

Exploring the Practical Value of Business Games: Analysis with Toulmin's Sensemaking Framework

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ABSTRACT

With the advances in technology and the trend towards increased computer-based experiential learning in education settings, business games are being increasingly used by business educators. This article utilizes Toulmin's Sensemaking Framework to investigate the sensemaking process of business professionals to reveal how they consciously reason about the value of business games for learning complex business concepts and principles. Using the analysis of responses from 43 business professionals, our study identifies key areas where business professionals find value in business games and the limitations of using business games. First, business games are found to be an effective tool when teaching practical business skill sets to business professionals. Second, business games enhance the overall learning process in professional business training. Third, despite the advantages, some pitfalls in applying business games to practice are found. We also found sub-themes, claims, and argument patterns of how business professionals evaluate the value of business games through a grounded theory qualitative analysis method. Analysis results show several ground-warrant patterns exist in the arguments on values of business games including general principle – causal reasoning, personal experience – generalization, and personal projection – generalization. With these findings, we believe this paper contributes to the theory and practice of business game design, development, and the game playing and learning process.

Keywords: Business Games, Practical Value, Toulmin, Sensemaking, Grounded Theory

I . Introduction

Advances in technology, learning theory, and society as a whole have brought the rapid evolution of game playing in higher learning and business training. Incorporating games in non-entertaining contexts,

or gamifying learning, has gained attention. Serious games – those developed primarily for purposes other than entertainment (e.g., education) – have become popular and powerful tools for educating and training business professionals who help solve complex and challenging problems. This article focuses

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on business games, a subset of serious games that have been used to promote the effects of business education since the 1950s (Batkó, 2016; Faria and Wellington, 2004).

Business games are described as “they allow for dynamic business decision making where players formulate a strategy and then carry out a series of decisions to implement the strategy. Game participants receive feedback demonstrating the consequences of their decisions, and the participants can evaluate their strategies and, if necessary, reformulate them. The experience gained from the repeated iterations of decision periods provides direct feedback to players, from which they are able to learn.” (Faria et al., 2009, p. 480) By nature, games are associated with fun and play (Huizinga, 1955). When instructors use games in education, learners are often more engaged and focused, leading to more effective learning. Indeed, business games have been widely adopted in business education institutions across various areas (Grijalvo et al., 2022). Leading higher education institutions are paying attention to game for new pedagogical methods. In a report on the future of MIT (Massachusetts Institute of Technology) education, it is recommended to explore and promote game-based learning to expand new pedagogical approaches (MIT, 2014). It is claimed that more than 1,700 universities in the U.S. are using business games for better knowledge attainment and improved student learning (Rahn and Rehg, 2014), and the number is expected to increase. Scholars have investigated the effects of using games in business education and training and found learners are motivated both intrinsically and extrinsically by playing business games, thus gaining learning outcomes effectively (Kim, 2015; Wouters et al., 2013).

Prior studies in business games mostly focus on the educational effectiveness of business games in

a classroom setting such as motivation, engagement, and learning outcomes, but do not explore much about the practical values that business games can provide business learners in the context of actual work environments. Grijalvo et al. (2022) claim that studies in business games are limited to investigating learners' motivation and/or learning outcomes. They also suggest that business games studies need to be aligned with the necessities of the business education ecosystem including the business organizations that look for talented potential employees. Fitó-Bertran et al. (2015) also point out further research is necessary that identify the real benefits of business games. We found that few prior studies in the field focused on the practical values learners take away from business games so far. Business games are capable of providing learners with practical skills that could be potentially transferred to the business market (Hernández-Lara et al., 2018). Accordingly, this article extends earlier studies and fills the research gap by exploring the value of business games, from a practitioner's perspective, as a vehicle for gaining knowledge of business theory and practice. By identifying specific learning incidents, we expect to provide business educators and game designers with valuable insights into how to enhance the learners' learning experience.

Beyond exploring the potential values of business games, we also believe that investigating how business professionals find practical values out of business games will help us to understand what business practices really want from business education institutions, especially through business games. As Weick (1995) stated, in the process of making sense of the value of emergent technology, individuals discursively argue for their perspectives. By analyzing the discursive arguments that business professionals present to identify the value of the new method of learning business skills, namely, business games, we can com-

prehensively understand how business games can help both learners and instructors utilize them for various reasons. In this sense, investigating the patterns of sensemaking in business professionals toward evaluating business games will provide insights to the business schools as well as the industry training practices.

For analysis to achieve our research goal, we collected data from 43 business practitioners (i.e., informants) who are enrolled in a professional MBA program. We analyzed their written arguments regarding the value of using business games. The informants played multiple business games during a semester-long professional MBA Operations and Supply Chain Management course at a public university in the southern U.S.

Taking an interpretivist's view throughout this study, we aim to answer two research questions: 1) How do business professionals discursively make sense of the potential application of business games' values to business practice? and 2) What kinds of patterns exist in the arguments for or against the potential application of business games' values to business practice?

To answer our research questions, we adopt Toulmin (2003)'s sensemaking theory as an underpinning framework to analyze the informants' arguments. Toulmin's discursive sensemaking framework effectively aids in analyzing arguments by deconstructing practical reasoning. Thus, this method captures, analyzes, and elicits patterns within informants' arguments (Berente et al., 2011). Using Toulmin's structural analysis model of arguments we gain insights into how business professionals make sense of business games as a tool to add values to business. Specifically, our study analyzes the sensemaking arguments that business professionals make to identify the values of business

games related to real-world business practices, thereby revealing their sensemaking patterns, using a qualitative analysis method based on the grounded theory (Strauss and Corbin, 1998).

The rest of the article is organized as follows. We briefly present the theoretical background of Toulmin's sensemaking theory. Next, we describe our research method and present the analysis results obtained from analyzing 43 informants' arguments for sensemaking the value of business games. Then, we discuss the implications of our findings and contributions to the business game area and the sensemaking research. Finally, we address the limitation and conclude the study.

II. Sensemaking through Toulmin's Argument Model

Sensemaking is the ongoing process of rationalizing people's actions (Weick et al., 2005). More specifically, it "involves turning circumstances into a situation that is comprehended explicitly in words and serves as a springboard into action" (Weick et al., 2005, p. 409). Weick (1995) suggests seven properties of sensemaking: (1) identity construction; (2) retrospection; (3) sensible environment interaction; (4) socialization; (5) ongoing action; (6) focus on extracted cues; and (7) choice of plausibility over accuracy. The sensemaking process enables individuals to construct a method of understanding a phenomenon (Weick, 1979).

