BUSINESS SIMULATION DESIGN PRINCIPLES

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ABSTRACT

In Fine Art, Principles of Design are the fundamental ideas of the practice of good visual design (Lidwell et al, 2010). This paper draws a parallel for business simulations where design principles are the fundamental ideas of learning design. Just as design principles for fine art enable a critical and objective analysis of a painting, it is suggested that the design principles discussed here will help organisations and users critically and objectively analyse a business simulation. The principles should help the designer to meet the needs and wants of the organisational user, participants and tutors. All principles are important to the simulation designer but the other groups have differing needs and concerns and for them the principles vary in importance before, during and after use. Also, the principles are interacting, interdependent and at times conflicting. Although the principles are discussed in the context of business simulation design they may be of use for other forms of experiential learning and, with thought, be of use to other learning initiatives.

The design principles discussed here focus on ensuring learning effectiveness, efficiency, engagement, legitimacy and how the business simulation functions holistically.

Key Words: Learning Effectiveness, Efficiency, Engagement, Legitimacy, Synthesis, Business Simulation Design

INTRODUCTION

In Fine Art (painting) design principles are concerned with the *visual* impact of the painting *independent* of the subject matter. They are concerned with *"the ways that artists use the [compositional] elements of art in a work of art"*. (Getty, 2011) and are *"an explanation of visual structure [where the] subject is not considered"* (Munsterberg, 2009). For business simulations design principles are concerned with the *learning* impact of the simulation independent of the business replicated. The paper differs from a content focussed approach as exemplified by Goosen et al (1999) who explored simulation design from the viewpoint of what was modelled.

Figure 1a lists nine design principles for paintings (Getty, 2011) and suggests ten design principles for business simulations (Figure 1b). The business simulation design principles are grouped in pairs that address cognition, cognitive load, engagement, legitimacy and synthesis.

FIGURE 1
PRINCIPLES OF DESIGN - PAINTINGS AND SIMULATIONS.

Principles of Design		
Balance Emphasis	Appropriateness (to user) Relevance (to participants)	Cognition
Movement Pattern	Reflection (learning) Conciseness (duration)	Cognitive Load
Repetition Proportion	Enjoyment (fun) Challenge (conation)	Engagement
Rhythm Variety	Behavioural Theoretical	Legitimacy
Harmony (Unity)	Harmony (Unity) Ambiguity	Synthesis
1a Painting	1b Simulation	

THE PRINCIPLES

COGNITION: APPROPRIATENESS & RELEVANCE

Appropriateness and Relevance are treated separately but are linked as they are two viewpoints of the usefulness of the simulation to the learners and their organisations. They are concerned with the learning *effectiveness* of the simulation and thus are the complementary, interconnected, and interdependent views of the cognitive impact of the simulation. When analysing a business simulation for use in company training it is necessary to ensure that it is *appropriate* to the organisation using the simulation and the participants must perceive the simulation as *relevant* to them and their job. Both of these are assessed based on the simulation's learning (cognitive) purpose and the effectiveness of the learning.

Appropriateness to the Organisation measures the *fit* between the simulation, organisational needs and participant needs and abilities. It is of particular interest to the organisation adopting the simulation and the people tutoring it. Learning appropriateness is impacted by the organisations sector, strategic priorities, the need to enhance performance, etc. and influenced by the participants' current level of capability, prior learning, and position (PD 76006:2017). These serve to define learning needs in terms of knowledge exploration and skills development (Hall, 2005). When evaluating a business simulation its appropriateness is based on the degree of concurrence of learning needs with the learning delivered by the business simulation, who will participate (learn from it) and the way the simulation is used (Hall, 2005).

Assessing appropriateness is key to deciding whether to use a simulation and which simulation to use and is legitimised during use. For example, Gambro (a large multinational medical company) recognised that *"Many of our top executives were excellent in their specialities but did not have a good understanding of the entire entity nor of the financial impact their Divisions had on it."* (Stokoe, 2007). They decided that this need could be addressed by using a simulation in as a series of workshops and on a distance learning basis. This resulted in Gambro having an existing business acumen simulation customised to replicate their business and the issues facing it.

Appropriateness impacts other principles – in particular: perceived relevance, challenge and behavioural legitimacy.

