A PHENOMENOLOGICAL STUDY OF DIGITAL BUSINESS SIMULATION

GAMES AND IMPLEMENTATION FOR CORPORATE LEARNING

by

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A dissertation

submitted in partial fulfillment

of the requirements for the degree of

Doctor of Education in Educational Technology

Boise State University

December 2022

BOISE STATE UNIVERSITY GRADUATE COLLEGE

DEFENSE COMMITTEE AND FINAL READING APPROVALS

of the dissertation submitted by

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Dissertation Title: A Phenomenological Study of Digital Business Simulation Games and Implementation for Corporate Learning

Date of Final Oral Examination: 28 July 2022

The following individuals read and discussed the dissertation submitted by student Jeremy Morgan Manjorin, and they evaluated the student's presentation and response to questions during the final oral examination. They found that the student passed the final oral examination.

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DEDICATION

This dissertation is dedicated to my entire family, whose unwavering support has been the wind pushing my sails as I explored. And, of course, to my wife Amanda, without whose wisdom, humor, extreme patience, belief, and love, *none* of my accomplishments would have manifested … or had meaning.

ACKNOWLEDGMENTS

Only through the support of so many friends, coworkers, and of course my professors could this work have been attempted much less completed. I would like to thank the following people for all they have done: Dr. Brett Shelton for being my advisor, guide, and counselor, and for not getting frustrated with all my questions and concerns. Dr. Youngkyun Baek and Dr. Kerry Rice for pushing me to make my work better and for the reviews and feedback. To the Educational Technology department at Boise State University as well as the cohort of doctoral students with whom I went through the program … it was a fantastic journey upon which I will always look fondly.

To my network of L&D professionals who were there to connect me to potential interview candidates and provide feedback. And of course, to the participants in my study (you know who you are) who readily shared their experiences and took time out of their lives to help to enrich mine. Thank you.

ABSTRACT

This qualitative phenomenological study investigated the experiences of a purposive sample of eight Learning and Development executives to understand the circumstances leading to, as well as the experiences implementing Digital Business Simulation Games (DBSG) in a corporate learning environment, specifically related to the financial service industry. Their perception of the organizational needs, decision-making process of those involved, as well as the experience in design, development, and implementation may contribute to a better understanding of the circumstances within an organization where a DBSG would be an effective solution to achieve the development goals of learners within that organization. This study will also investigate the impact the implementation of the DBSG had on the organization, as well as provide further insight into best practices and critical success factors for future implementations. The research technique employed was a modified van Kaam method as described by Moustakas (1994) based upon transcribed interviews using semi-structured questions to capture the organizational needs, decision-making, and implementation experiences as well as perceptions of the participants. Five significant themes with two subthemes that emerged are prevalent from within the collected data from the participants: 1) needs intake and leadership support, 2) safe space to practice, 3) innovation on current curricula, 4) higher degrees of engagement, and 5) positive measurement results. The resulting analysis also led to considerable collection of best practices and critical success factors in deciding to

undertake a DBSG program, and the design, development and implementation of a

DBSG.

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CHAPTER 1: INTRODUCTION

Introduction to the Problem

As the next generation of learners, the natives to digital environments, march into the folds of the workforce, stepping in time with sharp advances in learning technology and guiding the shift to more experiential learning formats, businesses are increasingly exploring digital business simulation games (DBSGs). Corporate learning constraints of time and content volume, the need for accelerated proficiency, and learner preferences inspire learning and development (L&D) organizations to look for ways to foster learner motivation and engagement and to increase knowledge retention. DBSGs offer mechanisms for each of these foundational principals, but they are generally complex to design, develop, and maintain. Therefore, while the undertaking can be valuable to the organization, the complexities present barriers to adoption and utilization.

Corporate learning is evolving from a static curriculum that deals with specific roles to a far more dynamic, responsive landscape of development. Businesses need to provide relevant training for current roles that specifically focuses on near-term competencies, as well as learning opportunities that prepare the workforce for future capabilities and skills (Helyer & Kay, 2015). In addition, as businesses onboard new talent, it is imperative that new hires receive training relevant to the business and the specifics of the job.

It is necessary to address a variety of complexities when engaging in corporate learning. Of the multitude of concerns for corporate learning departments, the following

three represent some of the greatest challenges found in the modern workplace. The first challenge is the time an employee has available to dedicate to learning and development in the average work week. According to a 2016 study on corporate workforce learning, "workers spend about 1% of the average work week (37 minutes) on their employers' training" (Tauber et al., 2016, p. 4). Prioritization of workload (production) over active learning (preparing) is a struggle for many businesses.

The second challenge corporate learning organizations face is that businesses need to adjust quickly to market pressures. It is imperative that businesses ensure that their workforce is competitive and provide the latest knowledge and skills to their employees (Harward, Taylor, & Eggleston Schwartz, 2019). As markets evolve, so must the skills and abilities of the workforce in an organization. In addition, the development of these skills and abilities must take place within a timeframe that provides the best value for the organization.

The third, and perhaps most challenging issue, is the rapid change in how the next generation of employees wants to learn. As Millennials (born between 1981 and 1996) and Generation Z'ers (born between 1997 and 2012) take over the majority share of the workforce, certain defining learner characteristics are becoming more evident. In *Teaching Millennials and Generation Z: Bridging the Generational Divide*, Shatto and Erwin (2017) discussed these preferences. For instance, they found that Millennials and Generation Z'ers are attuned to multitasking between technological devices and activities. These defining characteristics also included the need for more experiential learning, as well as less lecture-based instruction.

Thus, there is a perpetual cycle of development and curation that must be specific to the field of business, yet adaptable for continued growth and change. The challenges organizational L&D groups face are many, and the list continues to grow. With competitive landscapes changing more rapidly, continuous development is becoming the norm. Providing an environment for employees to hone necessary business skills and abilities continuously and to apply them in real-world situations can help organizations to maintain a skilled workforce and to prepare for future disruptions.

Problem Statement

Addressing the myriad concerns that organizations face in learning and development is an ever-evolving task, and there is no one-size-fits-all solution. However, examining potential solutions that can address multiple organizational learning goals or satisfy a variety of needs is of continual importance to businesses in general. Among other valuable characteristics, DBSGs can provide learning tailored to the way the audience wants to consume it and safe spaces for employees to explore topics (Kim & Watson, 2017). That, coupled with DBSGs' inherent potential to scaffold learning to increase complexity makes gaming a solution worth examining from an organizational perspective. With Millennials and Generation Z'ers being the largest populations in the workforce (Desilver, 2019), providing a delivery system for knowledge in an environment that satisfies a large majority of employee preferences as well as aligning with an organization's need to provide safe, adaptable, tailored content leads to an increasing demand for the development of DBSGs.