One of the main features of the sensemaking process is its emphasis on discourse. Sensemaking may be accomplished through individual notions within several environments and consequently formed by discourse with others. The discourse includes structured collections of meaningful text (Parker, 2004),

which can be “any kind of symbolic expression requiring physical medium and permitting of permanent storage” (Taylor and Van Every, 1999, p. 109). Therefore, discourse can be found in various forms, including written documents, verbal reports, artwork, spoken words, pictures, symbols, buildings, and other artifacts (Phillips et al., 2004). Weick and his colleagues (1995; 2005) suggest that individual and social facets are inseparable in the sensemaking process. This corresponds to the tradition of those social theories that emphasize discourse analysis that facilitates understanding the social production of organizational and inter-organizational phenomena through analyzing communication and language among people (Berente et al., 2011; Boden, 1994; Boland Jr. et al., 1994; Czarniawska, 2004; Phillips et al., 2004). In the same reasoning, in order to understand how people make sense of things, it is essential to analyze their discourses and we need a model for discourse analysis.

The process of discourse is iterative in general. As speech act theory (Austin, 1975; Searle, 1975) emphasizes the interaction between discourse and

actions, the nature of discourse and its effects on social reality may be understood as situated symbolic action (Heracleous, 2004). Moreover, discourse can take the form of individual cognition, in which one identifies an interpretational situation, then generates novel texts, which create a new action of discourse (Brente et al., 2011; Heracleous, 2004). The interpretation is accompanied by content, which may be called an argument (Toulmin, 2003; Weick, 1995). Harbermas (1984) defined an argument as communicative mode to make a claim to convince the participants in a discourse which usually contains reasons or grounds. This is consistent with Toulmin (2003)'s model of argumentation, which claims that argument is movement from accepted grounds, through warrant, to a claim (Brockriede and Ehninger, 1960; Fairclough, 2003). Brockriede and Ehninger (1960) claim that Toulmin's model is useful for analyzing arguments and classifying how the arguments are made. Through the process of analysis and classification of arguments made by people on a certain phenomenon, it helps us understand how they make sense of the phenomenon. In his model, Toulmin

<Table 1> Components of Argument

Components	Description
Claims	The argument's central assertions (Berente et al., 2011); the “conclusion whose merits we are seeking to establish” (Toulmin, 2003, p. 90); the statements proposed for the audience to believe (Fletcher and Huff, 1990; Hirschheim et al., 2012)
Grounds (Data or Evidence)	The statements offered to support the claim by answering the question: “What do you have to go on?” (Berente et al., 2011); identified on the basis of primary function within the argument's context (Fletcher and Huff, 1990; Hirschheim et al., 2012)
Warrants	The principles or rules of inference in answering the question “How did you get there?” (Berente et al., 2011); the logical connection between claim and grounds (Hirschheim et al., 2012)
Qualifiers	The statements used to show the degree to which the claim is accepted as true (Hirschheim et al., 2011); reflects genuine doubts of the speaker regarding a claim (Fletcher and Huff, 1990)
Rebuttals	The statements for managing potential objections by stating conditions under which the claim might or might not hold (Fletcher and Huff, 1990; Hirschheim et al., 2012)

identifies different components of argument, subsequently developed by Fletcher and Huff (1990); they are described in <Table 1>.

Our study assumes that sensemaking of business games occurs through discursive arguments as interpreted by Toulmin’s framework. The key components of Toulmin’s argument model – claims, grounds, and warrants – are considered to be essential for argument analysis (Berente et al., 2011; Fairclough, 2003). Although qualifiers and rebuttals are generally accepted as second-tier components of the argumentations, they are not always viewed as a necessary part of an argument (Brockriede and Ehninger, 1960). The previous study such as Berente et al. (2011) also employed only the three key components of arguments and successfully revealed the value of virtual worlds. Moreover, informants of the current study were constrained from using more diverse argument components such as qualifiers and rebuttals since the arguments analyzed in the current study were taken the form of informant’s written reports with relatively limited space. Therefore, we focus on the three key argument components, i.e., claims, grounds, and warrants, to analyze the arguments made by informants to explore the value of business games in this study.

III. Research Methodology

3.1. Data Collection

Our research inquiry is to explore the sensemaking process of business professionals’ (i.e., informants) arguments that evaluate the practical application of business games’ values. To this end, we asked 43 informants to provide a written response to an inquiry. The informants were business professionals, with three to ten years of work experience, enrolled in a 14-week technology and operations management course as part of the MBA program offered by a public university in southern U.S. The informants had completed several business games throughout the course (as detailed in <Table 2>), where each game involved varying levels and types of managerial decision-making. All adopted business games entailed a specific business scenario (or context) in which complex real-life relationships exist among the elements of decision-making. Also, they provide a graphical user-interface most of which can be drilled down to more details so the players could analyze their strategy while playing the games. Except for the Consumer Product Supply Chain game, which was administered in-class, all other business games were assigned to the students through a business game service website, where they are expected to make multiple repetitions of the game over a two-week period.

<Table 2> Description of Business Games

Context	Role	Types of Decisions
High Tech Industry	IT Project Manager	SchEdule, Scope, Budget, Team
Restaurant	Restaurant Manager	RestaurAnt Layout And Operating Parameters
Production Analysis	Factory Manager	Process Mapping and Flow Analysis
Global Supply Chain	Supply Chain Manager	Sourcing, Planning, Execution
Consumer Product Supply Chain	IT Process Coordinator	Information and Product Flows, System Constraints

After completing the last business games, the informants were asked to write about their reflections regarding their experience with the business games and the transferability of business games' values to business practice. To ensure that their responses were focused, informants were given both verbal and written instructions and were allowed two weeks to reply to the survey. An example of the written instructions given to the informants is presented in <Appendix A>. To ensure a high response rate and quality, extra bonus credits toward the course grade were granted to participants. This research was approved by the Institutional Review Board of the institution where the data was collected.

3.2. Coding and Analysis Method

A grounded theory approach was used to qualitatively analyze the arguments and draw meaningful results from the data collected from the 43 informants. Grounded theory is a qualitative research method that constructs theories based on systematically collected and analyzed data (Charmaz, 2006). Grounded theory is widely used to generate theoretical findings, and involves intensive, data-driven analysis in business information systems studies (Berente et al., 2011; Corbin and Strauss, 2014). The grounded theory method emphasizes the systematic use of qualitative data (Charmaz, 2006). Following the tradition of grounded theory research, the data were analyzed using three types of coding techniques: 1) open coding, 2) axial coding, and 3) selective coding (Corbin and Strauss, 2014). By applying Toulmin's argument model to decompose the arguments made by business professionals regarding the value of business games and using the grounded theory method to code the outcomes of the decomposition of arguments, we aim to understand the sensemaking process for the

value of business games. More details of the coding process we employed are provided below.

First, open coding is associated with breaking-down, comparing, conceptualizing, and categorizing data (Boudreau and Robey, 2005). In this coding phase, each informant's written report was carefully read, highlighted, and identified for relevance to the study (Corbin and Strauss, 1990; Layder, 1998). For open coding, two coders carefully read the informants' responses and then coded any segments of text relevant to the application of business games to business practice. Each code was associated with one or more text segments identified as related to the value of business games.