Relevance to the Participants is a measure of the way the simulation fulfils individual participant wants taking into account their perceptions and the subsequent use of the learning. It is of particular interest to participants but is also of interest to the tutor and the organisation using the simulation as it impacts the extent to which participants will value the simulation and use the learning *back on the job.*

Assessing relevance is difficult until participation and when the learning is used as it is based on participants' perceptions of need and importance. However, it is possible to set the scene before running the situation as illustrated by this statement to participants *"Many of us operate in areas of Gambro which do not provide us with an overall perspective and how decisions in one area can impact on the performance of the organisation as a whole"* (Stokoe, 2007) and the driving force behind Gambro's simulation use was the Executive Committee (C-level management) and it is generally held that management support of learning and development initiatives is an enabler (PD76006:2017, 2017).

Relevance is impacted by the participants' knowledge of their own, current, learning needs, increased competencies & abilities. Additionally, it is helped where the *"learning initiative can be provided by a very experienced businessperson who can ensure the link between the simulation, the participant's company and the issues facing it, thus ensure learning transfer"* (Stokoe, 2007). In turn, perceived relevance is a key driver of engagement.

Appropriateness and relevance: The separation of appropriateness and relevance is important because even if the simulation is seen as very appropriate by the organisation it may not be seen as relevant by participants. The author remembers running a simulation for the senior management of a marketing consultancy. Unfortunately, the C-level Artistic Director could not see the importance and the relevance of the financial aspects of the simulation and complained that he was wasting his time! This perception conflicts with the general view as articulated by Gambro where *"their Executive Committee was stressing the need for financial excellence and cash generation"* (Stokoe, 2007),

Overall, appropriateness fulfils participants' learning *needs* and relevance fulfils participants' *wants*.

COGNITIVE LOAD: REFLECTION & CONCISENESS

Reflection and Conciseness are conflicting aspects of simulation efficiency. There is a risk that shortening duration (conciseness) is at the expense of reflection (and learning). Equally, lengthening duration to increase reflection is at the expense of conciseness. Thus there is a tug of war between reflection and conciseness.

Reflection is a key element of experiential learning (Kolb, 1984; Thiaragajan, 1994) and is central to critical thinking and learning (Mezirow, 1990). *"Allowing time for reflection .... is an important enabler of learning"* PD 76006:2017 (2017). Reflection is influenced by the complexity of the simulation (Hall & Cox, 1994). Nebenzahl (1984) suggests that a game is too complex if it does not permit identification of the impact of important decisions. Goosen and Washbush (2005) explored the reflection process and how it is set in motion by analysis, discussion and thinking (cognition). Therefore when analyzing the design of a simulation it

should be clear how it stimulates analysis, discussion and thinking,

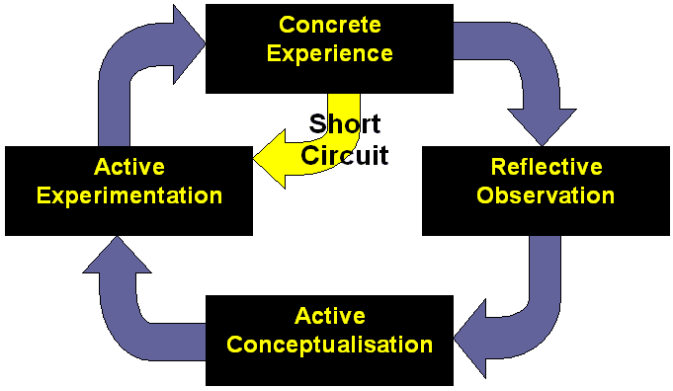
The time required for reflection is likely to influence by the participants' prior learning, experience and diversity. It must be taken into account when evaluating a simulation. Providing adequate time for reflection is of particular interest for the tutor when running the simulation and the participants when using the simulation as otherwise learning will not occur (Hall, 1995).

