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Simulation games in business and marketing education: How educators assess student learning from simulations

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ABSTRACT

Considerable research findings have demonstrated the value of simulations in motivating and engaging students and in developing their skills and competencies. Almost no research, however, has investigated how educators assess student learning from simulations. Drawing upon the literature into authentic assessment – a body of work that provides evidence-based principles to enhance assessment practice and outcomes – this paper attempts to provide a foundation for research in this area. From the 35 surveys and 8 interviews conducted with educators who use business-related simulations, it is apparent that the majority are applying creative assessment practices and that most follow authentic assessment principles – whether they use this terminology or not – including offering students developmental (formative) assessment opportunities over the course of the simulation, explaining assessment criteria and ways that students can improve their performance, requiring students to undertake reflection on their learning and outcomes, and ensuring that higher order thinking skills are engaged. Findings also show considerable similarities in where students are performing less well and in tutor perceptions of the reasons why. The research provides ideas for simulation educators to develop their assessment as well as a basis for future research into simulation assessment and ways to improve student outcomes.

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1. Introduction

Over the past 35 years, a good deal of research has been undertaken into the validity of simulation games as tools to deliver learning outcomes (Anderson & Lawton, 2009; Faria, 2001; Faria, Hutchinson, Wellington, & Gold, 2009; Hofstede, de Caluwe, & Peters, 2010; Hsu, 1989; Parasuraman, 1981). Within this research stream, the term 'assessment' often refers to assessing the validity of simulations as teaching and learning tools.

The issue of how student learning from simulations is assessed has received very little attention, however. This is interesting given that a well formulated assessment strategy is an important means of determining whether the learning approach is valid – results on the assessment show that students have achieved what they were meant to achieve in terms of knowledge, skill development and other learning outcomes.

Assessment is a major research area within higher education and most recently the focus of this research has been the role of assessment in developing the learner rather than on simply judging student knowledge at a particular point, usually

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through an exam (Sambell, McDowell, & Montgomery, 2013). Work by researchers such as Cohen (1987), Steffe and Gale (1995), and Biggs (1996) have demonstrated that when assessment is aligned to both the teaching activities and to the learning outcomes that the tutor seeks (e.g. demonstrating higher level thinking skills), students tend to engage more, at a deeper level, and perform better. This work on constructive alignment, as Biggs' (1996) termed it, has underpinned another stream of assessment research that seeks to conceptualise and develop frameworks of practice that tutors can follow to engage and motivate students, while also enhancing performance and outcomes. One such conceptualisation is that of *authentic assessment*, the main tenets of which are based on a constructive alignment of teaching, learning and assessment where the activities involve developing skills and competencies students will need in the work environment, offering them a number of practice opportunities prior to the graded assessment all with a great deal of tutor feedback along the way (Ashford-Rowe, Herrington, & Brown, 2014; Schell, 2000; Wiggins, 1993).

Simulation games tend to have many features of authentic assessment. Their generic name alone indicates the importance that game designers place on replicating a real world decision making situation set within a dynamic operating environment that requires progressively higher levels of decision making competency in order for students to improve performance (Feinstein & Cannon, 2002; Jacobs & Dempsey, 1993). Better performance on business-related simulations comes from students' learning how to interpret and make more effective use of information on markets, competitors, financial data, and customers; understanding and using tutor feedback; bringing in and integrating theories and concepts from prior studies; thinking critically about past decisions; progressively using more elaborate thinking processes in order to integrate the range of decision areas more effectively; working better as a team; and managing the time needed for the simulation more effectively (Vos, 2014).

All of these are learning processes, the progress of which can be roughly measured by the team's improvements on simulation performance indicators such as profitability and market share. The tutor also plays a critical part in supporting students with these learning processes. Essentially, the tutor has three roles in this regard: planning appropriate learning and teaching strategies, supporting student learning over time, and designing appropriate assessment tasks (Alklind-Taylor, Backlund, & Niklasson, 2012; Fanning & Gaba, 2007; Fripp, 1993; Sanchez, 1980; Vos & Brennan, 2010). How tutors undertake these roles with respect to simulation learning is another issue that has received limited attention in the research. And finally, little is known about how students perform on simulation assessment, and in particular the kinds of challenges both they and tutors find difficult to overcome.

This study is mainly exploratory and has the following main purposes:

- To address a gap in the literature on assessment strategies related to simulation games in general and by those using business simulation games in particular;
- To gain insights into what teaching, learning, and assessment principles and practices tutors make use of in designing assessment and supporting student learning from simulations and whether simulation assessment and pedagogy follows an authentic assessment model; and
- To consider what tutors perceive as the key weaknesses in student performance on simulation assessment and how they are attempting to redress these.

The paper begins with a review of the literature on authentic assessment and its main characteristics followed by a discussion of aspects of simulation game use that appear to fit these characteristics. This section is then followed by the framework for and the findings from an exploratory study on assessment practices taken from a sample of UK business and marketing who use simulation games. Consideration will be given to whether these practices fit with the main characteristics of authentic assessment and to the kinds of weaknesses tutors see in their students' performance. It is hoped that the findings from the study will provide simulation tutors with ideas for their own assessment strategies, as well as possible benchmarks for good practice. In addition, the research will provide a basis for future simulation assessment research and potentially add to the literature on authentic assessment.

2. Literature review

2.1. Trends in assessment research

Over the past three decades, research into assessment in higher education has tended to fall within three main themes: design, measurement and validity of assessment instruments; evaluating and providing feedback on student performance; and alternative forms of assessment to develop the learner (Sambell et al., 2013; Taras, 2002). The rise of alternative forms of assessment emerged out of the debates in the 1980s and 1990s over the educational value of standardised testing (also known as traditional assessment). Frederiksen (1984), for one, argued that large scale testing forces teachers to narrow what is taught in order to meet test requirements and Boud (1990) noted that too often "assessment tasks are set which encourage a narrow, instrumental approach to learning that emphasises the reproduction of what is presented, at the expense of critical thinking, deep understanding and independent activity" (p. 104).

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