Second, axial coding was used to identify the structure of text segments that mention the application of business games. Axial coding process seeks the assertions and supports used in the text segments and the relationships among them. By using Toulmin (2003)'s framework (i.e., claim-ground- warrant), each text segment was analyzed and labeled as one of the three components of argumentation (Berente et al., 2011; Brockriede and Ehninger, 1960; Fletcher and Huff, 1990). For example, text segments containing explicit assertions of the argument were labeled as claims, while those containing explicit evidence supporting the argument were labeled as grounds. As the logical connection between an argument and its grounds, warrants were seldom explicitly detailed in informants' responses. Therefore, warrants were inferred based on implicit assumptions in the identified argumentation (Berente et al., 2011).

Finally, selective coding was conducted to integrate the analysis results into argument categories. Specifically, the themes of claims, contents of grounds, and types of the warrant were coded and categorized accordingly. More specifically, the coders read through the informant's response and first identify

the claims that the informant tries to make. Then the grounds used to support the claim in the argument are identified. Lastly, the warrant, which bonds the relationship between the claim and the ground are deduced by the coders because the informants usually do not provide an explicit warrant type. Throughout this process, patterns of arguments were identified. <Appendix B> provides an example of the detailed coding process.

All three coding processes were conducted by two of the authors. After completing the initial coding individually, the two coders jointly reviewed the initial coding results, which showed an inter-rater agreement rate of 0.72. All disagreements in the initial coding were reconciled through extensive and iterative discussions among the coders. The coding procedures were mainly conducted on Microsoft Excel worksheets.

IV. Results

The overall results from analyzing the informants' arguments are summarized in <Table 3>. First, we found specific themes in the informants' claims, which are categorized into four main themes. Then, we identified the type of grounds and warrants that make sense of the individual argumentation.

To achieve our first goal of identifying the value of business games, we try to extract the themes of claims in the informants' arguments. After multiple iterations of analysis, we found four main claim themes: (1) practical business skills, (2) learning process, and (3) limitations of business games. We next examine each theme (including sub-themes) and the argumentation processes in detail and discuss the finding.

4.1. Themes of Argumentation

By augmenting business education and training with business games, our analysis of informants' arguments identifies various potential benefits. The results of the analysis are consistent with the previous literature that claims business games are effective learning and training tools (Landers and Callan, 2011; Michael and Chen, 2006; Pasin and Giroux, 2011) and are also helpful to develop various skills for successful business practice, such as strategic thinking, planning, communication, collaboration, group decision-making, and negotiating skills (Gee, 2007; Squire and Jenkins, 2003; Susi et al., 2007). According to Iverson (2004), business games represent a revolutionary shift in corporate training by changing trainees' role from passive to active and the trainer's role from delivering material to facilitation (Susi et al., 2007). This study finds that business professionals agree with the idea that business games can deliver benefits to practitioners in several different ways.

4.1.1. Practical Business Skills

By covering a wide range of business environments, business games effectively help business professionals better understand and apply complex business operations theory, practice, and concepts. By playing business games, business learners/trainees can develop practical business skills. Our informants' claims focus on the benefits of business games in gaining a macro business perspective, practicing decision-making, and acquiring practical business skills.

Business games often require players to make decisions in cross-disciplinary business environments. Informants pointed out that business games allowed a wider business perspective by essentially emulating the real-world business environment, where various

<Table 3> Summary of Analysis

Claim themes (sub-themes)		Specific Claims	Ground Types	Warrant Types
Practical Business Skills (n = 42)	Business Perspectives	Broad Viewpoints	General Principle	Causal Reasoning
			Personal Experience	Generalization
	Decision-making	Decision-Making Practice	General Principle	Causal Reasoning
			Personal Experience	Generalization
	Practical Skill Acquisition	Practically Useful Lessons	General Principle	Causal Reasoning
			Personal Experience	Generalization
		Current/Future Job Skill Enhancement	Personal Experience	Generalization
			Personal Projection	Generalization
Learning Process (n = 70)	Enjoyable Learning	Engaging Experience	General Principle	Causal Reasoning
			Personal Experience	Generalization
		Fun Experience	Personal Experience	Generalization
	Experiential Learning	Group-Work Experience	Personal Experience	Generalization
		Hands-On Experience	General Principle	Causal Reasoning
			Personal Experience	Generalization
	Real-World Experience	Personal Experience	Generalization	
		Learning Experience	Knowledge Integration Process	General Principle
	Personal Experience			Generalization
	Enhanced Learning Experience		General Principle	Causal Reasoning
			Personal Experience	Generalization
	High Retention	Personal Experience	Generalization	
Personal Projection		Generalization		
Demonstration	Demonstrating Business Concepts	General Principle	Causal Reasoning	
		Personal Experience	Generalization	
Limitation (n = 23)	Implementation Limits	Need for Implementation Strategy	General Principle	Causal Reasoning
			Personal Experience	Generalization
	Content Limits	Discrepancy from Real World	General Principle	Causal Reasoning
			Personal Experience	Generalization
		Not Applicable to All Contexts	Personal Experience	Generalization
Fail to Enhance Learning Experience	Personal Experience	Generalization		

Note: n: the frequency of the theme appears

operations elements are integrated with one another. Informants also suggested that business games' value lies in providing new business perspectives for those lacking experience, enabling them to consider how

different business functions are nevertheless connected to one another. Indeed, business games may allow them to learn about all areas of business (Faria and Dickinson, 1994). Business games are usually

designed for players to experience cross-disciplinary processes, requiring them to find relationships or structures among the information components (Zantow et al., 2005). Our informants noted business game capabilities to broaden their business views, basing their arguments on their own experiences and general reasoning. They presumed that other people in the organization would experience the same benefits from business games. Informants emphasized that they could obtain macro, cross-disciplinary perspectives on the processes in their organizations through playing these business games. For example, this is illustrated by informant #32 (Note: The actual company names are anonymized in the coding/analysis process hereafter.):

Claim: *“I really enjoyed the ones that we had and how much they opened my eyes to how closely they resemble current processes going on around us. ... At least[,] given the simulations that we have allowed us to get an insight on 5 real-world scenarios: project development of a new product, the total amount of time it takes to complete requests along the chain, how batch systems work and how to allow inventory to make money for you rather than just sit and collect carrying cost, the results of ineffective communications and poor forecasting methods, delivering a product to market and seeing the results of decisions made regarding the financial aspect, and the macro-view of the entire supply chain.”* [**Broad viewpoints**]
Ground: *“Going from the macro-view to the micro-view, to the complete set up of each decision made in the supply chain really gave me a new view of everyday operations and gave me a lot to consider when being approached with real-world scenarios - each scenario is really not that much different from another.”* [**Personal experience**]
Warrant: *My experience that business games broaden views of business will be shared by others.* [**Generalization**]