Conciseness impacts simulation duration and is impacted by complexity (Hall and Cox, 1994), the way the simulation is used, participants and the simulation's structural composition. (Hall, 2017). The way the simulation is used impacts duration in two ways. First, where the simulation is used in a single session, reflection time is fixed and constrained. In contrast, where it is spread over time (for example, with a set of decisions made each week over a semester) reflection time is not constrained to the same extent (Hall, 1996) and participants may reflect subconsciously and on an unplanned basis. Secondly, conciseness is impacted by the extent to which participants are mentored by a tutor. Stokoe (2007) observed that an unmentored team took three times as much time as mentored teams to make their decisions and analyse results. Goosen (2002) argues that, for business simulations, their *learning value* comes from the *direct involvement of the teacher.* Conciseness is of particular interest to the organization because of cost and the use of learners' time.

The need for conciseness may conflict with the definition of appropriate learning and the incorporation of theoretically legitimate simulation models. In particular the inclusion of irrelevant models, decisions and results introduce extraneous cognitive load - the *"load not inherent within the instruction, but is imposed by the instructional designer"* (Chandler and Sweller, 1991). As a consequence, the analysis needs to check to see if *all* the elements of the simulation are necessary to meet the defined learning needs. For example, it was felt that it would be irrelevant to include a market share metric in a value based pricing simulation for small and micro businesses. Measuring market share would be inappropriate and irrelevant for a small or micro business and would dilute the learning purpose (of knowing how to price to improve profit). Other sources of extraneous cognitive load are overly detailed or elaborate decisions, results and user interface. Prensky (2001) refers to *"eye candy"* – the prettiness of the graphics suggesting that this does not add to learning but may add to engagement. Hall (2017) explored how the detail (granularity) of decisions and results impacts duration.

During acquisition, assessing conciseness based on (duration) is straight forward but needs to include an assessment of extraneous cognitive load. Until the simulation is used, assessing whether there is sufficient reflection time is difficult. Hall (1995) observed that an indicator of lack of reflection is the *"short circuiting" of* the experiential learning cycle is (Figure 2) as participants oscillate between Active Experimentation and Concrete Experience (just making decisions and simulating) without Reflective Observation (analysing results) and Active Conceptualisation (discussing future plans).

FIGURE 2
SHORT CIRCUITED EXPERIENTIAL LEARNING CYCLE



This means that assessing whether conciseness and reflection are properly balanced is difficult when acquiring a business simulation but becomes apparent during use. For a newly developed simulation, assessing this balance is part of the piloting process. For an existing simulation, actual experience with using the simulation in the same way is invaluable. Further, in the experience of the author, a common, perhaps universal design constraint has been duration.

ENGAGEMENT: ENJOYMENT & CHALLENGE

Enjoyment and Challenge are two viewpoints of engagement (affection) with enjoyment based on emotional fun and challenge impacting conation (task and success). Both enjoyment and challenge are important but it is necessary to ensure that enjoyment and challenge are balanced as too much emphasis on one at the expense of the other will reduce learning.

Enjoyment is of particular interest to participants and the tutor as a lack of fun will cause disaffection and reduce effort. However, maximising fun (at the expense of challenge) is not advisable if it leads to *flow* where this is *"an activity that produces*

such experiences is so gratifying that people are willing to do it for its own sake, ***with little concern for what they get out of it"*** (Csikszentmihalyi, 2002). The phrase *"with little concern for what they get out of it"* is bolded as *optimal enjoyment* may be at the expense of learning (Vroom, 1970).

For business simulations, a particular element of enjoyment is competition andthis can be both a positive and a negative driver of engagement and learning. The author remembers introducing a group of C-level leaders to a simulation that was to be used on an Assessment Centre where their role was to observe and assess high potential managers running a simulated business. The purpose of the simulation run was to get the leaders to learn about the simulation **not** run a simulated business. Unfortunately, the *fun* of competition meant that winning was more gratifying than learning about the simulation – despite the author aggressively pleading with the leaders to stop trying to win and concentrate on understanding the simulation. Although competition and attempting to win is generally seen as positive, Lundy (1984) suggested that competition between teams should be discouraged but as her research was limited to simulations used by undergraduates it may have been impacted by participant maturity and resilience. Contrasting Lundy's research with the author's experience with business executives emphasizes that a simulation must be assessed in the context of the participants background (maturity).

