological research has been into how human behaviour replicates social theory propositions (Neumann, p.5). In brief, there are debates over how norms are acquired and used and whether simulations effectively replicate rules of human activity. Against this normative tradition developers have commented on how simulations can bring complex material to life for students, develop content knowledge, promote negotiation skills and skills of critical thinking (Hess, 1999; Ruben, 1999). Supportive views on the strengths of simulations for learning in higher education are also made in Hertel and Millis (2002), Asal (2005), Asal and Blake (2006) for the US and Jones (1995), Ellington et al (1998) for the UK. But this work has not specifically considered how to assess dramaturgical and communicative forms of action for learning development.

The literature also draws attention to potential problems with simulation activity which developers and tutors need to consider: Points raised in Wolfe and Crookall, (1998); Brown and King, (2000) include: risk of over-simplified scenarios, reduced external validity, difficulty of maintaining student participation if the activity is voluntary and non-assessed, complexity of timetable arrangements, and some difficulties in persuading both colleagues and students to value the activity. These factors will certainly have an impact on how learning is evaluated and measured. The literature shows that with voluntary participation in simulations attendance is typically no more 15% but with compulsory attendance requirements a figure of between 75 and 80% is found.

The difficulties raised as well as the issues over validity and research design raise a wider question: have researchers into simulation development ignored other forms of communicative action?

2.1.1. Pedagogic approach adopted: Experiential Learning Theory (ELT)

The majority of simulation exercises draw on some aspects of experiential learning. A tradition of experiential learning including the work of both Lewin and Kolb has stressed that 'to be effective learners we must (1) perceive information, (2) reflect on how it will impact on some aspect of our life, (3) compare how it fits into our own experiences, and (4) think about how this information offers new ways for us to act' (Conner, M., 2007). Learning is both outcome and process arising from active steps taken by the learner, usually through the support of tutors. For Kolb experiential learning theory (ELT) sees knowledge as not simply an outcome of experience but as an active transformation of that experience so that it becomes a new experience owned and used by the learner (1984: 41).

Simulations provide potential transformers of experience into new knowledge. Following Kolb, a simulation has to provide two modes of grasping experience that stand in a dialectic relationship to each other: concrete experience usually gained by individuals and groups acting in response to particular tasks; abstract conceptualisation which requires forms of reflection. These are supported through separate dialectically related processes of transforming experience: reflective observation and active experimentation. These four elements in their dialectical relations

provide a basis for simulation planning as illustrated in Figure 1 below. This is of course very different from the approaches to normative model building described above.

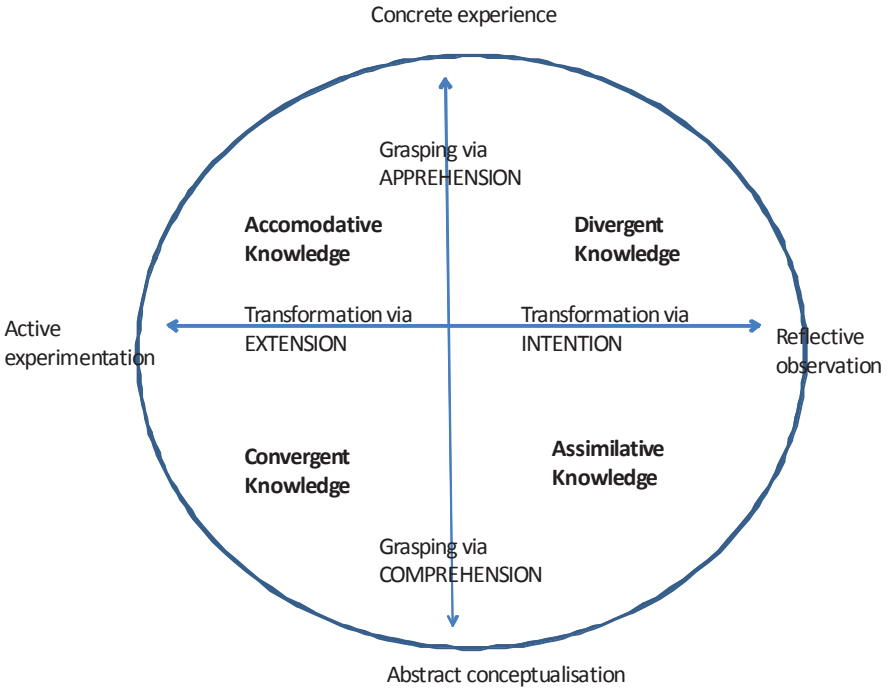
The strengths of Kolb's model include: the substantial research tradition it has inspired which has tested conditions under which the processes operate (Kolb et al, 2001; Light and Cox, 2001; Mainemelis et al, 2002). Much research by Kolb and his associates as well as other researchers has concentrated on the role of learning styles. Here the knowledge combinations are treated as elements in a rapidly moving dialectic and no attempt is made to link their emergence to research into learning styles.