Generally, skills for good decision-making are not easily obtained and widely understood from traditional learning methods, such as textbooks and lectures. Students often focus on solving the mathematical problem than on how the theory applies to practice, especially when uncertainty is involved. Rather, these may be gained from numerous trial-and-error practices in actual decision-making experiences (Etzioni, 2001). Trial-and-error in practice could be costly in real-world situations. Business games entail a collection of decision-making activities, as players pursue goals within the game context (Abt, 1969). Business games provide an ideal environment to enhance managers’ decision-making skills by presenting opportunities to choose various options without real-world consequences. By allowing participants to iterate the decision-making process with different strategies, business games help them to acquire decision-making skills more efficiently than do traditional learning methods (Baker et al., 2005; Faria and Dickinson, 1994; Salas et al., 2009). Our informants claimed that one practical value of business games is providing opportunities for risk-free decision-making exercises. This risk-free environment gives business game players confidence and less stress when making decisions (Alinier, 2003). They argued that business games could benefit business decision-making through such features as providing a knowledge base for a decision-making framework. For instance, informant #12 mentioned the application of business games based on his personal experience:

Claim: *“Business organizations can also make use of these tools to improve their operations processes, and to train their employees. [...] in a controlled setting [,] without the real-world risk of making costly, ill-informed decisions.”* [**Risk-free exercise**]

Ground: "These games gave me an opportunity to test my understanding of the information and to appreciate the balance of so many variables that are needed to arrive at a decision. A simulation game gives me the opportunity to improve on my decision-making abilities within operations management without costly repercussions." [Personal experience]

Warrant: My experience of the decision-making exercises in business games will be shared by others. [Generalization]

Business games are designed to help learners/trainees develop skills that could be useful for business practices. As Reginato et al. (2022) suggested it is the main concern of business education to transfer the knowledge gained in the classroom to real-world skills. We found business games help business learners/trainees to acquire practical skills that could be used in their current or future workplace. The informants' course used business games that focused on developing analytical and managerial skills. Some informants found the business games valuable for acquiring practical skills they can use in the workplace. Specifically, informants found they could learn new lessons useful to their job through the business games. For example, informant #2 claimed that he found multiple lessons directly applicable to his job:

Claim: "I will be able to apply some of these lessons and principles learned through working through the simulations to my own professional realm. [...] they add the element of experience to our learning process, in addition to the text portion of the material." [Enhanced learning experience]

Ground: "One great aspect about these simulations is you have to carefully plan and attack each situation and adjust to the challenges presented just as you would in the real work environment." [General principle]

Warrant: Similarity to the real world will make business games a good learning tool. [Causal reasoning]

Although some lessons from the business games are not directly relevant to current roles, informants recognized that they would be useful later in their careers since the business games cover various areas, including high-level decision-making processes. By playing business games, learners can develop various job skills that could be beneficial for current/future jobs. This is illustrated in the response of informant #15:

Claim: "simulations done in class were very beneficial for helping to develop our skills as future managers." [Job skill enhancement]

Ground: "As a marketer at YYY, I think that the project management, Benihana, and global supply chain simulations helped me the most." [Personal experience]

Warrant: My experience with business games will be shared by others. [Generalization]

4.1.2. Learning Process

Learning, of course, is the primary goal of using business games in various business education/training environments. Serious games began to gain attention due to their unique ability to combine entertainment and education (Brandão et al., 2012). Our informants experienced business games as part of their MBA course, designed to increase their understanding of various concepts/topics in the domain of management and technology management. The informants made claims regarding the learning process. In particular, they found values of business games in four main aspects of the learning process: enjoyable learning, experiential learning, enhanced learning, and demonstration.

By combining both education and entertainment, educational games lead to more active engagement of students in the learning process (Azadegan et al., 2012; Ben-Zvi, 2010; Charles et al., 2011; Klabbers, 2009; Mayer et al., 2013). As such, enjoyment is one of the unique features of business games compared to other learning and training methods (Breuer and Bente, 2010; Gee, 2007; Michael and Chen, 2006; Prensky, 2001; Rieber, 1996; Ritterfeld and Weber, 2006). Enjoyment naturally leads to further engagement, which motivates students to pursue better learning outcomes (Brockmyer et al., 2009; Csikszentmihalyi, 1991; Fu et al., 2009; Funk et al., 2006). Several informants stated that they enjoyed playing business games, which led to greater engagement; some even described the games as so addictive that they found it difficult to stop playing. Some informants attribute their addictive behavior to the realistic nature of the game scenarios, alongside their desire to win (i.e., achieve higher goals). Realistic scenarios motivate players to work until they are satisfied with their performance. For example, informant #23 mentioned that business games can engage people by providing similarities to the real-world environment:

Claim: *“The simulation games were a refreshing departure from the day-to-day academic experience. [...] the games were a peek at certain aspects of the business environment that I feel I may never be exposed to on my current career path. [...] I like the incorporation of computers and games in the classroom as it keeps the material fresh and provides an alternate way to engage the students.” [Engaging experience]*

Ground: *“I found it interesting that I had to actually make decisions as if the people in the game were real and their emotions and moods were real.” [Personal Experience]*

Warrant: *My experience with business games will be shared by others. [Generalization]*

Unlike traditional learning methods, such as textbooks or lectures, business games provide experiential learning opportunities to learners/trainees. AACSB (Association to Advance Collegiate Schools of Business) stresses the importance of experiential learning, which can facilitate students’ understanding and improve the unique situations of different business environments. Learning a subject through their own experience can be much more effective for achieving learning goals. Business games are believed to typify experiential learning methods (Faria and Wellington, 2004; Garris et al., 2002; Ruben, 1999). Business games are mostly designed to provide players with a series of input-process-output cycles, modeled by Garris et al. (2002) as multiple trials triggered by certain game characteristics. In their view, game play involves repeated judgment-behavior-feedback loops, through which game play itself could increase users’ understanding of the game. Incorporation of the game cycle is the hallmark of Garris et al. (2002)’s model, reflecting the defining characteristic of computer game play. This is consistent with the learning theories of Dewey (1938) and Kolb et al. (2001), which emphasize experiential learning approaches. The essence of learning through business games is that players formulate and test various hypotheses, then observe the results until they find hidden relationships among the elements. Through this process, they can experientially learn subject topics. Our informants fully realized the value of business games in providing experiential learning benefits, although their focus varied in related responses, which mentioned *group-work experience*, *hands-on experience*, and *real-world situation experience*. They are classified as experiential learning after analyzing the arguments.