Challenge involves the connection of knowledge and action to motivation (conation). It is *the personal, intentional, planful, deliberate, goal-oriented or striving component of motivation* (Huitt, 1999). Quinn, (2005) uses the phrase *hard fun* to describe the situation that is *"not trivial — there is sufficient challenge to keep you on your toes".* Proper challenge is crucial where participants take part in a self-directed experiential learning activity but, if the simulation is too challenging (in terms of content or cognitive load) this is disengaging. For adult learning, challenge is particularly important for the participants (Knowles et al, 1998). Anecdotally, the author remembers running two simulations on a residential course. The participants were junior managers who had just completed a business course and they felt that the simulations would be fun and allow them to demonstrate their business prowess with little or no effort. Unfortunately, they found the first simulation far more challenging than they expected and this altered their approach to the second simulation. The second simulation was briefed before dinner and it was envisaged that the teams would spend an hour of so preparing their first decision for processing the next day. Actually four teams worked until about 2:30 am, a fifth team until 4:30 and the sixth team insisted that they worked in shifts all night!

Just as it is difficult to assess reflection during acquisition, it is difficult to judge engagement until the business simulation is used. However, clues about enjoyment may be obtained from the scenario and the participants' manual. For example the Service Challenge simulation involves launching a new, specialized cab service (Chucker Cabs). That is *"a floor to door service for the party animal"* – just the cab service for undergraduates. Also, just as interest and enjoyment are connected (Schukajlow, 2015 so to are relevance and enjoyment are linked.

Enjoyment drives affection and involvement. Whereas overcoming challenge focuses on purpose and drives learning.

LEGITIMACY: BEHAVIOURAL & THEORETICAL

Behavioural and theoretical legitimacy are two viewpoints of the simulation's ability to deliver effective and proper learning. Legitimacy is used rather than validity or fidelity as these terms are often used to evaluate a simulation's ability to *imitate reality* rather than deliver learning. These viewpoints parallel the differentiation between subject and meaning for paintings (Barnet, 2014; Fry, 1909). For painting one differentiates between drafting skills (the ability to draw well) and the ability to create a visual masterpiece as illustrated by da Vinci's anatomical drawings (Jones, 2012) and his Mona Lisa. His anatomical drawings demonstrate da Vinci's drawing skills (Sooke, 2013) but it is the Mona Lisa that demonstrates his ability to deliver visually (Zollner, 1993). Likewise, for business simulations, it seems reasonable separate legitimacy into the ability to replicate business reality (theoretical legitimacy or external validity) and the ability to stimulate proper cognitive behaviour (behavioural legitimacy).

Theoretical Legitimacy of the business simulation measures the extent to which theoretically legitimate business concepts are modelled and explored (Pegden et al, 1995). Theoretical legitimacy (Validity and Fidelity) has been explored extensively in the literature (Feinstein & Cannon, 2001). Theoretical legitimacy is of particular interest to the tutor as it ensures *trust* and the ability to relate the simulation to theory. The choice and detail of theoretically legitimate models goes beyond merely imitating reality as they impact cognition (appropriateness & relevance), their complexity impacts cognitive load (reflection & conciseness) and the way they respond impacts engagement (enjoyment & challenge). Cognitive Load is minimised without impacting cognition (learning) where the learning provided by the simulation is highly correlated with learning goals – that is to say *irrelevant learning* is minimised (Hall, 2015). Engagement is maximised where the scope and complexity of the simulation does not overwhelm participants – that is to say challenge is not excessive. Theoretical legitimacy allows the tutor to *validate* results and the linkages with decisions. For the Schneider Electric simulation (Challenging the Sales Force, 2007) *"Of particular importance was the ability to customise the simulation to incorporate the National Association of Electrical Distributor's "Strategic Profit Model" and the North American Electrical Distributor Performance Analysis Report to ensure that the business issues and results would replicate the results of a real world distributor"* However, for it was extremely difficult for actual Electrical Distributors to be profitable in the real world, but in the simulation it was possible for participants to create a significantly profitable company. This *adjustment* of reality ensured engagement by providing an acceptable level of challenge.