Given the perceived value digital business simulations provide regarding a variety of conceptual frameworks such as constructivism, motivation, engagement, and retention

(Gee, 2007; Wu et al., 2014), there is significant lack of research around the alignment to business strategy and objectives, use, and outcomes of DBSGs within a corporate learning environment (Carenys & Moya, 2016). Aligning learning with business strategy is a critical success factor for any learning organization. However, uncertainty remains regarding how to align a learning organization with a business strategy (Smith, 2008). The purpose of this study was to analyze organizations that developed DBSGs as a potential learning solution in alignment with their business objectives, and to determine whether the DBSGs were effective tools for increasing motivation, engagement, and retention in a corporate learning environment. Finally, the findings helped to determine what, if any, common themes presented themselves within the design, development, and implementation of DBSGs within a corporate environment for use in future endeavors.

Research Methodology and Conceptual Framework

A conceptual framework is a pictorial or written creation that explains the main things for study—the key factors, concepts, or variables—and the presumed relationships among them (Miles & Huberman, 1994). The conceptual framework is a working theory of the phenomena the researcher is investigating, and conceptual frameworks inform the design of the study and enable writers to assess the outcomes of their research (Maxwell, 2004). The conceptual framework also assists in the development of the research questions and provides guidance or a guardrail for identifying concerns regarding the conclusions of the research.

While the conceptual framework pulls information from sources that are grounded in research, the structure of a conceptual framework does not evolve alongside the study; it does not come as a ready-made system (Maxwell, 2004). The conceptual framework

offers a logical structure of connected concepts that help to provide a picture or visual display of how ideas in a study relate to one another within the theoretical framework (Grant & Osanloo, 2014). Finally, a conceptual framework provides the researcher with an opportunity to clarify concepts within the study.

To provide the study with a guide and to establish various benchmarks, the conceptual framework for this research follows a phenomenological approach based on financial service industry dimensions and through established areas of focus (Figure 1).
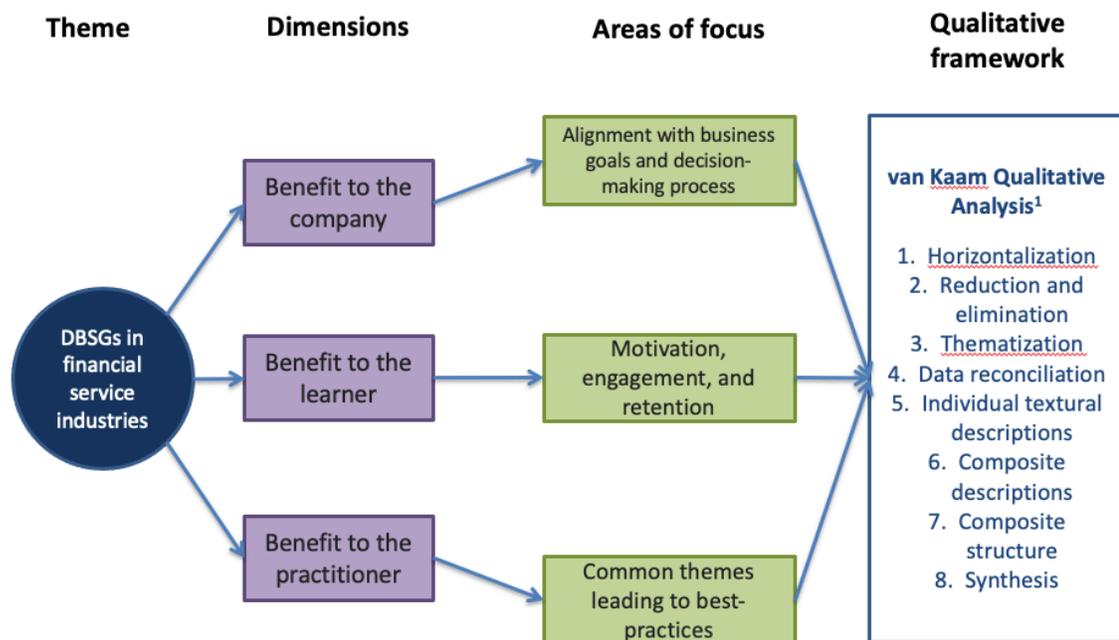
Figure 1   Conceptual Framework for the Research

The research methodology for this study of L&D leaders in financial service organizations and their experiences in building and implementing DBSGs was phenomenology. The methodology also incorporated a transcendental theoretical

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[1] The van Kaam qualitative analysis steps (Moustakas, 1994).

framework for qualitative research guidance as well as epoché, in which the researcher must bracket personal experience and bias. The selected methodology aligns with the needs of the research by allowing for open-ended questions and by documenting and codifying the experience of practitioners who have been involved in designing and implementing DBSGs.

Investigating the alignment between organizational strategy and the implementation of a DBSG would offer great value to organizations that provide learning and development to their employees and are considering the impact of a DBSG. Discovering a topic and the questions entrenched in autobiographical meanings and values, as well as involving social meanings and significance, is at the heart of a qualitative study. Therefore, the researcher cannot redact the relevance of the topic to his own experiences from the study, and instead he must embrace it as the impetus for exploration.

My experiences as an L&D leader in a financial service organization that decided to undertake the implementation of a DBSG led to the initial exploration of the topic. As the research began, the discovery of the prolific use of BSGs at the undergraduate and graduate level was encouraging. However, the research never pointed directly to a situation in which a financial service organization implemented a DBSG to educate adult learners. As the project continued, I found myself continually looking for guidance, research, and best practices to help to inform the steps the organization was taking, and its decisions regarding design, development, and implementation. The overwhelming majority of research on DBSGs has focused on academic capstones to prepare students to enter the workforce, leadership development/management skill simulations, or technical

training for line workers and supervisors. The lack of research on the development and use of DBSGs in financial institutions is an additional motivating factor for the subject of the study.

Theoretical Framework

Theories can explain, predict, and promote understanding of phenomena and, in many cases, challenge and extend existing knowledge. A theoretical framework is a structure that can hold or support a theory of a research study, and it introduces and describes the theory or theories that explain why the research problem under study exists. In exploring this topic, it is first important to understand the history behind business simulation games (BSGs), as well as the first technological advance in business sims: the movement from analog to digital. This initial advance in business games was the transition from the hand-scored games to mainframe computer-based games in the late 1950s. The Top Management Decision Simulation, developed by the American Management Association, and the Top Management Game, developed by Schreiber, were both available in mainframe versions by 1957 (Faria et al., 2009).