Some informants found that business games are an effective means to experience a group-working

environment. Since some of the course's business games require learners to play in a group (usually comprising 3 - 4 people), they can experience the decision-making process in group environments, which is quite different from the individual decision-making process. Informant #12 mentioned the opportunity to apply learned theories learned in a group setting:

Claim: "we were also able to work in teams, which facilitated networking and camaraderie between our fellow classmates." [Group work experience]

Ground: "Many of the simulations included morale and teamwork aspects, so having the opportunity to not only apply the theories that we learned in the situation, but getting to apply them in a group setting, only added to the learning that took place." [Personal experience]

Warrant: My experience with business games will be shared by others. [Generalization]

Other informants mentioned the value of business games in giving hands-on opportunities to apply concepts and theories. Business games are usually used to give learners the chance to practice concepts explained in textbooks or lectures. For example, informant #12 mentioned that he obtained valuable hands-on experience from the business games:

Claim: "the simulation games allow us to practice or 'simulate' the theories we were taught through our textbooks, lectures, and additional reading." [Hands-on experience]

Ground: "I believe that I have gained valuable experience from the simulation games. ... Each of these simulations emphasized and tested concepts which would have been harder to fully grasp without these teaching tools." [Personal experience]

Warrant: My experience with business games will be shared by others. [Generalization]

Similarly, informants found value in the realistic experiences business games can provide to learners/trainees. Most traditional learning methods used in business are regarded to lack real-world experiences. By contrast, business games give opportunities for learners to apply concepts obtained from lectures and textbooks to real-world-like situations. Many informants claimed that business games offer more realistic applications of lessons from the course. For instance, informant #29 stated that the business games provided realistic experiences:

Claim: "For me, the true essence of what makes the formalized learning experience stand out among preparation for real-world success is its ability to consistently create controlled situations that emulate expected work challenges while giving students the opportunity to preview typical outcomes based on the way each of them interact with each situation." [Real-world experience]

Ground: "This semester, in Operations Management, I was given a unique opportunity to sharpen my aptitude for this type of real-world problem-solving through the use of various highly interactive simulations." [Personal experience]

Warrant: My experience with business games will be shared by others. [Generalization]

Experiencing something is often the most effective way of understanding it (Gentry, 1990). Business games provide new learning experiences through their novel and compelling features. Business games allow students to critically explore theory and practice experientially (Kolb et al., 2001; Lewis and Maylor, 2007) as well as give them opportunities to assimilate and accommodate knowledge (Van Eck, 2006). According to Piaget (1952)'s theory of cognitive development, assimilation is a learner's process of incorporating new information into an existing knowl-

edge framework, whereas accommodation is a learner's process of modifying an existing framework to fit new information taken from the environment. He claimed that an individual's intelligence matures through the continuous cycle of assimilation and accommodation. Business games enable learners to experience assimilation and accommodation processes by applying existing knowledge combined with new information, repeating and comparing the different strategies. Playing educational games usually involves a constant cycle of hypothesis formulation, testing, and revision (Garris et al., 2002; Hays, 2005; Van Eck, 2006).

Our analysis of the informants' arguments supports the use of business games for business education/training purposes. Some informants argued that business games add a unique experience to the learning process, which may help enhance problem-solving skills. The warrants that are used to leverage these grounds is the general principle that, by modeling the complexity of real-world environments, business games provide good opportunities to prepare learners for real-world situations. For example, informant #4 mentioned the enhanced learning process that business games provide, basing his argument on general principles and causal reasoning:

Claim: "Simulations are beneficial tools to allow a person to experience various situations before experiencing them in real life." [**Enhanced learning experience**]

Ground: "It allows the opportunity to learn how a different decision can affect the overall outcome." [**General principle**]

Warrant: When learners have such opportunities, they can experience better learning. [**Causal reasoning**]

Business games fill the gap between theory and practice outside the classroom by providing oppor-

tunities to apply learned concepts to real-world business scenarios (Kumar and Lightner, 2007; Lin and Tu, 2012). Multiple informants asserted that business games help bridge theory and practice. By playing the business games, they gained a deeper understanding of complex phenomena. For example, informant #37 mentioned that the lessons she learned from the business games reinforced the instruction methods she was using to teach her students:

Claim: "What I've learned from the first module of classes, and also what's been reinforced from the simulations, is that I need to spend more of my time training my top students." [**Knowledge reinforcement/integration**]

Ground: "I've been teaching studio classes for ten years now and I can safely say that I've spent far too much time catching up individuals that don't have the drive or talent of some of the better students. [...] It seems counterintuitive at first but I'm starting to believe that it's the students that spend 20 hours working on a Photoshop project for Monday's class that should be rewarded with more attention, more work, and a greater focus from me on their lessons." [**Personal experience**]

Warrant: My experience regarding the learning experience through business games will be shared by others. [**Generalization**]

It is also argued that business games help learners/trainees to better retain what they learn. Previous studies have claimed that learning through games improves an individual's retention rate when compared to other learning methods (Fu et al., 2009; Hays, 2005; Randel et al., 1992). The retention rate is generally related to a student's interest level (Naceur and Schiefele, 2005), and business games tend to aptly engage trainees, since engagement and interest in learning are closely related (Skinner and Belmont, 1993), leading to better knowledge

retention. Several informants argued that business games enhance trainees' ability to retain lessons learned from their playing experiences. Informants stated that they would remember the knowledge they obtained from business games for a long time. Among them was informant #25, although the absence of an explicit warrant leads us to assume that the ground relies on personal projection:

Claim: "I thought the simulations were valuable [in] taking the lessons and actually demonstrating the topics. [...] I am sure I'll remember these lessons far longer this way."
[High retention]

Ground: "I am sure I'll remember these lessons far longer this way." [Personal projection]

Warrant: My expectation that lessons from business games will be retained for longer will be shared by others.
[Generalization]

Business games offer elaborate graphical user interfaces, with game-play visualizations that enable players to observe game dynamics. Unlike traditional learning formats, business games illustrate business concepts to game players through the visual stimuli of various graphics and animations. By observing illustrations of how the elements of business processes work in business games, learners tend to absorb business concepts more efficiently than through other instruction methods (McGlarty et al., 2012; Tao et al., 2009). Moreover, seeing a demonstration produces higher retention rates compared to traditional learning methods, such as audio-visual, reading, or lectures (McGlarty et al., 2012).

Some informants asserted that business games can represent many complex relationships occurring in practice. They support this claim with the causal reasoning that the characteristics used in business games may be used in most organizations. For exam-

ple, informant #1 asserted that business games can illustrate the complex relationships that may be found in business organizations, supporting his claim with causal reasoning:

Claim: "It was beneficial to be able to demonstrate the use of inventory buffers and extra hands in the production process to reduce bottlenecks where necessary. [...] The overall simulation was beneficial to show how much things we take for granted (such as excess inventory) can help smooth over issues in a process environment."
[Demonstrating business concepts]

Ground: "One way to enhance the learning intended by the simulations would be to allow the user to test out what would happen by placing the inventory buffers in different portions of the process flow, as well as to assign the extra operator to one or multiple positions to help with throughput."
[General principle]

Warrant: The benefits of business games are generally applicable to organizations. [Causal reasoning]

4.1.3. Limitations of Business Games

Business games might not always be beneficial, due to inherent limitations and/or contingencies for their applicability to real-world business practices. Accordingly, not all informants argued that the course's business games are beneficial. Some pointed out certain negative aspects of the business games, which can be viewed from implementation-related and content-related perspectives.