Behavioural Legitimacy of the simulated experience measures the simulation from the viewpoint of business learning and evaluates the psychological legitimacy of the simulation. The simulation is behaviourally legitimate if the "*training environment [simulation] prompts the essential underlying psychological processes relevant to key performance in the real-world*

setting" (Kozlowski and DeShon, 2004). Behavioural Legitimacy is also impacted by real-life representation (verisimilitude) - the extent to which the *"simulation model appears to represent real-life phenomena"* (Feinstein & Cannon, 2001). But appearing to represent the real world is not the same as *actually* representing reality. This is illustrated in Fine Art where Picasso's Weeping Woman is a portrait of an actual woman (Caws, 2000) but has been stylised to increase visual impact. Possibly, verisimilitude is more to do with emotional engagement than with cognitive development and, as illustrated by Picasso's Weeping Woman, suitable stylisation and simplification of a simulation may improve learning (Teach & Murff, 2008).

Dulewicz (1982) explored empirically how business simulations comprehensively elicited and tested appropriate leadership competencies (behaviours) (Figure 3). With the exception of written communication (where there was no perceived relationship) and oral communication (where there was a small, perceived relationship) all the other competencies had a significant relationship with simulation.

FIGURE 3
SIMULATION AND LEADERSHIP COMPETENCIES

Competency	Simulation
Analytical Ability	++
Helicopter Ability	++
Administrative Ability	++
Business Sense	++
Written Communication	
Oral Communication	+
Perceptive Listening	++
Vigour	++
Emotional Adjustment	++
Social Skill	++
Ascendancy	++
Flexibility	++
Subordinate Relations	++

Behavioural Legitimacy is of particular interest to the organisation using the simulation as it is likely to lead to better performance. Also, it is of interest to the tutor and participants for if the simulation is perceived as behaviourally invalid this will cause dissonance. Behavioural Legitimacy is necessary to develop critical thinking and decision making skills.

Theoretical Legitimacy can be assessed during acquisition based on the expertise of the designer and simulation documentation. However, Behavioural Legitimacy is assessed during and after use but may be judged during acquisition if the trainer's manual explores what participants might discuss when making their decisions, reviewing results, setting goals etc. Figure 4 shows the expected discussion for a Video Log (VLOG) decision in a cash management simulation. This explains to the tutor why the decision was included and what the participants might discuss.

FIGURE 4

This decision was included to stimulate discussion about the short and long-term. VLOG has a significant impact in the current year on liquidity, but it will have a significant impact on profits and profitability in the following years.

Figure 4: Expected Behaviour: CashWize Tutor's Manual About Here

Behavioural and Theoretical Legitimacy separate drafting skills from design skills where theoretical legitimacy parallels a painter's drafting skills and behavioural legitimacy paralleling the neurological aesthetic (visual) impact of paintings

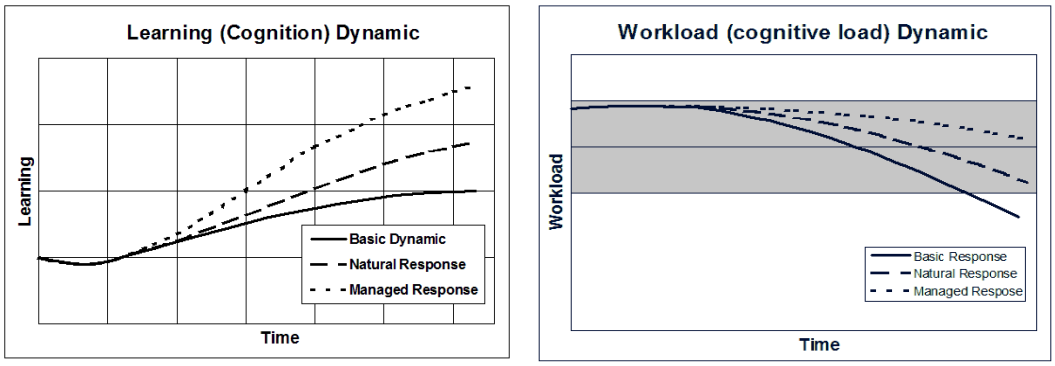
(Ramachandran & Hirstein, 1999). More importantly, Behavioural and Theoretical Legitimacy separate *learning to do* from *learning to know* and represent the two extremes of Bloom's taxonomy of the cognitive domain (Bloom, 1956). Arguably for a business person (adult learner) learning to do (behaviour) is more important than learning to know and this is exemplified by the Kirkpatrick hierarchy of training evaluation (Kirkpatrick & Kirkpartick, 2016) where behaviour is higher in the hierarchy than knowledge and is a key tenant of andragogy (Knowles et al, 1998). In contrast, it is possible that where used in an academic setting, the relative importance of behavioural and theoretical legitimacy is reversed.