The transition to mainframe games allowed for the development of more complexity; however, the more important question was whether these improvements provided better teaching and learning tools. Business gaming has progressed further in a technological sense than it has progressed as a teaching method or a field of research (Wolfe, 1993). Given the numerous studies on the potential value and efficacy of digital simulations, the exploration of the success of a DBSG within a business organization should then focus more on the alignment of critical learning outcomes with the overall business strategy and organizational goals, along with the needs and desires of the

audience. I investigated the factors involved in the decision to develop a DBSG, utilizing a rational decision-making framework as a grounding theoretical approach to designing and ultimately analyzing the research. Analyzing consistent themes within the factors leading to those decisions may assist in illuminating the key considerations linking organizational goals and learning and development groups. The findings may then lead to a larger framework of alignment and decision-making between leadership and L&D groups.

While the rational-decision-making framework provides a construct to align research regarding the experiences leaders may have regarding the decisions around the implementation of a digital business simulation, and to identify themes in the analysis, an additional theoretical framework is necessary to address the perception of learner engagement and the experiences the L&D leaders had with the learners. Current theories view learning as the active construction of knowledge via the situative perspectives of the learner (Brown, 1994; Greeno, 2007; Greeno et al., 1996; Phillips & Soltis, 1998). From this perspective, learners learn through a process of interactions that depends on the context or specific setting (Greeno, 1998; Lave & Wenger, 1991). From a situative perspective, knowledge refers to an activity, is always embodied (not abstract), is constructed as part of the individual–environment interaction, and involves whole persons (Barab et al., 2007). Through this theory, we can test the perception of value of interaction, context, and the experiences from the perspectives of L&D leaders.

Purpose of the Study

Aligning learning with business goals and objectives is a necessary strategy for the success of a learning organization. Yet, there is a lack of research regarding the

alignment with business strategy and objectives, use, and outcomes of DBSGs within a corporate learning environment. Therefore, the procedures for this study included an interview and the observation of L&D leaders in corporate learning environments who have implemented DBSGs as learning tools for adult/corporate learners. The study provides a focus on the identification of business objectives leading to the decisions regarding the design, development, and implementation of a DBSG, as well as the impact of the DBSG on motivation and engagement as a learning solution. Through the subsequent analysis of the qualitative data, the study provides guidance for organizations looking to develop DBSGs by reporting insight into the similarities (both perceived successes and shortcomings) of the various project data. Additionally, the impact or outcomes of this study may be useful in documenting the various methods and practices for implementation of the DBSG to analyze whether specific actions impacted the overall acceptance of the experience by the audience.

Research Questions

Research questions form the impetus for the entire study. The questions researchers address are integral in framing, focusing, critiquing, and ultimately resolving the goals of the research (Trede & Higgs, 2009). Therefore, the alignment of the research questions with the study needs great care to ensure the resulting data address the problems. The study addressed the following questions:

1. How did organizational goals impact the decision-making experiences that led to the development and implementation of a DBSG?

2. What was the perceived impact of the DBSG on learner motivation, engagement, and retention?

The analysis of this impact led to recommendations for best practices concerning the decision-making process for implementation of a DBSG, as well as potential key factors that may positively impact learner motivation, engagement, and retention.

Impact of the Study

This study is worthwhile for several key reasons. There have been many enhancements to digital business simulations, improving their functioning across the dimensions of realism, accessibility, compatibility, flexibility and scale, simplicity of use, and communication (Faria et al., 2009). With these enhancements, a need to understand the *why* and *how* businesses are implementing DBSGs becomes paramount to gain alignment between the perceived value of the simulation and the organizational goals.

This study is novel, as there were no comprehensive studies that identified the alignment of DBSGs with financial service institution business goals and the motivating factors to select DBSGs for corporate learning. As organizations continually look towards DBSGs as solutions to various learning needs, this research fills a gap regarding the alignment of DBSGs with business strategy and the impact the DBSG had on learners in a corporate setting. The results provide evidence for identifying the motivating factors behind the decision to implement a DBSG as well as contributing additional qualitative discovery to theories relating to the motivation, engagement, and retention DBSGs provide, and thus it benefits practitioners who use or plan to implement DBSGs.

Definitions of Terms

The following definitions explain the key terms for this study:

Andragogy: the art and science of adult learning. Thus, andragogy refers to any form of adult learning (Kearsley, 2010).

Digital business simulation games (DBSGs): digital simulations that include game aspects specific to business applications or processes. More specifically, a DBSG is "an exercise that has basic characteristics of both games and simulation … undertaken by players whose actions are constrained by a set of explicit rules particular to that game and by a predetermined end point" (Dorn, 1989, p. 3).

Engagement: an individual's willingness to exude greater effort than necessary to fulfill the goals of the organization (Burke, 2014).

Extrinsic motivation: motivation that stems from external stimuli such as prizes, monetary rewards, badges, and fame (Burke, 2014).

Financial service industry: any and all entities whose primary business activities address financial matters, which can include but is not limited to banking, insurance, investment, audit, tax, advisory, and consulting (Asmundson, 2020).

Gamification: the use of gaming elements in a non-gaming context. Concepts such as purpose, mastery, autonomy, player progression, and social interaction are useful to improve individual motivation (Deterding et al., 2011).

Intrinsic motivation: the desire to achieve success grounded in one's personal drive to do so (Burke, 2014).

Motivation: a broad theoretical concept that often explains why people engage in particular actions at particular times (Beck, 2004).

Retention: Retention of knowledge is defined as learning and remembering knowledge by associating it with consistent schemes in students' cognitive structure that lasts for a long time (Benjamin, Lavi, McKeachie, & Lin, 1997)

Self-efficacy: one's ability to take steps toward achieving one's goals (Garrin, 2014).

Situative perspective of learning (situative perspective): a theory that shifts the focus of analysis from individual behavior and cognition to larger systems that include behavioral cognitive agents interacting with each other and with other subsystems in the environment. Knowledge is no longer a static structure residing in the individual's head; instead, knowing is a process distributed across the knower, the environment in which knowing occurs, and the activity in which the learner is participating (Greeno, 1998).