Although business games are widely used for business education/training purposes, effectively implementing business games is not an easy task. Since business games, like other gamification techniques, are quite new to instructors and learners/trainees, there is still much scope for improving implementation strategies. Business games that are too

playful or game-ish will likely engage players but might fail to teach them. Furthermore, too much emphasis on playfulness could encourage hedonic usage patterns in consuming business games (Hirschman and Holbrook, 1982), in turn undermine the instructional goals. Our informants mentioned this point in their argumentation. For example, informant #13 asserted that business games alone would not be an effective learning method, and claimed that their implementation needed to be more sophisticated:

Claim: “The major educational feature of the simulator wasn’t the game itself. It was the solutions. [...] I think it would be best to ‘game’ the students.” [Need for implementation strategy]

Ground: “Reading through the solutions taught what the risks of each type of labour were, and how to balance them out for this game to really make a meaningful impact.” [General principle]

Warrant: Better implementation strategy will improve the effectiveness of business games. [Causal reasoning]

Business games could be insufficient for business learners/trainees to learn business concepts effectively unless the players share their experiences with others. Although they provide opportunities to demonstrate and apply concepts in a simulated real-world context, business games lack some important features. In particular, many business games are played individually, which hinders learners’ interaction with others. Some informants such as informant #20 mentioned that business games need to be combined with other learning techniques, such as discussions and case studies, to be more effective:

Claim: “The simulations alone do not lead to one ‘right’ answer. In the future, I think discussion amongst class

members supported by case studies and real-world examples...” [Need for implementation strategy]

Ground: “...would help to strengthen the lessons learned in the simulations while also highlighting the limitations of the simulations and how they do not apply to all industries in all situations.” [General principle]

Warrant: Better implementation strategy will improve the effectiveness of business games. [Causal reasoning]

One key element of business games is to engage participants through realistic game design, enabling participants to develop personal, situational perspectives, and thereby connect learning to real business practices (Faria and Dickinson, 1994; Haapasalo and Hyvönen, 2001; Hoberman and Mailick, 1992; Lainema and Hilmola, 2005). However, it is rarely possible for business games to exactly mimic the real world. By simplifying their design (Cook and Swift, 2006), the discrepancy between the business game and real-world situations might reduce business game players’ intrigue; ultimately, players may become reluctant to use learnings from the games in real-world business practice. Hence, learners who expect high similarity in business games might perceive lower value due to the lack of reality. For example, informant #1 argued that one drawback of business games was discrepancy with the real-world business environment. She based her argument on the general principle that more diversity is typically found in real-world decision-making processes:

Claim: “The drawback to simulations is that they’re only as accurate as they’re programmed to be. [...] The simulations themselves are made to emulate situations that could be encountered in the workplace, but they’re only as diverse and realistic as the logic the programmer used.” [Discrepancy from real world]

Ground: “Real-life situations present a lot more diversity

to the challenges faced during the decision-making process.”

[General principle]

Warrant: *Lack of reality in business games will prevent being applied to business practice. [Causal reasoning]*

Another limitation of business games' application to real-world business practice is that game characteristics might undermine the serious purpose of business. More specifically, business games have two facets of novelty: *playfulness (enjoyment)* and *seriousness (learning)* (Kim, 2015). Some business game players might focus too much on playing the game itself and not learn much, especially when they find the game playful or “game-ish.” For example, informant #19 noted this issue by reflecting on his experience of business games in the course:

Claim: *“Overall, most of the games did not seem really beneficial in the current work atmosphere I was in. [...] [T]o me[,] they seemed to be more of a game and not as much of a learning tool.” [High degree of playfulness]*

Ground: *“Was I really learning about printers? I just knew that if you finish it by week 8[,] you were going to get your max points. I did not learn why it is that way.” [Personal experience]*

Warrant: *My negative experience of business games lacking similarity to business practice will be shared by others. [Generalization]*

Many business games only cover certain areas of business processes. For instance, the course's business games focused on specific topics of operations management, such as project management, process analysis, and global supply chains. Some informants pointed out that these specific concepts and lessons are hard to transfer from the business games to the quite different environment of real-world business practice. For example, informant #28 claimed that

not all the lessons from the business games can be applied to real-world practices:

Claim: *“I also assumed [that] the components of the simulation that were not common sense I would have [to] be able to figure out[,] as the simulations would be building blocks from the lessons in the module. This was certainly not always the case.” [Not applicable to all contexts]*

Ground: *“While each simulation, some more interesting than others, was to be a good indication of what the real world would be like, it did not always feel that way. Nor did I always feel like I could apply what I was currently learning in class to the simulations.” [Personal Experience]*

Warrant: *My experience with business games will be shared by others. [Generalization]*

4.2. Patterns of Argumentation

As the application of business games to business practice has not yet been extensively studied, it is worthwhile seeking to understand how working professionals make sense of these new business tools. While sensemaking is an individual activity (Weick, 1995), it can be socially applied, since individuals project themselves in the context of social groups or organizations (Berente et al., 2011). Hence, sensemaking could also be called a social activity (Billig, 1996; Dodds et al., 1997). Regarding our informants' discourse towards business games, we find argumentation patterns focusing on the inherent direction of organizational strategy toward adopting or using business games.

Reviewing the 43 informants' written reports, we found that their arguments are mostly based on first-hand experiences with business games in the course. One pattern that frequently appeared in the arguments is a generalization—personal experience pattern, through which informants assume that their experiences with business games would be generalized

in business environment and use the personal experience as a warrant that connects the claim and the ground. This process is natural; individuals whose experience of a certain phenomenon is positive tend to insist on that phenomenon's positive value based on their experiences. This type of retrospective sense-making conforms well to Weickian social psychology (Berente et al., 2011; Weick, 1979). However, this evaluation of value should be treated with caution due to potential confirmation bias. More specifically, people might only select positive evidence that supports their claim, however non-intentionally (Nickerson, 1998). Nonetheless, this pattern is frequent and powerful in users' sensemaking on the value of business games in practice.

We also found arguments based on causal reasoning – general principle pattern, whereby informants reasoned on the value of business games. In this pattern, informants asserted that business games are effective in transferring values to business practice. To support such claims, informants applied a general principle regarding the learning or management process. As a warrant, the informants considered that general principles are applicable to using business games in a business environment. This pattern frequently appeared in the analysis, suggesting that it is a common pattern for making sense of applying business games to business practice.