SYNTHESIS: HARMONY AND AMBIGUITY

Synthesis is concerned with the structural integrity of the business simulation – the combination of the simulation's constituent elements into a unified whole - how the simulation is *"put together"*. There are two viewpoints – Harmony and Ambiguity. Harmony relates to the simulation's temporal progression (learning journey) and Ambiguity relates to the cognitive and cognitive load impact of each point in the simulation's decision-making (experiential learning) cycle.

Harmony (Unity) occurs in paintings *"When All The Elements Of Art Work Together"* (Bryantjaque, 2012) and several artists draw a parallel with music (Kandinsky, 1914; Matisse, 1908). For business simulations the parallel with music is more apposite for just as music moves forward over time until it reaches a crescendo, a business simulation progresses stage by stage until it reaches the zenith. How the simulation moves forward learning cognition and cognitive load is illustrated in figure 5 (Hall and Cox, 1993; Hall, 1996).

FIGURE 5
COGNITIVE, AFFECTIVE AND COGNITIVE LOAD AS A SIMULATION PROGRESSES



In figure 5, the dynamics show the simulation's Basic Dynamic/Response where this represents an unplanned learning journey where the simulation does not evolve and progress in a purposeful way. The Natural Response is where the learning journey includes pre-planned progressions (Hall, 2008; Hall, 2015; Hall, 2017) that increase learning (cognition) and maintain cognitive load (maximising learning efficiency). Pre-planned progressions include the introduction of new tasks (decisions), viewpoints (results) and purposeful economic environment changes (Hall, 2008). Managed Response shows where the simulation is *actively* managed by a trainer who proactively challenges and coaches participants (Hall, 1994). The role of the tutor in *driving* experiential learning is argued by Goosen (2002) who suggests that this enriches learning.

The extent to which a business simulation is temporally, harmonious (has a defined learning journey) should be apparent from its trainers' manual (as illustrated in Figure 6 for a Value Based Pricing simulation)

FIGURE 6
EXAMPLE OF TEMPORAL TOPICAL PROGRESSION (PRICEWIZE SIMULATION)

Month 1 participants assess sector price sensitivity and based on this decide prices each sector.

Month 2 participants use a price sensitivity rubric to revisit and reassess price sensitivity and based on this modify sector prices.

Month 3 participants have to deal with the cost associated with a mismatch between total sales and production capacity.

Month 4 participants can change the offering's value to customers and, if the changes are appropriate, improve profits.

Month 5 participants continue value changes.

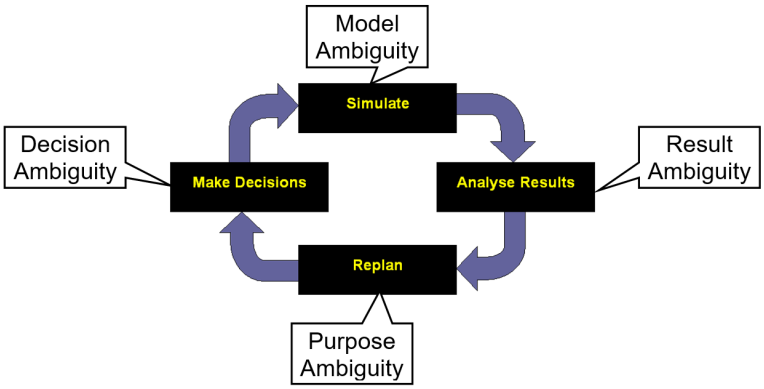
Month 6 participants forecast sales.