Chapter 1 Summary

Chapter 1 has presented the focus of the qualitative, phenomenological case study, the background of the problem, the problem statement, and its significance to leadership. It has also included the nature of the study, the theoretical framework, and definitions of terms. As gaming is becoming more integrated into modern culture, especially among the latest generation of employees, DBSGs are becoming increasingly viable options for corporate learning that can potentially satisfy several needs. However, the more regulated an industry, the harder it can be to implement newer technologies and to explore different learning mechanisms for motivation, engagement, and learning transfer. Therefore, there is a considerable lack of analysis of the use of DBSGs in highly regulated environments like financial service. This dissertation explored the alignment with the corporate strategy, design, and implementation of DBSGs within this industry.

To examine the alignment of DBSGs with business strategy and the design and implementation within corporate learning, and more specifically the financial service industry, effectively, it is important to identify the appropriate questions to ask within the

research study. The first question addressed common trends or experiences from various L&D leaders in their business objectives and decisions to pursue a DBSG for their organizations. This question allowed for the exploration of commonality of strategy, or alignment of goals and objectives, that led to the selection of a DBSG as an appropriate mechanism to satisfy learning outcomes in alignment to this strategy.

Through an examination of the choice to implement a DBSG and how well it served the intended purposes, I also explored common themes in design, as well as examining the efficacy of the DBSG for the learner. Specifically, I examined the underlying motivations and decisions of those responsible for design and delivery of the DBSG and their perceptions of any resulting increase in motivation, engagement, and retention. The final portion of examination in support of the topic looked for common themes in the participants' perceptions of the adoption and implementation of DBSGs, and whether, through examination of those themes, best practices or guidance emerged from the implementation.

CHAPTER 2: REVIEW OF LITERATURE

Introduction and Background to the Problem

The purpose of this qualitative phenomenological study was to determine how L&D leaders within a highly regulated environment (financial service) approached the decision to implement DBSGs in their organizations. The research also provides key insights from the implementation as well as the value to the organization and the learner. The literature review describes the conceptual framework for this study and explores research on the history and functionality of business simulations, DBSGs, corporate decision-making, employee motivation and engagement, and gamification. It addresses the key motivating factors for L&D leaders' decision-making with regards to DBSGs. It synthesizes the research findings, forming connections between key concepts within the literature. Finally, it addresses the methodology for the study and critiques previous research.

Organizations have long pursued various approaches to training and education to ensure their employees perform at their full potential. For effective learning, it is important to involve the learner in the learning content, to evaluate consequences actively, and to think over decisions carefully (Michael & Chen, 2006). It is no surprise that even a cursory literature review notes several authors positing that simulations and games are viable educational tools (Shortridge & Sabo, 2005; Villano, 2008). As we progress deeper into the 21st century, the business world is further exploring the possibility of game-based learning (Deubel, 2006) as an effective means for knowledge

transference. BSGs provide a good opportunity for learners to develop risk-free decision-making experiences and to improve their decision-making skills by trial-and-error role-playing in safe environments. Games are used widely in this fashion to facilitate effective business education and training. However, information on DBSGs as learning solutions within the financial service industry is extremely limited. A literature review conducted on the problem statement and purpose included searches for historical perspectives on digital business simulations, motivation and engagement relating to business simulations, gamification in business simulations, and game-based learning.

Literature Review

Article Inclusion Criteria

The articles for this research topic had to meet several key criteria and standards. The first criterion was relevance to the research topic. Chosen articles addressed the research questions regarding implementation of DBSGs and other terms such as motivation, engagement, and retention. These articles were primarily qualitative in research methodology, as they examined "social phenomena, situations, and processes that involve people, illuminating them from a variety of perspectives" (Hazzan & Nutov, 2014, p. 2). However, these criteria did not preclude quantitative studies from inclusion, but instead served as a reminder to evaluate each article based on its merits as a contribution to the general topic, or as a specific collection of information relating directly to the research area. Articles relating to digital business simulations must be no more than 10 years old based on a review of the most relevant information available on generational preferences for digital simulations; recent studies of motivation, engagement, and retention with digital business simulations that offer appropriate

analysis regarding this topic; and concern the relatively recent adoption of DBSGs in corporate learning environments. Where applicable, I included articles and books on historical perspectives, theory, methodology, and citation of original work within more recent publications. The only outliers to the temporal limitation of the synthesis covered the topics of historical overview of business simulations and strategic business decision-making. A large degree of influential work took place in the 1970s and 1980s on these topics, and thus it was necessary to include it.

Synthesis of Literature

The following synthesis of literature establishes topical relevance and expertise based on the review of various articles, books, dissertations, and other content relating to the research theory (methodology), topic, framework, or other necessary information. The review describes the literature in related topical areas and its relevance to the research topic and approach. The literature review also provides an overall analysis and synthesis of the existing literature, examining the contributions of this literature to the field; identifying gaps, additional concerns, or conflicts; and relating the topics, themes, and results to the study topic and research approach. It provides accurate, empirical research citations for all ideas, concepts, and perspectives.

Research for the literature review emerged from comprehensive searches of ProQuest Central, JSTOR, WorldCat, and Google Scholar. The searches contained keywords such as *digital business simulation games*, *game-based learning*, *business simulations*, *videogames*, *organizational decision-making*, *motivation and engagement*, and *financial service learning*. One of the main limitations researchers face when trying to review studies on the effectiveness of any type of educational tool is the lack of

precision in the definition of the tool's category (Girard et al., 2013). The search for

papers that referred to DBSGs also included other terms representative of the use of

DBSGs in financial service environments (such as the term *digital game-based learning*

or DGBL).

Corporate Decision-Making and L&D

Identifying key concepts in strategic decision-making for corporate projects in

general, and learning projects specifically, was integral to identifying and documenting

proper interview questions for L&D leaders regarding the dimensions of the conceptual

framework. The literature reviewed also addressed key problems or concerns L&D

leaders face when they are looking to implement a new program. The primary job of a

leader is to make well-informed decisions based on the collected knowledge and

understanding of both an overall business strategy and the tactical specifics of the

learners' needs. At any moment in any day, most executives are engaged in some aspect

of decision-making: communicating parameters, data reviews, ideation, evaluating

alternatives, implementing directives, or follow-up (Brousseau et al., 2006). Decision-

making refers to the way individuals make sense of the information they have gathered

(McKenney & Keen, 1974).

