Teaching with Business Simulation Games: Identifying and Overcoming Hurdles to Adoption

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Abstract: Although the use of business simulation games (BSG) in higher education has grown steadily, there are still many instructors who have never taught with BSG and their use in several academic disciplines remains very low. Existing research has primarily used quantitative surveys to identify the hurdles that prevent faculty from teaching with BSG. This article uses a focus group methodology to further investigate the obstacles to using BSG and subsequently applies a change management framework to identify levers that can be used to promote the use of BSG. The obstacles to adoption are classified into categories of suitability, risk and resources. Focus group participants expressed concerns over the suitability of existing BSG for their courses and the expected time required to identify, evaluate and prepare to teach with BSG. These factors made most focus group participants consider teaching with BSG as fraught with risk. In response, universities can encourage faculty to start using BSG in their teaching through the provision of resources, information and training, and through organizational adjustments such as incentives and flexibility to adjust course syllabi. A full range of measures is identified and the environmental contexts in which each one is likely to be effective are discussed. The individual levers that can bring about change have different environmental contexts in which they are likely to be effective.

Keywords Business education Change management Simulation games Technology adoption Higher education

1. Background

Business simulation games (BSG) have received increasing attention due to their potential to motivate student learning, replicate the dynamic and interdependent environments found in the workplace and thereby turn students into active learners (Hallinger & Wang, 2019; Salas, Wildman & Piccolo, 2009; Sitzmann, 2011). However, since their introduction in the 1970s, BSG have only partially fulfilled their promise. Although the use of BSG has grown, particularly in North America (Faria, Hutchinson, Wellington & Gold, 2009; Wolfe, 1993), there are still many instructors who have never taught with BSG and in several management disciplines their use remains very low (Faria & Wellington, 2004). The reluctance to use active learning methods in general and BSG in particular has been partly attributed to the perceived costs of using alternatives to lectures, including the expectation of additional preparation time (Goffe & Kauper, 2014; Cadotte, 2016). Other faculty may simply be resistant to changing teaching methods they are comfortable with (Tagg, 2012) and be fearful of looking ignorant if they are unable to explain the activity to students and fail to help them to improve their results (Cadotte, 2016).

This article develops a framework to analyze the reasons why instructors in higher education choose not to teach with BSG and identifies possible interventions to help alleviate the obstacles to adoption.

2. Literature review

Simulation games have been defined in the literature as “Internet-based, synthetic learning environments where decisions are made within a complex and dynamic setting, and where students experience real-time information and feedback” (Lovelace, Eggers, & Dyck, 2016).

Since 2000, the increase in bandwidth, the extension of internet access to students and the growth in availability of high-quality and relevant games has promoted the use of BSG in higher education. If, in addition, the benefits of using experiential learning methods in general and BSG in particular are now well known (at least in the literature), the question arises why there is still such a large proportion of university faculty that refrains from using them in class. The existing literature partially addresses this question through surveys. In Faria & Wellington (2004), faculty who had never used BSG were less likely to have received information through emails, colleagues, sales representatives or other methods than users. In fact, their study found that only 26 per cent of never-users were “somewhat familiar” or “very familiar” with business games and this lack of familiarity clearly inhibits adoption. Within each of the respondent groups (users, former-users, never-users), a majority of respondents did not even

know where to look for information on BSG. Never-users who had actively considered using BSG have refrained from doing so primarily due to the expectation of additional preparation time. Other reasons mentioned in the study were, in order of frequency of responses; a poor fit with the course, lack of information, preference for an alternative pedagogy, class time it takes to run a simulation, funding, administration issues and technical issues.

Moizer, Lean, Towler & Abbey (2006, 2009) investigated barriers to adoption of BSG through quantitative (Moizer et al, 2006) and qualitative studies (Moizer et al, 2009). They classified barriers in terms of suitability, resources and risk. In their framework, suitability refers to the need to ensure that BSG are directed towards the intended learning outcomes. Resources include financial costs, administrative and technical support, and instructor time, which in turn consists of time required to prepare, deliver and assess simulation-based learning. Risk includes factors such as potential student resistance or negative reactions, technical issues and loss of control over student learning. They conclude that instructors make their decision on the use of BSG based on perceived benefits and risks. The research showed that the only resource that was identified as a significant barrier is instructor time and this is in fact mentioned as the largest single obstacle to adoption. Lack of available instructor time will in turn have an impact on the possibility to manage issues related to suitability and risk. In other words, instructor time is needed to identify and test suitable BSG and to manage risks when using them in class. Actions that were suggested to overcome the obstacles include freeing up teacher time and providing support through training and information sharing.