Kolb proposed that approaches to learning and studying behaviours are relatively stable. Thus while there may be identifiable change in learning approach over the length of a degree programme (Nulty and Barrett, 1996), there is unlikely to be significant change as a result of a single particular experience unless it is deliberatively incorporated into a curriculum. Thus a simulation exercise may have little effect on student learning unless it is connected in appropriate ways to other learning tasks or pedagogic requirements. It is not suggested here that making formal requirements to, for instance, include experiential learning in a programme will make any difference to student study behaviours. Change will only occur if the experiential learning is based genuinely on the philosophy of active transformation of knowledge and learners and that such a philosophy is supported by faculty and administrators beyond the simulation team.

Simulations are based on working with representations of reality. Such representations are of course constructed so critics might say they are over-simplified versions of the particular aspect of reality as in the removal of aspects of complexity in a political simulation. But such over-simplifications can be deliberate with the simulation developed to support particular parts of the Kolb quadrant at specific time. Thus a half day simulation might concentrate on reflective observation only and ignore other contributions to the relevant context.

The simulation exercise reported on here was designed for social science students and the developer sought to address all four elements of the experiential learning model:

Figure 1: Kolb's Dialectical Model (taken from Kolb 1984: 42)



The Kolb model proposes integrated learning as an outcome of creative tension between the four elements. It is a spiral where the learner 'touches all the bases' of experiencing, reflecting, thinking and acting. This 'adaptive

flexibility' arises from the integration of the two dialectics. The integrated cycle is at a higher level and is of course a theoretical construct. For Kolb 'in a fully developed person, each mode contributes its distinct part to the whole cycle, yet most learners have not developed all modes equally or do not bring all of them into their total experience' (Pedrosa de Jesus et al., 2007). A simulation provides specific opportunities to develop such an integrated approach because it can be constructed for such 'adaptive flexibility'. We can explore how far Kolb's well-tested model is an appropriate means of assessing both dramaturgical and communicative validity.

2.1.2. Interpreting the dialectic

We can suggest that the cycle can be broken down into four combinations for testing as shown in figure 2 and table 1. The combinations all involve a horizontal movement across quadrants, rather than a purely vertical integration. This is to ensure that what is explored is not limited exclusively to either active experimentation or reflective observation.

Figure 2: The Kolb Model with dialectical pairings for developing experiential knowledge