Another identified pattern of argument is generalization – personal projection. This is similar to the previous pattern, except that the ground is based on the individual's projected plan to continue with business games in their own working environment. In this pattern, informants' claims were usually grounded on their opinions of the business games or their expectations that they can gain benefits from the business games. These informants project their opinions/expectations, obtained from playing business games,

to their workplace environment. They then assume that their projection would generally be accepted by other working professionals as a warrant of the claim-ground relationship.

The patterns of arguments revealed from the analysis shows only three main types of grounds and two main types of warrants, which are combined in the identified argument patterns, exist in the arguments of the informants. We come up with two reasons for the limited number of argument patterns.

First, this study's objective is to understand how business professionals value business games and how they transfer these values to their workplaces. Arguments can be classified into three main types: substantive, authoritative, and motivational (Brockriede and Ehninger, 1960). Since informants were asked for their own opinions regarding the research topic, their arguments are likely to be of the substantive type, whose warrants usually reflect an assumption on the way the informant sees the world around them (Brockriede and Ehninger, 1960). Thus, this type of topic leaves little scope for using authoritative arguments or motivational arguments.

Second, this study mainly asked informants to provide their individual arguments on the potential transferable values of business games to their workplace, based on their involvement in business games throughout their course work. Most of their answers were informed by personal experiences or thoughts, with many grounds based on personal experience/projection. Hence, in many cases, informants made sense of the values of business games (i.e., their claims) and generalized them to a generic situation.

V. Discussions

Despite growing interest in gamifying business edu-

cation and training, particularly, through business games (Van Eck, 2006), significant gaps remain in understanding the degree to which game playing influences professionals' problem-solving behavior and decision-making effectiveness. Those skillsets are considered more practical and required for business professionals. As Hernández-Lara et al. (2018) state, there are two types of skillsets business learners can obtain. One is subject-specific skills, such as knowledge of a field of study. The other is generic skills that are the basis of business competency, such as decision-making, problem-solving, information management, and so on. Our study reveals that business games can help business learners achieve both types of skillsets by showing that both practical values and educational values coexist in business games. Hence, business games can potentially be employed to educate business students on specific topic-oriented knowledge as well as train business professionals in the industry, focusing on the points found valuable from our analysis. More specifically, our study analyzed arguments about the value of business games from the perspectives of business professionals who have extensive experience playing business games. As a result, we could understand the application of business games by revealing the sensemaking patterns of arguments.

Our study finds the main areas where the business games can potentially add practical values to the business: 1) teaching practical business skill sets to the business professionals; 2) enhancing the learning process to train the business professionals, 3) while there exist some limitations in business games. More specifically, we found that business games can be a good source of providing new perspectives to business professionals so they eventually can obtain broad perspectives of viewing the business. Consistent with previous literature (Baker et al., 2005; Faria and

Dickinson, 1994; Salas et al., 2009), we found business professionals value the iterative process in practicing decision-making with various strategies that business games can provide. Business games also provide risk-free decision-making practice opportunities from which business professionals have more confidence in making decisions as well as get to know an organized decision-making process, which conforms to earlier claims by literature (Alinier, 2003; Fu et al., 2009; Zantow et al., 2005). In addition, business games can help business professionals to obtain practically useful lessons that help enhance their current/future professional competency. Transferring knowledge gained in the classroom to the skills used in the real world has been a concern in the context of business education (Reginato et al., 2022). Our findings show that business professionals appreciate business games' ability to convert topic-specific knowledge into generic problem-solving skills. This is helpful for today's business professionals as many contemporary workplaces require professionals to adjust themselves to various situations and deal with different tasks. Business games can provide professionals the opportunity to obtain new skills as well as to practice using them without risks.

Moreover, it is revealed that business games can provide value to a business in the process of learning/training for business professionals. We found that business games are an effective way of helping business professionals learn various topics effectively for several reasons. Business games enable professionals to learn with fun. Combining both education and entertainment, educational games provide learners with better engagement (Azadegan et al., 2012; Ben-Zvi, 2010; Charles et al., 2011; Klabbers, 2009; Mayer et al., 2013). As prior literature found (McGonigal, 2011), professionals can focus more easily on learning with less stress than other training methods during playing

business games. In addition, consistent with literature (Faria and Wellington, 2004; Garris et al., 2002; Ruben, 1999), we found that business games enable an experiential learning process that enhances their learning experience, including knowledge integration and higher retention of the knowledge gained from experience. It is also found that business games effectively demonstrate complex business concepts, which helps professionals understand the process better. Our findings show that various informants claim that business games are useful to fill the gap between theory learned in the classroom and practice in the industry as claimed by prior research (Kumar and Lightner, 2007; Lin and Tu, 2012). All these values found from this study could be potentially transferred to the business practice and make contributions to the practitioners.

The current research contributes to business education by revealing the values of business games. In fact, business practitioners perceive that business games are excellent tools to incorporate business practices and learning experiences into their professional skill development process. The results of this article show that business games can provide a good vehicle for business education to help learners transfer knowledge from the classroom to the real world. By doing so, we could expand the scope of business game research and the potential of business games as a teaching tool in business education and professional training.

We believe our study will help business educators and professional trainers understand how best to leverage business games to enhance their productivity, problem-solving effectiveness, and decision-making capacities. For example, as suggested by the mechanical component of the gamification framework (Robson et al., 2015), practitioners apply setup, rule, and progression mechanics to shape the

gaming environment, set the goal of the gamified experience, and embed varying types of experience. This study sheds light on the potential value of business games as appreciated by business professionals. This study also reveals certain limitations of business games. The revealed limitations will help business educators and professional trainers avoid typical mistakes and pitfalls of implementing business games. Collectively, these findings provide valuable insights for business games developers and facilitators.

Our research findings are expected to inform educators and professionals who strive to improve current and future curricula in the business education and training sector. As we have shown in the previous sections, business professionals appreciate various aspects of business games; i.e., games are an effective way of obtaining practical business skills and reinforcing business concepts and theories. As Reginato et al. (2022) stated, combined efforts by the academy and business practices can improve the transfer of knowledge from the classroom to the real world. We believe this article shows how the transfer process can be done by showing both academic and practical sides of what values exist and how business professionals accept them. Business professionals also identify limitations of business games that designers and implementers can work to alleviate. With its applicability to the new generation as a learning method, business games' importance in business education and training is expected to grow. To most effectively adopt business games in curricula, especially in professional and executive programs, it is vital to understand how business professionals perceive the value of business games. This study elucidates how educators can enhance business education and training to lend themselves to future generations of learners.