Justice and Ritzhaupt (2015) developed a survey instrument to analyze the barriers to using BSG in education with a total of 32 potential barriers. Their survey was administered among users and non-users of BSG and included teachers at schools and universities. The highest rated barriers to adoption of BSG included the cost of equipment, lack of time to plan and implement, inability to try before purchasing, lack of balance between entertainment and education, lack of available lesson plans/examples, lack of alignment to state standards/standardized testing, inability to customize a game/ simulation, and inability to track student progress within the game/simulation. Although the authors themselves categorized the barriers into 7 factors, most of the barriers listed as important can also be classified by using the framework of suitability, resources and risk put forward by Moizen et al (2006). Cadotte (2016) also referred to the issues of risk and resources, when he wrote that “instructors are fearful that they will look bad” and “in an environment where the publication of scholarly research is the number one goal, less labor intensive learning options tend to take precedence.”

In summary, the use of BSG in higher education generally and management education specifically has increased over time. The existing literature has two major limitations. First, most research is based on surveys of faculty, with closed answers. Such an approach is valuable in terms of obtaining quantitative data and insights, but it does not offer the opportunity to explore the interplay between different factors at work. The main themes of concerns over suitability, risk and resources are interrelated and do not lend themselves well to analysis through a straight comparison of responses on a survey. Secondly, the existing research focuses on obstacles to adoption but says little about how these obstacles can be addressed by various stakeholders. Although the identification of obstacles to adoption is a valuable first step, the design of measures to increase adoption does not flow naturally from survey results. In response, this paper develops an understanding of the interplay of obstacles to adoption and the measures that may be taken to alleviate these obstacles on the basis of focus group discussions.

3. A framework for overcoming hurdles to adoption of BSG in higher education

If the adoption of BSG in teaching can be viewed as an exercise in change management, then the BSG entitled “Change Management Simulation: Power and Influence” distributed by Harvard Business Publishing (Judge & Hill, 2018) provides a potentially useful framework to analyse the obstacles and define levers that can bring about change. The simulation develops participants’ skills in leading strategic change in a sunglasses manufacturing company. As the teaching note explains (Judge & Hill, 2018), the game is based on a range of theories and frameworks developed in the change management literature. This paper does not delve into the origins and details of the underlying theories behind the framework, but simply applies them to the context of resistance to adoption of BSG.

In “Power and Influence”, players act as a change manager in the company, taking company employees through four stages of change; awareness, interest, trial and adoption. In the game, learners can employ a combination of 18 change levers to influence company stakeholders. There are four types of employees in the organization (“change targets”); early adopters, early majority, late majority and resisters. Over different rounds of play, players choose

which levers to use in order to move a critical mass of staff through the phases of change from awareness towards adoption of the new way of working, while at the same time aiming to minimize the cost of the change. There are three contextual variables that impact the scale of the challenge: the power of the change agent (low/high), the urgency of the change (low/high) and the receptivity of the change targets. Within each organization there is likely to be a range of staff members, some in favor of change and some unwilling to change.

The adoption of experiential learning methods and BSG in higher education can be analyzed through the lens of the change management framework used in the BSG "Power and Influence". The challenge to increase adoption of BSG at a university is significant because both the urgency of change and the power of the change agents can be considered to be low. Even if the College Dean is fully behind an initiative to promote experiential teaching methods and holds formal authority over the faculty, there is a limit to the extent to which leadership can oblige faculty to adopt particular teaching methods. College Deans may also be reluctant to make resources and time available for the adoption of BSG if this goes at the expense of resources devoted to academic research. The urgency of moving towards experiential learning methods can also be considered low, although the COVID-19 crisis has created a new sense of urgency to the adoption of technology enabled teaching methods.

The third contextual variable in the BSG "Power and Influence" is the receptivity to change among staff members in the organization. In this analogy, the change targets consist of university faculty. Dorbala & Rana (2019) concluded that there is strong resistance among faculty towards using technology in teaching, although faculty members at any university are likely to encompass the full range from early adopters to resisters. In summary, when applying the structure of the BSG "Power and Influence" to the change effort needed to get faculty to teach with BSG, the contextual variables can be characterized as consisting of a perceived low urgency for change, a change agent (the Dean) with limited power and a group of change targets (the faculty) with varying but generally low levels of receptivity to change.