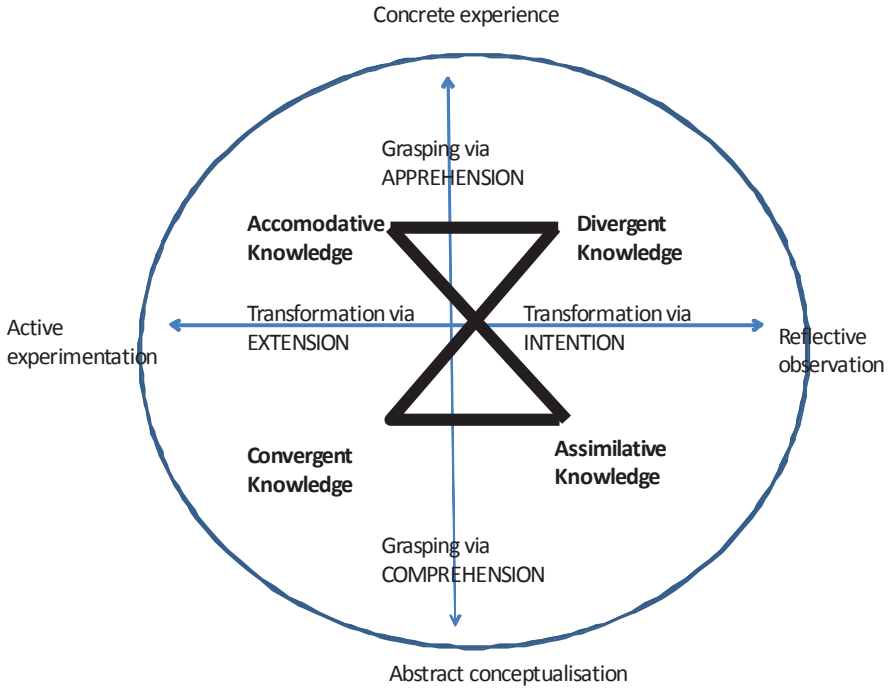


Table 1: Potential combinations of the dialectic for testing

Combination	Kind of knowledge and experience	Types of validity
Accomodative knowledge and divergent knowledge	Active experimentation and reflective observation focusing on concrete experience	Communicative and dramaturgical
Accomodative knowledge and assimilative knowledge	Active experimentation and reflective observation focusing on comprehension	Communicative
Convergent knowledge and divergent knowledge	Abstract reconceptualisation and divergent knowledge with a focus on concrete experience	Communicative and dramaturgical
Convergent knowledge and assimilative knowledge	Linking ideas in abstract terms as an advanced stage of comprehension	Communicative and dramaturgical

In addition we can also explore the linking of all parts of the cycle. One of the strengths of a lengthy simulation exercise is that it permits selection of tasks to assess particular parts of the overall cycle as well as demonstrating how parts can be combined together. Thus the four combinations can be understood as model types. They can be planned for but other factors will intervene, and will indeed be necessary. To attempt to screen out extraneous factors would affect the ecological validity of the simulation experience.

3. Method

This study is based on an extensive single case study where ELT was explored through a phenomenological approach. We first outline how the simulation was conducted, what aspects of ELT were used.

The simulation was available to 130 second year social science students at a UK university in March 2007. It was funded as part of the university's work under a centre for learning and teaching excellence initiative. In practice 95 out of the 130 students were available for the exercise so this figure has been used as the population total. The simulation lasted for a week (Monday to Friday) and 49 students attended the first day and 45 in all attended every session thereafter. It was offered on a voluntary basis during the second semester at a time when lecture courses had finished and tutors were offering group and individual tutorials. One student had sight problems and required a support worker to attend alongside to enable her to participate in group activities. While the attendance rate is not high (47.3%) it is markedly higher than the 15% often obtained for voluntary attendance simulation exercises.

All student participants who completed the exercise were given a certificate with skill profile signed off by a senior member of staff and a guarantee of a reference for employment from the simulation developer. To cope with the group size the simulation was led by a single developer supported by two colleagues with previous experience of consultancy.

In broad terms the simulation was based on either working for a consultancy company preparing a bid to a public sector body or representing one of two public sector bodies seeking consultancy services to identify areas for improvement.

Permissions were obtained from a UK police force and a UK health authority to use their publicly available data that showed their performance ratings during the previous year. Thus all students received the same data sets from either the police or the health authorities. The programme is outlined in table 2.

The study was conducted by the simulation developer (author) who took responsibility for all the presentations by the students working on the police force data. The 24 students were organised into three consultancy firms and three senior management teams. The tutors working with the students with the health authority data had other commitments that arose during some of the sessions so data was missing and so no use has been made of health trust activity here. Audio recorders were used by all police force consultancy and senior management teams and presentations were also recorded. Students signed an agreement for the developerto use the data subject to assigning pseudonyms.