The way a business simulation progresses not only impacts cognition and cognitive load but also impacts engagement as illustrated by this comment from Schneider Electric *"the continuous introduction of new ideas kept everyone interested …… Throughout the training, there were never problems with people checking email, voicemail and so on"* (Challenging the Sales Force, 2007). This conflicts with Greenlaw and Wyman (1973) (quoted in Teach and Murff, 2009) who suggested that as the *"game progressed participant interest decreased"* However, this was an early business simulation that, probably, only had a basic dynamic response with no planned natural response (learning journey).

Ambiguity is a second enveloping, leitmotif for business simulations and is central to them as unravelling it forces participants to think deeply about the business that they are managing and their actions (Hall, 2015). Ambiguity impacts learning (cognition) and time (cognitive load) and so is key to learning effectiveness and efficiency. In the *real world* ambiguity tends to be high (Hall, 2015) but for business simulations this may be inappropriate as either it will take too long or be impossible to unravel the ambiguity. Excessive ambiguity will lengthen the simulation and conflict with the need for conciseness. An inability to unravelling ambiguity will inhibit learning and be disengaging as participants will feel they are not learning. Equally, lack of ambiguity will mean that participants will not need to reflect and discuss and so not learn. This means that, for a business simulation, the level of ambiguity needs to lie in the middle of the ambiguity spectrum (Hall, 2015). Unravelling ambiguity drives Behavioural Legitimacy as illustrated by this statement *"each decision needed to be accounted for by another in order to get the maximum impact. For example, if a team spent more on training, they needed more marketing, inventory and a higher price. We have been trying to teach thinking through the process for years with the field sales force and the simulation provided for this"* Schneider Electric (Challenging the Sales Force, 2007).

Ambiguity arises at all stages of the decision-making cycle (Figure 7).

FIGURE 7
DECISION-MAKING CYCLE AMBIGUITY



Decisions ambiguity may mean that participants do not fully understand their impact and, so, cannot make rational decisions. Ambiguity is further confounded by complex linkages and algorithms in the simulation model. When analysing results, participants may not have a clear idea of what is success. Finally, when planning, they may not understand their purpose. Besides evaluating ambiguity around the decision-making (experiential learning cycle) it helps to look at it from the viewpoints of the participants and the tutor. As discussed earlier, for the participants, ambiguity is necessary for learning. In contrast, the tutor must have an unambiguous understanding of the impact of decisions, the model, results and purpose - an understanding that is derived from the simulation's tutors manual and special tutoring reports (Hall, 1994).

Harmony and Ambiguity are both driven by the structural composition of the business simulation independent of the subject matter (Hall, 2017). The structural composition (or meta-composition) is concerned with the way the simulation drives cognition and causes cognitive load. Just as the composition of Fine Art pictures adjusts reality (Dow, 1913)) the *meta-composition* of the simulation models adjusts theoretical legitimacy (Hall, 2015) and in doing so focus on learning just as composition in paintings focuses on visual impact.

CONCLUSIONS

Design Principles provides a way of critically and objectively analysing the experiential learning purpose of a business simulation rather than analysing the *"reality"* of the simulation. In doing so it attempts to provide a *customer* focussed analysis as discussed by Schumann et al (2001) who suggested using the Kirkpatrick's Levels (Kirkpatrick & Kirkpatrick, 2016) to evaluate simulation after use (post hoc). However, the design principles discussed here attempt to provide a framework to evaluate simulations when acquiring, during use and after use (Figure 8). Figure 8 summaries where (as discussed earlier) design principles are most easily assessed.

FIGURE 8
WHEN DESIGN PRINCIPLES ARE LIKELY TO BE ASSESSED

When Acquiring	When Using	After Use
Appropriateness		Appropriateness
	Relevance	Relevance
Conciseness	Conciseness	
	Reflection	Reflection
	Enjoyment	Enjoyment
	Challenge	Challenge
Theoretical Legitimacy	Theoretical Legitimacy	
	Behavioural Legitimacy	Behavioural Legitimacy
Harmony	Harmony	
	Ambiguity	Ambiguity

These principles need to be refined and extended and, perhaps, the best way to do this is to use them to analyse existing business simulations and, possibly, other learning initiatives. However, this analysis must be based on defined learning purpose, participants and manner of use.

The principles discussed there deliberately depart from a focus on *content* towards a focus on *process* as it is felt that process is a more important determinant of the experiential learning delivered by business simulations.

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