The status of these contextual variables in turn determine which change levers are likely to be effective in promoting the successful adoption of BSG. In the scenario of low urgency and low power of the change agent, the authors of "Power and Influence" recommend an approach of evolutionary change where credibility is built up over time. If events such as the COVID-19 crisis increase the urgency, then the prescribed approach is one of accelerated change. If, at a particular university, the power of the change agent is high, then credibility does not have to be built up but needs to be preserved.

4. Focus groups

In order to understand the interplay between different obstacles to adoption to BSG and the appropriate levers to encourage adoption, a focus group discussion was selected as the appropriate research methodology. Focus groups provide an efficient method for obtaining data from multiple participants and the social interactions between participants can help them to feel safe to share information and to solicit spontaneous responses (Onwuegbuzie, Dickinson, Leech & Zoran, 2009). Existing research on obstacles to adoption of BSG is primarily based on questionnaires, which are useful to identify items and their importance from a statistical point of view. In contrast, the focus group format enables a deeper analysis of the interrelationships between the various obstacles and the different interventions that are identified to alleviate these obstacles. Focus group discussions can help identify points of importance through the intensity and specificity with which comments are made (Krueger & Casey, 2014).

Participants were all experienced academics at a College of Business in the United Arab Emirates, representing a wide range of nationalities and academic disciplines, including Management, Human Resources, Leadership, Organization Behavior, Accounting, Finance, Business Law and Economics. Participants were predominantly teaching in undergraduate degree programs, with limited teaching in postgraduate and executive education programs. There were 11 participants in total, all with significant experience in academia (5 years or more). Five participants had experience of BSG as a student and two had some previous experience of teaching with BSG, but not necessarily as the principal instructor. None of the participants were currently active users of BSG in teaching and each participant was thereby able to contribute to the discussion on why they were not current users of BSG. Participation in the focus group discussion was voluntary and a result of an invitation from the author to faculty colleagues. The invitation specifically invited faculty members who are not currently using BSG. All participants were from the same institution, located across two campuses in different cities.

Each focus group discussion had the same structure and lasted around 45 minutes. Discussions were held virtually and were recorded for subsequent review and analysis. After a brief introduction to define the term BSG and explain the purpose and format of the discussion, participants were asked to share their experience to date with BSG, discuss the perceived potential benefits of teaching with BSG, mention obstacles that prevent them from trying or adopting BSG and finally discuss ways in which these obstacles could be overcome. For the sake of ease of interpretation, the discussion below does not distinguish between results from the two sessions.

After coding, the comments were analyzed to identify emerging themes. In addition, the recording of the focus of group discussions were watched several times in order to note not only the contents of what was said but also the intensity and specificity of various contributions to the discussion. What follows is a summary of the main themes that emerged from the focus group, in the same order in which they were discussed. As an introduction into the topic, participants discussed the perceived or expected benefits of using BSG, followed by the two main research questions regarding the obstacles to using BSG and the levers that can be used to address these obstacles.

4.1 Perceived benefits of BSG

All participants knew what was meant by BSG after the term was explained to them. Some had memories of using BSG as a student and remarked that these experiences represented the most memorable parts of their studies. Some participants were also aware of colleagues, mostly at other universities, who are teaching with BSG. The participants of the focus groups had varying levels of awareness and interest in BSG, but only two had tried to use a BSG in class and none could be classified as regular adopters.

When asked about the potential benefits of BSG, participants mentioned increased student engagement and enthusiasm, the ability to link course materials to the workplace and the opportunity to enhance learning. It appeared all participants were aware and convinced of the potential benefits of BSG and nobody argued that they are inappropriate or have no advantages over traditional forms of teaching. In an age of technology proficient students, it was mentioned that teaching with technology is a natural choice. Several participants remarked that they were not quite sure why they had not yet started teaching with BSG, indicating a willingness to adopt BSG but apparently attaching a low priority to realizing their intention.