The experiences of the first two days are not included in this study. On the first day students had a briefing about the week as a whole, followed by a freestanding mini-project exercise which required them to work in groups on data analysis to a tight time schedule. This was followed by tutor feedback and student response. On the second day they were taught by an external consultant who gave them practical experience of listening skills, giving and receiving feedback, responding to difficult situations, some of the different approaches to consultancy. For the final part of this second day they divided into groups to represent either consultancy firms, or senior management teams. Tutors then allocated them either the health Trust or the Police Force materials. Each team received the same materials and was required to read, interpret and analyse the material over night. Table 2 now summarises the activities and research for the three days devoted to the exercise and table 3 outlines the preparation tasks required. An evaluation was conducted with all participating students but that material is not drawn upon here.

Table 2: Summary of the simulation tasks

Day	Activity
3	Senior management teams produced an initial analysis of the provided data, developed their team roles, identified their needs as a public sector body and prepared their specifications for a consultancy
	Consultancy teams developed their identities, roles, potential brief and model of consultancy
	Opportunity for reflection and refinement
	Presentation to each senior management team by the different consultancy groups to show how they met the brief. Feedback from the senior management teams to assist with task clarification.
	Day concluded with tutor team feedback to each group
4	Each consultancy team made a second presentation and received feedback from the management teams. Additional materials given, e..g. budgetary constraints, additional policing tasks or health monitoring requirements
	Before reflecting on the experience in groups each group was required to complete a different task working as a team to meet a goal, e.g. build a tower, identify how to move objects under hazardous conditions
	Students then reflected on the experience
	Final part of the day devoted to group work on identifying team qualities, contributions, and how to make the best presentations and decision making on the final day
5	Groups had one hour to make final preparations for making and receiving consultancy bids, preparing feedback approaches
	Each consultancy team made a presentation to each senior management team.
	Senior management teams then chose their consultancy groups and established a more detailed specification
	Final session with each consultancy group preparing a revised business plan and discussed senior management feedback.

Table 3: Preparation tasks for consultants and senior management teams

	Preparation Presentation 1	Requirements for presentation and response to presenters	Preparation for Presentation 2	Requirements for second presentation and response to presenters	Preparation for Presentation 3	Requirements for presentation and response to presenters
Consultancy teams	Establish team leader, team roles, record of consultancy projects, analyse pre-given data and identify one area the police might need your team to work with them	Bring out team identity and relate it to the details given by SMT of their strategy Identify areas for consultancy	Bring out identity of the consultancy in relation to individual SMTs; show response to additional demands; show how experience of the consultancy team relates to the needs of the SMT	Show how the team matches against the needs of the force and respond to new demands. Bring out the strengths of the consultancy team for this particular SMT	Review all material to date and identify potential contracts; demonstrate learning to date in relation to all SMTs	Make a clear case for offer of contract from each SMT; respond to all issues raised and bring out distinctive features of the consultancy team
Senior management teams	Establish leadership positions and conduct needs analysis based on the pre-given data. Identify a 2-year strategy for the police force	Bring out team identity and question consultancy team on their approach and organisation Set questions and tasks for consultancy team to work on for next time	Use SMT roles to clarify the needs of the force; explain additional demands and potential changes of direction and expect responses from the consultancy teams	Bring out team identity through role activity; present review of each consultancy team and issues in their portfolio; question teams on their styles of consultancy	Prepare an analysis of each consultancy team with a rating for potential offer of contract; review all work of the SMT and identify strengths and weaknesses	Indicate relative strengths and weaknesses of each team and what they need to do to achieve a contract; respond to questions and issues raised

4. Data

The records from the preparation sessions and presentations were analysed for meaning units. Here we consider those meaning units that bear on the development of the simulation approach as a means of identifying dramaturgical and communicative validities.