According to Scott and Bruce (1995), there are four distinct decision styles in pre-

existing theories and empirical research. The definitions of these styles use behavioral

terms: (a) rational decision-making style, characterized by thorough research and logical

evaluation of alternatives; (b) intuitive decision-making style, defined by a reliance on

hunches; (c) dependent decision-making style, in which the leader or person who is

deciding on something seeks advice and direction from others; and (d) avoidant decision-

making style, which involves attempts to avoid making decisions. These conceptual

definitions have led to the development of a behaviorally based item scale for measuring

decision making. The understanding of specific decision styles will help to address the

research in question by exploring each participant's decision-making style and its

upstream and downstream impacts on the DBSG project.

Learning and development departments at most businesses are often not at the

leading edge of technology in their organizations. Learning and talent development

require the availability of many organizational dependencies before trying out new things

(Udell & Woodill, 2019). These dependencies must be part of the analysis of conditions

leading to decisions by L&D groups to implement a digital business simulation project.

Several organizational dependencies and circumstances may lead to the decision to

pursue a DBSG for corporate learning. Taylor (2017) addressed this topic in his book

Learning Technologies in the Workplace, in which he wrote about the partnership

principle, stating:

> The Partnership Principle is a reflection of two simple truths. One is that the L&D department is not expert in the running of the organization. However well-versed it might be in the general rules of business, and however familiar with the overall aims of the organization, it does not know the detail of the daily operations [or] the full complexity of strategy. To fully understand the issues that need addressing, the L&D department must work in partnership with the leaders, managers, and employees. If it does not, any success in implementation will be a matter of chance rather than of good planning.
> The other truth is that the Learning and Development department does not have all the skills needed to implement most learning technologies. Whether in IT, project management, marketing or other of the myriad skills needed, no single department can hope to house under one roof every skill required to implement all but the simplest of learning technology implementations. (pp. 98–99)

Together, these two truths mean that learning technology implementations rely on

partnerships for their success as much as they rely on established process. Achieving

success relies on the implementation team having the right characteristics, one of which

is an inclination to collaborate with the rest of the organization, rather than to work in isolation (Taylor, 2017). This propensity is the result of a combination of four values— having a clear goal for the project, focusing on the people involved and the audience of the project, having a broad perspective on the implementation of the project and, finally, having the right alignment with organizational goals and leadership backing. Understanding of the necessary synergy between the L&D department, the organization's leadership, and other functions in the organization such as IT and infrastructure informs the questions in the research study.

Structural Process for Decision Making

Addressing the organizational conditions that exist (and can therefore be documented) can help to lend structure to the analysis of decision-making regarding any project or program, but even more so in the specific instance of the implementation of a learning technology program. According to Citroen (2011), several authors such as Drucker (1967), Nutt (1999), and G. Johnson et al. (2005) have formulated the conditions for such a rational and structured process. Figure 2 summarizes the rational decision-making process. It includes the following key process points.

The decision-makers:

1. have properly identified the issue or problem, and the objectives of the decision are well defined;
2. actively search for information on potential alternatives;
3. carefully weigh the advantages and the disadvantages of these alternatives and the chances of success for each one;
4. accept, study, and analyze new information or expert judgment, even if it contradicts earlier ideas and preferences, and even when a preliminary solution is in sight;
5. re-examine the positive and negative consequences of all alternatives before making a final decision;
6. prepare provisions for the implementation of the decision, including a contingency plan that might be necessary if the implementation fails; and

7. provide a procedure for follow-up of the decision to judge whether the implementation has achieved the purpose or if reconsideration is necessary.
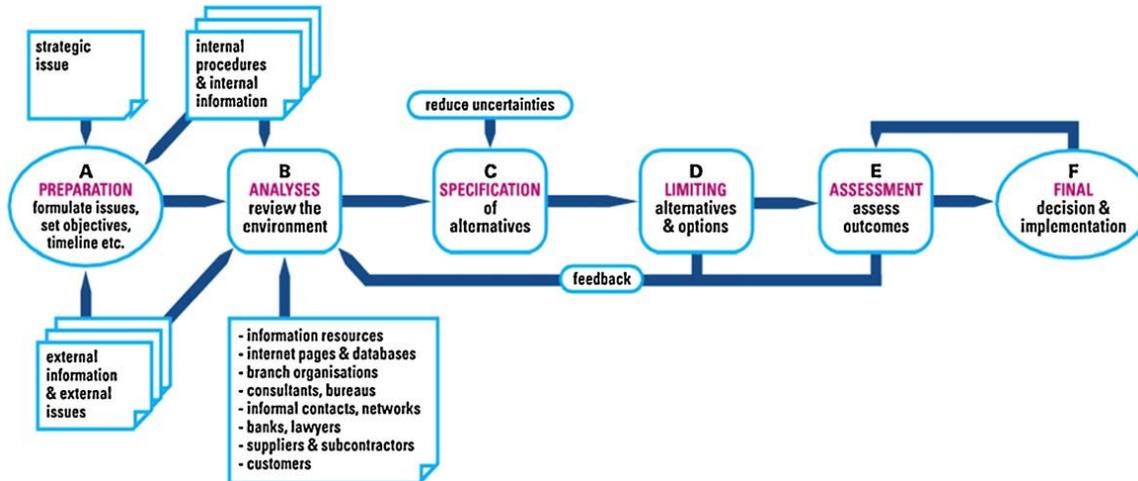
Figure 2   Model of the Phases of a Rational Decision-Making Process

The information relevant to strategic decisions regarding both the partnership principle for L&D departments and general organizational decision-making consists of a variety of parameters, including internal organization and structures, competitors and marketplace needs and constraints, participants' attitudes and company culture, technologies, regulations, compliance needs, and more. Opportunities, threats, and risks of the marketplace and the business environment, best practices, and most importantly, current developments and trends in the necessary features of the implementation are essential to identify factors that impact and potentially form the decision-making process for the DBSG.

Digital Game-Based Learning

Game-based learning in general and DBSGs in specific have a variety of positive impacts on learning and engagement. There is an increasing body of empirical research (Azadegan et al., 2012; Kim, 2015) to support the effectiveness of game-based learning in a variety of scenarios, from traditional pedagogical environments to andragogical

applications. Furthermore, there is research evidence demonstrating a positive impact on higher order skills such as decision making and problem solving. The combination of narrative design, interface design, and social interactivity plus a scaffolded paradigm can lead to complex problem solving and an increase in the synthesis of concepts into complex association. Complex problem solving, associated cognitive processing, and motivation are most impacted by gameplay; and that interactivity provides the most relevant features of gameplay as it relates to complex problem solving and motivation (Eseryel et al., 2014). BSGs effectively assist business professionals in understanding overall business environments, which in turn enables better performance (Kim & Watson, 2017). These statements directly address the issues that corporate learning professionals face. Lean et al. (2015) further supported this concept, stating that whilst there is a range of literature discussing the benefits of simulations, there is limited research evidencing the impact of their use.