4.2 Obstacles to using BSG

The question on obstacles to adoption provided responses, which can be broadly classified according to the categories of suitability, resources and risk advanced described above (Moizer et al, 2009). In terms of suitability, the main obstacles consisted of the lack of awareness of suitable games and the expectation that there are no suitable BSG available for the courses taught. There was an expectation that there would be no suitable BSG available for introductory courses in a range of disciplines or for courses with a strong element of localized content, for example Business Law. Another concern around suitability was the expectation that available BSG would not adequately match the learning objectives and terminology of the courses being taught. If a BSG would introduce new concepts that are not part of the course or would not cover certain topics that are part of the course (or section of the course), then these BSG would be considered as not suitable. One participant also expressed the expectation that it would be difficult to track student progress when teaching with BSG. A final point on suitability relates to the perception that the use of BSG takes up class time and needs to go at the expense of something else, for example lecturing. With a full course schedule, participants expected it to be challenging to allocate class time to the use of BSG.

Resources and risk were advanced as the most pressing concerns regarding the use of BSG. The views on license fees being an obstacle were mixed, but there was a general expectation that they could be an issue. For one instructor the cost of a BSG in conjunction with an e-book was considered excessive. Uncertainty about the steps required to get budget approval and arrange payment for BSG were also mentioned. More importantly, faculty time was mentioned as the overriding resource constraint, with participants expressing their concerns with a high level of intensity and specificity. Participants mentioned the time required to identify a suitable BSG, to prepare for teaching with it, to adapt course assessments and change the syllabus to take into account the introduction of BSG. Several participants also mentioned the time required to coordinate with other instructors teaching the same course within the same institution, in a context where consistency is required for different sections of a course. Time required to find out about the administrative processes for payment was also mentioned as a concern. In short, participants expressed the expectation that teaching with BSG would be very time consuming and that there ‘simply isn’t the

time' to do all this in context of existing commitments in the areas of teaching, administration and research. Most participants agreed with the view that the adoption of innovative teaching methods such as BSG was not incentivized relative to academic research or service.

Participants pointed out various risks associated with the use of BSG. Some were concerned that an experience with BSG would not be positive for students and leave them frustrated. This risk was regarded as particularly high if an instructor is uncertain about the suitability of a BSG and does not have sufficient time to properly prepare for teaching with it. The issue of relevance for a course was emphasized repeatedly, with participants expressing a fear that a BSG would not be appropriate for a particular course and could therefore be of little or no benefit to student learning. In such cases, participants feared a backlash from students from the use of a BSG. The issue of risk was related to resources in that participants felt they would need to spend a great deal of time on evaluation of BSG and preparation for class in order to improve the chances of success. One participant mentioned he was new to the university and is already investing time to adapt to a new set of circumstances. He preferred to "get the basics right" during the first year, before embarking on more experiential approaches.

Most participants did not see technology as a major risk factor. Only one participant was concerned that if somehow the technology fails, then the experience for instructor and students would not be positive.

The obstacles to adoption of BSGs mentioned in the focus group discussion are listed in Table 1.

Table 1: Summary of obstacles to adoption

Suitability concerns	Resource issues	Risk
Lack of awareness of suitable games	License fees	Unsuitable SG risk achievement of course objectives
Expectation that no suitable games are available	Time required to identify suitable SG	Technology
Not knowing where to look for SG	Time required to prepare teaching with SG	Insufficient class time
Need for localized content	Time required to adapt assessments and syllabus	
Need to match learning objectives and terminology of courses taught	Need to coordinate with other teachers	
SG should not introduce concepts that are not part of the course	Administrative processing	
Difficult to track student progress		

In summary, although participants were in agreement about the potential benefits of using BSG in class, they had generally not taken steps towards adoption of BSG due to the expectation that there are no suitable BSG available, time constraints and perceived risks. In relation to the existing literature that investigates obstacles to adoption of BSG, the focus group participants were able to be highly specific about their concerns and the linkages between them, which in turn served as a basis for the discussion of the levers that can be used to promote adoption of BSG. In particular, participants identified the interrelationship between resources, risk and suitability, in the sense that they felt that their lack of time made it difficult for them to identify and evaluate suitable games, and to prepare sufficiently. These time constraints made participants view the use of BSG as risky.

4.3 Change levers

The next part of the discussion dealt with potential levers that can be used by various stakeholders to overcome the obstacles that were identified and to promote adoption of BSG. Stakeholders in this context may include university management, other faculty members or publishers of BSG. In order to overcome the perceived issues related to suitability of BSG, participants suggested initiatives by publishers of BSG and university administrators to share information available on BSG. Ways to raise awareness include the organization of presentations, as well as training or information sharing sessions for faculty members.

In order to address concerns around time required to prepare teaching with BSG, one common theme of the suggestions that were raised is the need for encouragement and flexibility by university administration. Encouragement can come from the above-mentioned information sharing and training initiatives.