The cases of dissonance and disagreement, delays and indeed arguments amongst team members. confirm the presence of the knowledge combinations. As an example, in Group C's preparation for presentation 2 Monica disagreed with Steve. and others and claimed she was under attack because C1 had suggested she was not sufficiently familiar with their requirements. She felt others in her group felt she had not worked hard enough or indeed had read the material. She protested that she spent the whole of the previous evening reading the 'stupid material' and she knew it as well as anyone else. Lyn pointed out that no one was criticising her and what had happened was that Tim had deliberately made out that the team did not know their SMT position and 'he was being annoying'. Rachel agreed when she responded that 'but it was deliberate… to see what we would do… and Monica shouldn't take no notice cos he would do it with all the teams'. In the end Monica calmed down after taking a break with Rachel and talking about it with her. She apologised to the team and they body language now showed agreement and idea sharing.

This is dissonance at the level of misunderstanding and impaired communication so it indicates issues over communicative validity. However, the knowledge types require levels of dissonance if the dialectic is to be realised. Thus convergent and divergent knowledges are likely to be in conflict. An example of this occurs with Group B1 (senior management team). Peter and Elaine worked hard to agree a budget and to produce an analysis of minor crime detection as a means of establishing a force strategy and Robert as leader encouraged them to do this. They developed what we can see as a convergence knowledge strategy whereby they used the experience of the first two presentation preparation sessions and the presentations themselves through accommodating and assimilating the experiences and prioritising their fairly straightforward reading of the pre-given material. Geoff, on the other hand, felt the key thing was to develop a strategy about integration into national policing issues including terrorism prevention. He felt this aspect had not been sufficiently emphasised and what he was suggesting was seen as divergent by Elaine and Peter. In preparation for the final presentation Geoff pointed out that one of the consultancy teams was offering international terrorism detection skills and that the SMT had to take more account of the national agenda. This led to considerable argument and a re-presentation of convergence and divergence knowledges. In the final presentation Peter and Elaine's view held but all in the group agreed the first two consultancy presentations were only addressing points they felt the SMT wanted to hear and that the presentations were weak on strategic development. Robert insisted he and Geoff lead the discussion and response for the last presentation from Consultancy team. This time the group agreed they had overestimated the minor crime aspects and needed to look at the bigger picture. Thus in a rather disjointed response to the presentation from group A Robert and Geoff led onto broader policing issues and surprised team A who were expecting to address minor crime problems only. Both teams had to respond to points form the other and in the end C1 SMT selected team A.

The data showed that all four knowledge combinations were found in the six groups. There was no consistent pattern to their appearance. Table 4 identifies the organisation of the key meaning units while figure 5 uses a diagrammatic form to illustrate the degree of integration. The more highly integrative levels include 'reflection of 'us' as group' and 'us as a new identity' while the lowest levels of integration include 'understanding role in group', 'meeting new ideas'. It should be emphasised that lower levels of integration does not reflect less value or importance. Table 5 then gives the proportion of time for which knowledge combinations can be identified in preparation sessions.

Table 4: Organisation of meaning units

Accomodative knowledge and divergent knowledge	Accomodative knowledge and assimilative knowledge	Convergent knowledge and divergent knowledge	Convergent knowle and assimilative knowledge

Reflecting on 'us' as a group in relation to SMTs			Reflecting on knowledge obtained			Showing personal understanding of knowledge obtained	Identifying group as distinctive	Sharing professional identities	Us as a 'new' identi	
Brainstorming ideas from data set	Brainstorming ideas after a presentation		Listening to each other and agreeing			Listening to each other and showing uncertainty	Imagining how teams might react	Using experience for testing a new idea	Looking for data patterns	Sharir agreer on meani of dat
Under-standing role in group	Respond-ing to roles of others	Meeting new ideas	Interpreting data	Arguing a case for the first time	Meeting new ideas		Sharing role identity in group	Thinking of new roles for group members	Interpret-ing data	Listen to new requir ments interp them