VI. Limitations

This study has several limitations. Its analysis is based on written reports from informants taking an MBA course, which could be considered a limited data source. As Morse (2007) claims, theoretical sampling provides a key component in the pure application of grounded theory. With regard to the research procedure, this study uses convenience sampling rather than purposeful or theoretical sampling. However, Corbin and Strauss (2004) suggest that since qualitative data analysis can be readily adapted and used for various research activities, greater flexibility is accepted regarding qualitative data analysis. Hence, despite strict guidelines for grounded theory procedures, some studies do not fully adhere to them to enable better discovery of relationships in the data (Strong and Volkoff, 2010; Urquhart, 2007). Indeed, Berente et al. (2011) successfully investigated the value of a virtual world through a grounded theory approach using convenience sampling.

Next, all informants played the same business games. As discussed earlier, homogeneity in the data source might have constrained data diversity. Also, because the informants were asked to write their response to the inquiry a few weeks after completing the business games, there might not have been sufficient time for informants to reflect on the real value of business games in their workplaces. Moreover,

many students mentioned that the MBA course extensively provided their first experience playing business games. To overcome these limitations, future studies could use data from more general situations, perhaps gathered from individuals who have experienced business games for years in various business areas.

VII. Conclusion

The emergence of advanced technology and Internet access has significantly accelerated learning environments and capabilities over recent years. Embracing this trend, our study attempted to identify how business professionals make sense of the application of business games to business practice, using Toulmin (2003)'s sensemaking theory. We also examined patterns in the arguments for and against the use of business games for learning. Our findings suggest the existence of patterns of argumentation and themes of claims for the use of business games for learning. Our study also shows that gamifying the learning process through business games is valued by business professionals in various business areas. Our study's findings and conclusions not only contribute to conventional theories regarding business games but also could benefit business game practitioners, developers and facilitators.

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<Appendix A> Information Request Form

Simulation Game Written Report Description

Throughout this course, you have played multiple simulation games. The main objectives we hope to achieve with these games are, first, to enhance your knowledge and skills in the area of operations and supply management and, second, to ultimately apply what you have learned to your real-world business environment.

There are two key processes necessary to achieve these objectives. First, of course, is the actual implementation (i.e., setting up and running) of the simulation games. By improving your simulation experience, you should improve your chances of achieving the level of learning that we hope you can achieve. Second, we expect you will be able to apply these lessons to your real-world business environment. Of course, the level of learning and application to the real world is highly dependent on your individual learning styles and capabilities, and on your daily work environment. You might have already identified areas in your work environment where you can apply what you learned in the simulation games to make better decisions or better understand your business environment. Alternatively, you might have thought of ways that these learning lessons might have implications or utility in other settings around your organization.

Please think about what you learned from these simulation games. Think through some ways that you did (or can) successfully transfer those lessons to the real work environment. Do you think you can possibly transfer lessons from the simulation games to the real world? In addition, please consider the opportunities and challenges that you may encounter when you apply the lessons to your business environment.

For this assignment, there may not be any one right answer, but your honest response as a business professional is of the utmost importance.

Please prepare to write up your thoughts on this issue based on your own experience and opinion during the final exam. You may pick only one of the simulations to focus on, and should select that which had the greatest impact:

- Project Management
- Process Analytics
- Benihana
- Beer Game
- Global Supply Chain simulation

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<Appendix B> Coding Process Example

Coding Phase	Coding Activity	Example (Excerpted from Informant #21's response)
Open Coding	<p>Step 1: Read the written reports carefully</p> <p>Step 2: Mark segments of text related to transferring the values of business games to business practice</p>	<p>“The first simulation that we as a class were introduced to was in relation to the subject matter of project management. The project management simulation introduced the concept of ‘Scope, Resources, and Schedule,’ and how tradeoffs within the given resources have to be balanced. The simulations we carried out ranged from simple process analytics to global supply chain management. The additional simulations that followed, the basic concept was a simple one of reinforcing managerial concepts in operations, along with providing students an applicable way of exploring and discussing their decisions. <i>The variety of decisions made and rationale behind the decision-making process of the simulation game was intriguing and beneficial, providing immediate feedback. It allowed students to see multiple viewpoints for the same problem and discuss the analysis in reaching that point. Though I feel the course could have benefitted from more in class discussions following these simulations, the experience was still enjoyable and mentally stimulating.</i></p> <p><i>I am truly excited to apply the learned concepts of the material referenced and experience gained through the simulation games. Although I have yet to apply these concepts in my current position as the sales coordinator for the XXX,^a I have begun to outline some proposed changes that have been inspired and encouraged through my understanding of the material and application of concepts in a simulated environment. In addition, this summer I will be on the global supply chain process improvement project for hydroprocessing catalysts. And though the material taught within this course has given me the foundation to provide value to my organization, it is the simulations that have given me the ability to see how the learned concepts are applicable.</i></p> <p><i>The global supply chain management simulation played within this course has given me the ability to experience the bullwhip effect in relation to the global environment. For example, one of the identified or defined issues that will be explored in our upcoming supply chain project is the inconsistency with the inventory of raw materials. The experience gained through the simulation has helped me understand in hypothesizes that one possible reason for the inconsistency in raw material inventory could be the bullwhip effect. The opportunity to apply this knowledge and actual experience gained through the simulation will be invaluable both to my organization and me.”</i></p>
Axial Coding	<p>Step 3: Code claims concerning the value of business games</p> <p>Step 4: Code grounds supporting the claims</p> <p>Step 5: Code warrants connecting the grounds with the claims</p>	<p>Claim: Business games provide learners with opportunities to experience applying theoretical concepts to real situations.</p> <p>Ground: I learned the concepts through other materials and the simulations helped me understand how the concepts are applied.</p> <p>Warrant: My experience of business games helping me understand concepts and apply them in my workplace will be shared by others. (Inferred from the context)</p>
Selective Coding	<p>Step 6: Identify the claim topic</p> <p>Step 7: Identify the type of ground</p> <p>Step 8: Identify the type of warrant</p> <p>Step 9: Identify the pattern of argumentation</p>	<p>Topic of claim: Enhancing learning experience</p> <p>Ground: Personal Experience</p> <p>Warrant: Generalization</p> <p>Argumentation pattern: [Enhancing learning experience] – [Generalization] – [Personal Experience]</p>

Note: ^a: Anonymized company name

◆ About the Authors ◆



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Joo Baek Kim is an Assistant Professor of Information & Technology Management in the Sykes College of Business at the University of Tampa. His research interests span several fields including the use of serious games in business education/training, gamification in business, IT strategy in organizations, technology adoption, and pragmatic use of qualitative/quantitative research methods. All these research interests are concluded with one ultimate goal: the effective use of information systems and technology to improve our society. He has been working on several research projects in these areas, among which were published in the *Information Technology & People*, the *Asia Pacific Journal of Information Systems*, and the proceedings of HICSS, AMCIS, and DSI conferences.



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Submitted: September 6, 2021; 1st Revision: April 15, 2022; 2nd Revision: August 6, 2022;

Accepted: September 5, 2022