The value of this study is that it addresses the lack of a body of work on the impact and knowledge gain on DBSGs specific to a corporate environment. The value is further evidenced by Carenys and Moya's (2016) literature review on the effectiveness of DGBL. The findings from their paper on engagement and deployment of DGBL suggested that in general, the current state of research on the topic was limited, and furthermore, research on DGBL in accounting and finance was nonexistent. Therefore, the foundational research for this study concerns (a) the decision making and perspective of the L&D leaders responsible or participating in the decision to pursue DBSGs in their organizations, (b) the general motivation and engagement associated with simulation and games (including technology, tools, and resources), (c) the effect on knowledge gain

(tactical) and transfer to business impact (strategic) from simulations, and (d) best practices for implementation of simulation games and their impact on reception of the learning experience.

DBSGs in general draw upon a constructivist approach to design and development, scaffolding information and the exploration of the psychology of the learner. This approach indicates that models of instruction are likely to continue to evolve based on our understanding of behavior, cognition, and emotion. New areas of exploration in psychology that are likely to impact instructional design research include links between neural mechanisms and problem solving, and the physiological structure of memory (Spector, 2008). These findings support the concept of why DBSGs are developed, as well as the exploration of new methods of providing learning to corporate audiences.

Business Simulations and Games – Historical

BSGs can be divided into top management games, functional games, and concept simulations (Wolfe, 1993). In top management simulations, participants take on the role of the top executives of a company who are responsible for the operation of the entire organization. Faria et al. (2009) provided a historical summation of the development of business gaming (Table 1):

Table 1   **Phases in the Development of Business Gaming**

Phase	Period	Developments
I	1955 to 1963	Creation and growth of hand-scored games
II	1962 to 1968	Creation of mainframe business games and growth of commercially published games
II	1966 to 1985	Period of fastest growth of mainframe games and significant growth in business game complexity
IV	1984 to 2000	Growth of PC-based games and development of decision-making aids to accompany business games
V	1998 to present	The growth of business game availability on the Internet and the development of central servers (e.g., Capsim and the Capstone series of business games and Innovative Learning Solutions and the Marketplace simulations) to run them

A functional simulation game emphasizes one area of business operations, such as production, finance and accounting, manufacturing operations, etc. A concept simulation focuses on one small area of business operation. The concept game might concentrate on traffic management, advertising management, sales management, or personnel, as examples. All three types of business games date back to the origins of business gaming, during the 1932 to 1956 period (pre-Phase 1 in Table 1).

Games imitate real-world systems in a controllable fashion so that participants become part of the complex system (van Bilsen et al., 2010). There have been numerous case studies evidencing the power of business simulations for a variety of organizations and industries. One well-documented example of these case studies is van der Zee and Slomp (2009), who used simulation games to train industrial workers on a new procedure involving their manual assembly line. Additionally, more recent case studies have examined the use of simulations to develop business skills in entrepreneurs, construct a top management type simulation, (Barnaby et al., 2020), use an SAP R/3 enterprise

resource management system, an example of a concept simulation (Conroy, 2012), and many others.

The corporate setting allows for the use of simulation for learning complex large-scale sociotechnical projects (van Bilsen et al., 2010). The advancement in computation power, visualization, and human–computer interaction has increased the possibilities for human beings to participate in simulation game models (Dobbs, 2007). Van Bilsen et al. (2010) described simulation games as a decision-support method that incorporates human players and social interactions, physical and social rules, mental and computer models, and individual and collective goals. The addition of newer technologies like virtual worlds such as Second Life has enabled users to engage in three-dimensional environments, different areas, and even commerce. Buckless et al. (2014) performed a study in the United States that focused on the use of Second Life as a medium to simulate inventory count procedures. This environment was part of an overall audit simulation and one of the few relevant case studies on simulations in financial service. However, the virtual reality simulation was intended for higher education students, and thus it does not fully address the objectives of this study, which deals with corporate/organizational learning perspectives. The arguments for adoption of simulations were the knowledge gains of students in preparing for interviews, the examination of work papers, and the application of professional skepticism. Virtual reality is opening doors to new types of simulations outside the scope of medical or industrial training, allowing participants to become anything, including part of a process or object.

Simulation games are simplified and dynamic representations of reality, structured as interactive games to enhance experiential learning (Ranchhod et al., 2014).

They can incorporate game elements to produce realistic systems with challenging situations with clear rules and goals. Simulation games can motivate participants intrinsically, and learners can experience a flow state (Csikszentmihalyi, 2003), a state of high focus, engagement, motivation, and immersion. Kastantin and Novicevic (2008) wrote about simulations providing a more complex/realistic approach than case studies. There is an overwhelming body of evidence on the impact of simulations on learning outcomes as well as the value and benefits of simulation games in general.

Game-Based Learning and Adult Learners

Another essential topic for the research is a baseline understanding of adult learning in combination with game-based and simulation-based learning. Adult learners develop a certain amount of knowledge and experience in their own discipline, and, as such, they are likely to learn new things in response to their individual needs. They learn faster by trial and error based on their existing knowledge (Hunter, 2013) than by other approaches. Knowles (1970), who initially adopted the term andragogy (Alexander Kapp, a German educator, first used the term andragogy in 1833) to identify adult learning behaviors, characterized the traits of adult learners as follows: (a) a desire to apply and test their learning rapidly; (b) a need to pull from real-life experience as a learning resource; (c) a requirement to self-manage, plan, and individually execute their learning activities; and (d) a desire for a real-life-centric approach to learning new information and solving problems.

Organizational structures—specifically financial service businesses—are very complex (both in structure and operation), so traditional learning methods (e.g., reading materials, listening to lectures, and taking notes) are not enough to prepare students for

the business world (Riedel & Hauge, 2011). In addition to preparing student learners for the real-world application of complex problem-solving and scenario-based learning, simulations provide opportunities to understand how to gather the necessary information from a complex situation and drive possible solutions, which students can then apply in a certain context to determine whether particular solutions are satisfactory. This opportunity transcends student learning and aligns well with the needs of the corporate learners and organizations described in Chapter 1 of this study.