Figure 3: Depiction of meaning units by amount of integration

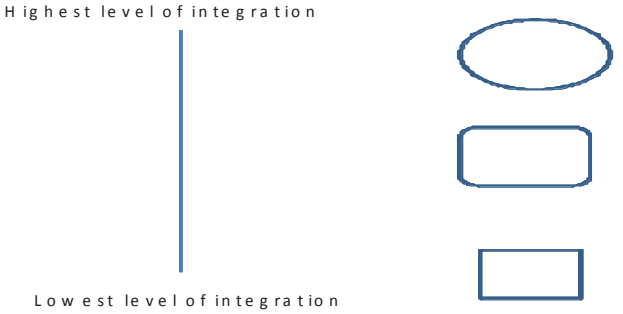


Table 5: Organisation of knowledge combinations throughout the simulation as percentage of time

Group	Presentation	1	2	3	Group	Presentation	1	2	3
A	Accommodative & assimilative	35	24	24	A1	Accommodative & assimilative	29	31	18
	Accommodative & divergent	28	11	28		Accommodative & divergent	22	19	28
	Convergent & divergent	0	53	27		Convergent & divergent	14	18	21
	Convergent & assimilative	20	4	21		Convergent & assimilative	22	21	31
	Other	17	8	5		Other	13	11	3
Group	**Presentation**	**1**	**2**	**3**	**Group**	**Presentation**	**1**	**2**	**3**
B	Accommodative & assimilative	45	22	25	B1	Accommodative & assimilative	27	21	25
	Accommodative & divergent	9	17	22		Accommodative & divergent	17	22	28
	convergent & divergent	2	29	23		Convergent & divergent	0	18	18
	Convergent & assimilative	23	31	26		Convergent & assimilative	28	24	17
	Other	21	11	4		Other	28	15	12
Group	**Presentation**	**1**	**2**	**3**	**Group**	**Presentation**	**1**	**2**	**3**
C	Accommodative & assimilative	31	25	28	C1	Accommodative & assimilative	38	28	29
	Accommodative & divergent	19	19	22		Accommodative & divergent	0	17	13
	Convergent & divergent	13	21	19		Convergent & divergent	11	15	24
	Convergent & assimilative	20	25	26		Convergent & assimilative	25	22	26
	Other	17	10	5		Other	26	18	8

The table shows a marked reduction in the 'other' category by the end of the preparation for the second preparation. It reduces further by the third presentation. This suggests the four combinations cover more of the activity of the groups. The preparation sessions were typically 2-3 hours in length. There is also a movement towards a more equal split between the four although that is by no means universal. There are also contrasts between the three groups which pick up some of the divergences and tensions that inevitably arose. There is a tendency for the assimilative dimensions to be stronger than the divergence ones.

5. Analysis

The data shows that the four combinations of ELT came to occupy more of the time and activity of the teams. The dialectic as a mode of thinking and acting was increasingly prominent in their activity. Equally this shows that the world of the simulation came to be accepted. It was no longer a separate life world which students entered and

then withdrew from. It became a life world and therefore one to which rules of communicative and dramaturgical validities were important.

Where students found the pressure of the activities too demanding and ran out or withdrew, albeit temporarily, the world of the simulation overlapped with their sense of self and they found themselves uncomfortable with the new experience. In all such cases the withdrawals were temporary.

The data patterns suggest that not only did the dialectical combinations operate consistently they also helped to create and operate with the dramaturgical. This requires not simply an imaginary setting and potential actions. It requires appropriate actions that are not 'acted'; they are consistent with the setting and arise from such contexts.

The range of meaning units and their organisation under the headings of the dialectic show that Thomas's' dictum that 'If men [sic] define situations as real, then they are real in their consequences' held.

There is undoubtedly more emphasis on the convergent rather than divergence. This may arise because students were working to a tight time schedule, or it may arise because a realistic and felt experience requires greater use of convergent thinking. However, the consultancy teams showed a greater use of divergency approaches than the senior management groups. This may well arise because the latter had more constraints placed upon them.

This is reflected in the meaning units found here. Table 4 shows an upward movement and that at the higher levels there is a sense of self and group. This was reflected also in comments on the final evaluation such as 'I learned more about myself, about how I could be 'me' but also in this group. We never stopped working. I don't work like that on any of my modules - good one'.