A clear communication of budget availability and the approval process for the purchase of licenses were also mentioned as helpful. Flexibility can be introduced by relaxing, at least partially, the requirement for consistency between course sections in order to encourage experimentation with BSG or other teaching innovations. Although participants were generally not aware of the support materials available by BSG publishers, they felt that clear and concise teaching notes would help them in reducing the need to prepare to use BSG in class.

In order to address the concerns that teaching with BSG is risky, the comment was made that teaching with BSG requires some tolerance for risk and the ability to deal with unexpected situations in class. Focus group participants expected that the receptivity to change varies among both experienced and novice instructors. In order to alleviate excessive risk aversion, university administrators can encourage experimentation and responsible risk taking through encouragement and recognition of the use of BSG, for example in the faculty evaluation process.

The emphasis in the comments on potential actions by the university is noteworthy and is more likely a result of the organizational context of the particular university than the profile of the focus group participants.

In summary, if the adoption of BSG, and of innovative experiential teaching methods in general, is identified as a priority by the management of institution, there are several steps that can be taken in order to address concerns of suitability, resources and risk among faculty. The levers that university or college management can apply are summarized in Table 2 and divided into three types: resources, organizational and information/training. For each lever, it is indicated which obstacles are being addressed and whether there is particular change context (in terms of power of the change agent and urgency of change) in which it is most likely to be effective.

Table 2: Change levers by type

Lever	**Appropriate context**
	(power of change agent/urgency of change)
Resources:	
Make budget available	All scenarios
Allocate instructor time to identify and prepare for use of SG	High power of change agent
Enhance IT infrastructure	All scenarios, depending on existing IT facilities
Information/training:	
Staff training (optional)	Low power of change agent/low urgency of change
Staff training (mandatory)	High power of change agent/High urgency of change
Information sharing (at faculty meetings)	High power of change agent/High urgency of change
Information sharing (online)	Low power of change agent/Low urgency of change
Provide listing of suitable SG	Low power of change agent/Low urgency of change
Organizational:	
Clarify and share process for funding	All scenarios
Adjust incentive structure to reward use of experiential learning and SG	All scenarios
Relax requirement for consistency across course sections	All scenarios
Provide flexibility to make changes to course syllabus, if required	All scenarios
Incorporate use of experiential learning and SG in faculty performance evaluation	High power of change agent
Enhance available IT support	All scenarios
Mandate use of SG	High power of change agent/High urgency of change

Relating these levers to the obstacles that they are designed to address, it appears that several minor organizational changes that encourage experimentation and reward innovative teaching practices can go a long way to encourage faculty to seriously encourage using BSG in class. If faculty get the freedom, incentives and encouragement to experiment, they are more likely to invest the time required to identify suitable BSG and accept the risk they perceive as being associated with them. If the power of the change agent (most likely the Dean) is high or the urgency of change is high, then interventions with a more compulsory nature become possible.

Although all these levers result from focus group discussions that were held in the specific context of adoption of BSG, they can to a large extent also be applied to other innovative teaching methods, including all types of experiential learning and technology enabled education.

5. Conclusions

An analysis of the obstacles and potential levers to affect change has resulted in a range of actions that can be taken by university management and by BSG publishers. Obstacles to adoption of BSG were generally similar as those already identified in the literature, but the need to alleviate time constraints as a prerequisite for dealing with concerns around suitability and risk, was an important new finding. The levers that are controlled by university management to address the obstacles can be classified into availability of resources, provision of information and training, and organizational changes. Not all levers are appropriate in all circumstances and several levers have a particular organizational context in which they can be expected to be most effective. Notwithstanding the need to consider an institution's individual circumstances, an overriding conclusion from the focus group discussion that complements the existing literature on the topic is that universities can encourage the adoption of BSG through several simple organizational initiatives, primarily by giving faculty freedom, incentives and encouragement to experiment with BSG.

This study has identified the obstacles and potential levers related to BSG adoption in the specific context of business education at one university. The research design of using a focus group approach within one university inevitably has some limitations. A focus group discussion limits the sample size of responses from faculty and thereby increases the possibility that the findings are not generalizable. The same concern arises with all participants coming from the same institution. Future research can usefully address whether the obstacles and change levers are different in other contexts, such as in other academic contexts and different universities. The same framework can also be used to address obstacles to the adoption of other innovative and technology enabled teaching practices.

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