Games can provide business students opportunities to experience complex situations that require them to understand multiple business concepts simultaneously. For example, business strategy games require game participants to consider many different business parts, such as marketing, finance, and supply chains at the same time so the participants can be trained for making better integrated decisions based on the various perspectives. Keys and Wolfe (1990) pointed out that there are three necessary factors for effective management learning: dissemination of content, opportunities for experience, and feedback. BSGs fulfill the three requirements, because content is self-discovered, experience is rich, and feedback from simulated reality is more helpful than reality (and potentially less damaging than trial and error in real-world situations). Faria and Wellington (2004) identified various advantages of BSGs to students and teachers. Those perceived advantages included (a) experiential learning, (b) integration of different functional areas, (c) application of theory, (d) demonstration of the consequences of decisions, (e) teamwork and involvement, (f) interactive/dynamic exercises, (g) realism, (h) exposure to business competition, and (i) fun, interest and motivation.

Studies of game effectiveness for adult education purposes show mixed results (Dorn, 1989; Egenfeldt-Nielsen, 2003; Lee, 1999). A potential reason why using games in education fails is that people trivialize learning through games. This hypothesis is why many game experts emphasize the importance of exercising caution when using games for education (Boulet, 2012; van Eck, 2006). By definition, games are different than real life (Boulet, 2012). Historically, people play games to remove, distract, or disconnect themselves from the real world. Many see game play as a stress-relieving activity or a pleasurable distractor and not a part of serious work. Hence, playing games within a business organization may create the perception that the efforts are not part of serious activity and are therefore not an efficient use of resources and time.

Another issue with game-based learning in the business education context is the discrepancy between learning and application. The discrepancy is not just limited to a certain area of business education, but it applies to the overall business education system. Many researchers have raised the issue of the disconnect between the business school curriculum (what students learn) and real-world business practice (what students need to learn) (Pfeffer & Fong, 2002). For example, Porter and McKibbin (1988) pointed out the lack of emphasis on relevant problem-finding skills given the importance of these skills in practice. Leavitt (1989) also criticized business school curricula that fail to balance between analyzing skills and application skills. To overcome these problems, Jennings and Wargnier (2010) stressed the importance of experiential learning, which can facilitate understanding and improve the unique situations of different business environments.

Game-based learning, which includes BSGs, can potentially provide experiential learning, active engagement, and knowledge transfer to business curricula. However, as

the literature review shows, there is a lack of consideration within the available research in this area, especially concerning how participants transfer the learning outcomes from BSGs to real-world business practice.

Motivation and Engagement

Motivation is defined as individuals' energy and drive to learn, work effectively, and achieve to their potential, and engagement as the behaviors aligned with this energy and drive (Martin, 2007). Two of the motivational theories most widely featured in the DBSG literature are the attention, relevance, confidence, and satisfaction (ARCS) model (Huang et al., 2013) and the integrative theory of motivation, volition, and performance (Bulander, 2010; Garris et al., 2002), both developed by Keller (1987, 2008). The ARCS model considers learners' attention, the relevance of the material they are learning, the confidence of participants in their capacity to achieve their goals, and learner satisfaction with the value and the worth of their effort. Using the original ARCS model, Keller (2008) later proposed that the theory of motivation, volition, and performance should include learners' volitional control, cognitive information processing, and outcome processing. This theory proposes that the learning process starts with motivational processing, which allows for the definition of goals.

There is a well-established correlation between motivation and engagement and increased knowledge gain. Eseryel et al. (2014) examined the premise that game-based learning environments can enhance player motivation, which in turn increases engagement. This correlation helps to mitigate the challenges of the complex, ill-structured problem solving in DBSGs. The relationship between complex problem solving and cognitive processing, enhanced by the motivations in DBSGs, has direct links

with the interactivity in game-based learning. Understanding motivators within DBSGs and the design and development of motivation as well as a taxonomy of intrinsic motivators in serious games is necessary for the examination of personal and interpersonal motivations. This understanding, in turn, helps to clarify how they impact the learner's experience and knowledge gain, and they can inform additional implementation practices (Donovan, 2012). As many other articles regarding business simulations show, the concept of constructivism comes into play and is an essential structure for analysis. Piaget's theories on cognitive structuring as discussed by Kuhn (1979) illustrate cognitive change through the process of adaption and assimilation; they lie at the heart of the argument for the motivation and engagement benefits of simulations for learning.

Additionally, there is a need to examine existing research to analyze how and why people are playing games. A review the work of establishing a spectrum of game usage indicates that while game development and consumption have increased, there is limited research and less understanding of why this is happening (Hamari & Keronen, 2017). Hamari and Keronen's (2017) quantitative review of existing literature greatly informs the need for this qualitative research project.

The identification of factors that have the greatest impact on satisfaction with the learning experience, as well as the exploration of the role of learner personality traits, impact learning conditions and reported experience, and are integral to the formation of the qualitative portion of this study. Matute and Melero (2016) examined a conceptual model for identifying factors that help to determine the success of a BSG. Integration of these design and implementation of success factors is key to informing both

implementation needs and design and development considerations that lead to increased motivation and engagement. This correlates with a positive impact on knowledge gain and transfer.

Knowledge Gain and Business Impact

Traditionally, many saw learning as a mental process void of context (Phillips & Soltis, 1998) and lacking any acknowledgement of the role of the body or affect (Barab et al., 2007). However, current theories of learning (in alignment with constructivism) see learning as the active construction of knowledge via cognitive or situative perspectives (Brown, 1994; Greeno, 2007; Greeno et al., 1996; Phillips & Soltis, 1998). From the situative perspective, learners learn through a process of interactions that depends on the context or specific setting (Greeno, 1998; Lave & Wenger, 1991). From a situative perspective, knowledge refers to an activity, is always embodied (not abstract), is reciprocally constructed as part of the individual–environment interaction, and involves whole persons (Barab et al., 2007). Thus, in the embodied cognition view, learning takes into consideration both mental processes and processes of the whole body in an activity.

Many argue within the realm of game-based learning scholarship that learning from games is an instantiation of these learning theories. Many researchers using virtual environments, such as games or simulations, conceptualize learning through situative learning and embodied perspectives (Barab et al., 2007). Learning and motivation are inextricably intertwined (Brophy, 2004). Additionally, in game-based learning, the topics of intrinsic and extrinsic motivational effects and engagement (Foster, 2008; Malone, 1981; Malone & Lepper, 1987; Whitton, 2011) also come into the fold. However, beyond speaking broadly about game engagement and intrinsic or extrinsic motivation, valuing

what one learns is a key motivational construct of learning. Learning school content without valuing the experience often leads to inert knowledge (Whitehead, 1929) as well as a lack of motivation and engagement within the process itself.