The work students undertook was fast flowing and could only be captured in fairly general terms. However, the differences between consultancy and senior management teams can be captured diagrammatically. Figure 4 is based on the strongest contrast observed between the two groups: consultancy team A and senior management team C1 from whom some of the arguments and difficulties were cited above.

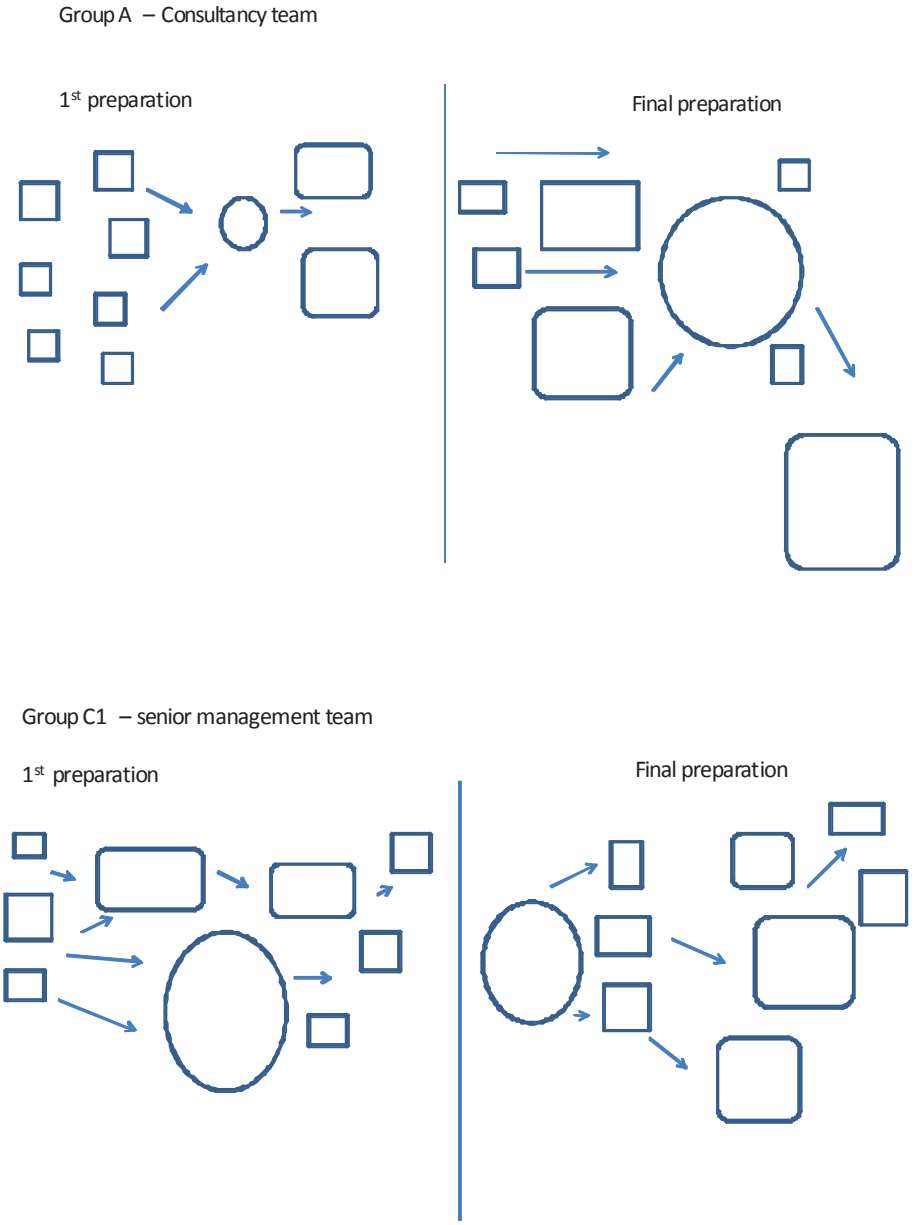
Figure 5 shows how consultancy team A moved from necessary discussion over role and identity to a clear focus on their new identity which structured their subsequent actions. By the time they reached the final preparation session they can draw on all their experiences to date and concentrate most fully on their professional identity which they use to structure their formal presentations.

Senior management team C1 spent far less time on their professional identity at the outset and overall their emphasis was on task management. This does not mean they were operating at low levels but rather their approaches mirror what happens in management and politics; pressures arise and have to be organised logistically. Issues of professional identity can either operate in the background or be subsumed under task management.

Consultancy and senior management teams had to handle professional identity and task management as well as face additional constraints imposed by the simulation developer such as creating additional tasks for groups.

Figure 5 illustrates how teams become the groups they simulate. Effective learning now arises when the gap between imposed task and players reduces and the professional learning becomes the responsibility of the teams. At that point the dialectics inform each other and despite the tensions teams achieve longer-term learning accomplishments.

Figure 4: Depiction of levels of integration over time



The qualitative analysis informing this paper suggest the complexities in play during the simulation and brings out the considerable shifts in the relative proportions of the three combinations over time. This suggests that a

simulation can provide opportunities for rapid changes of plan and direction in a way that other forms of direct engagement such as work placements may find more difficult to offer. The use of additional material and more complex conditions such as adding in resource constraints do allow for this.

6. Discussion

The main purpose of this particular study has been to explore how simulation developers can use ELT to best effect to support learning change. The research data is a support mechanism rather than a goal in itself. To do this we have brought together a phenomenological approach to meaning units consistent with ELT and one which can capture some of the rapid changes in activity in a simulation. Four possible outcomes of the dialectic have been briefly explored; they show a growing bringing together of the four combinations of learning and a reduction in extraneous activity.

Clearly there were differences according to which activity students were engaged in: consultancy or senior management. Consultancy teams explore divergency more consistently and took more risks. This was supported in the additional exercise students undertook. Working in their existing teams they had to prepare and implement a task using whichever tools they chose. All teams had to complete the tasks developed in this way. Senior management teams were more likely to ask groups to do things such as building a tower out of wire, cards and household goods. Consultancy teams were more likely to invent problems such as crossing a fast flowing river or avoiding enemy fire and introduce other constraints. It was not that the consultants were more imaginative than the others. Simply that the experiences of working in particular ways became engrained for the duration of the week. Both types of activity were realised because students now had working communicative and dramaturgical skills.

The research supports the ideas that ELT can provide valuable learning opportunities and that it can capture aspects of communicative and dramaturgical validities. Testing these ideas more fully through data collected on simulations of different lengths inserted into a degree course at various points is necessary in order to capture more fully the complexities involved and to adequately research student experience.

Clearly the case study drew upon a small sample. However, within the context of extended simulation exercises in higher education offered on a voluntary basis the participation rate was substantially higher than is typically found. Nevertheless there are limitations for a study of validity which developers need to bear in mind for future work.

The sample may have been self-selecting with more students who felt comfortable with practical exercises and group work taking part. This was mitigated by all the advertising details and talks to participating groups which emphasised that no drama or acting was required. The exercise involved a study of data much of which had a social science basis.

Students may have been more likely to participate if they were with friends so students from outside the core social science courses may have been less likely to participate as they knew fewer people. While a third of the total group came from outside the core social sciences in the department it was certainly true that the exercise was less likely to appeal to students with less contact with the core social sciences.

Equally, familiarity with the simulation developer who taught on core sociology modules may have meant that more students attended from his groups than from other classes.

The data is descriptive and phenomenological. This means it is not amenable to statistical analysis. This is not a limitation in any serious sense but it makes it more difficult to articulate the benefits and the gains to managers and policy makers who assume that benefits will be discussed in terms of instrumental validity and quantitative results.

Nevertheless, the data and study provides a view of ELT as part of a simulation developer's armoury. It moves beyond simply undertaking simulations because they promote group work. It now gives a set of goals developers can take forward and a theorisation that can be used more extensively.

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