Using the established situative perspective and its relationship with motivation and engagement, studying the general business impact and knowledge gain of DBSGs requires an analysis of the connectivity between motivation and engagement and retention of knowledge and satisfaction levels in experience relating to business impact (Kim & Watson, 2017). C. L. Johnson et al. (2017) explored how simulations implement feedback, and then how the characteristics of the feedback affect the learning. In identifying this concept, understanding which specific game attributes have an impact on learning outcomes (Wilson et al., 2009) is key to understanding the impact of the outcomes and how these attributes relate to development and implementation. Situative perspectives consider modality, timing, and adaptation, which parlays into the link between motivation and engagement and knowledge gain and business impact (Moreno-Ger et al., 2009).

Learning Outcomes

Over the past 4 decades, a large volume of journal articles and countless conference presentations have offered myriad explanations of what simulations are and why researchers should use them (Anderson & Lawton, 2009). Often these explanations present the comparative advantages of simulations over alternative pedagogies. The major desired outcomes typically fall into three categories: learning, attitude, and behavior. The following list of outcomes from Anderson and Lawton (2009), while they

applied it to business students, is general enough to be applicable for organizational

learning and is necessary for consideration for this research.

1. Learning
    a. Teach the terminology, concepts, and principles of business in a general or specific discipline.
    b. Help grasp the interrelationships among the various functions of business (marketing, finance, production, etc.).
    c. Demonstrate the difficulty of executing business concepts that appear relatively simple.
    d. Enhance retention of knowledge. (It has long been accepted that participation in an activity yields greater retention of concepts and relationships than does a more passive educational pedagogy.)
    e. Enable transfer learning to the business world. (Because simulations require participants to act in the role of a manager, simulation users point to the validity of simulations as evidence that students will have an easier time transferring what they learned in the classroom to the world of work.)
2. Attitudinal
    a. Improve attitudes toward the discipline.
    b. Provide a common experience for discussion.
    c. Engage participants in the learning process.
3. Behavioral
    a. Teach learners to apply the concepts and principles of business to make effective decisions.
    b. Enable implementation of course concepts. (The requirement to implement rather than merely discuss course concepts allows learners to test ideas, experience the consequences of their actions, and respond to unanticipated outcomes.)
    c. Improve students' ability to interact with their peers. (Many simulations incorporate group work or collaborative activities.)
    d. Afford practice at making business decisions.
    e. Improve business decision skills. (Anderson & Lawton, 2009, pp. 194–195)

The list illustrates the wide range of objectives that instructors can achieve by

using simulations. It is reasonable to use this model as a framework for establishing

outcomes and identifying similarities through the qualitative analysis process, and to

develop qualitative questions for the research.

<u>Gaps in the Research on Digital Business Simulation Games</u>

The effectiveness of video games as instructional tools in business organizations has little available research data to support a conclusion (Hayes & Silberman, 2007). Carenys and Moya (2016) noted that a significant amount of research in the application of computer games exists in education for some subjects, but there is "severely limited and in many cases non-existent" (p. 149) literature on the evaluation of the impact of a game-based learning approach within corporate learning. Effectiveness is further evidenced by the fact that research on videogames in the accounting field, financial service industry, and general business fields is still very scarce. In the few existing studies, the term *videogames* is either not defined (Huang et al., 2013) or classified as a subset of a simulation game within the category of BSGs (Guillén & Aleson, 2012). Literature discussing gamification has shown that gamification has the potential to reap positive results when an organization applies it carefully and purposefully (Anderson & Lawton, 2009; Burke, 2014; Faria, 2001). A review of this material leads to the conclusion that an organization looking to a gamified simulation as a potential path to increasing motivation and employee engagement must therefore begin by evaluating its vision and organizational goals. The measurement and study of the link between organizational goals and implementation of DBSGs is the gap this research addresses.

After reviewing the literature and the themes that have emerged, it is reasonable to suggest a need for further research on the decision to utilize and on the development of DBSGs within an organization, as well as the outcomes and perception of impact from both the organization and the learner. The literature on game-based and simulation-based learning generally establishes its pedagogical effectiveness, while often noting that this

effectiveness has not been properly documented. Authors such as Tobias and Fletcher (2012), Mayer et al. (2014), and Girard et al. (2013) stated that there is a lack of theoretical and empirical research on the effectiveness of game-based simulations and learning. Additionally, most of the literature focused on children and adolescents (Tao et al., 2009), and there is little research on the undergraduate and postgraduate levels. The lack of research is even more striking in the accounting and business disciplines for adult learners, despite digital learning's substantially increased presence.

From a business perspective, Faria (2001) reviewed game-based learning papers from the Association for Business Simulation and Experiential Learning conference, and Faria et al. (2009) described the evolution of business simulations. Other attempts to structure the DGBL literature are in Girard et al. (2013), and Connolly et al. (2012), but none focused on financial service.

Qualitative Research Methodology

Research is crucial for facilitating change within our culture and for driving innovations. Pandey and Pandey (2015) wrote, "new products, new facts, new concepts, and new ways of doing things are being found due to ever-increasing significant research in the physical, the biological, the social, and the psychological fields" (p. 7). Depending on the purpose and nature of the study and the research questions, there are various ways in which a researcher may conduct the research. This section reviews the methodologies in the studies of DBSGs in financial service industries and uses that review to help to inform the methodology selection for the research in Chapter 3.

Many studies on the impact of gamification in learning were quantitative in nature. A meta-analysis of empirical studies on the impact of gamification showed that

most research in peer-reviewed journals was quantitative and dealt with quantitative

motivational scoring and review (Hamari et al., 2014). For qualitative study, there is a

broad range of case studies on business simulations and gamification. These case studies

are useful, in part, to understand the individual impacts of aspects of the gamified

platform or simulation on learners. Studies revealed gamification as an effective tool to

increase motivation; however, further studies in gamification are necessary.

Upon reviewing the literature on business simulations, decision-making

methodology, and gamification and motivation, I determined that a transcendental

phenomenological research methodology was ideal for answering the research questions

for this study. Data for phenomenological research derives from groups or individuals

who have experienced a singular phenomenon (Sozer, 2013). Benckendorff et al. (2015)

conducted a qualitative study on online business simulations including case studies of

implementations, which stressed the importance of collecting detailed qualitative

feedback to address the individual experiences of both practitioners and participants.

Their research and their selected methodology allowed them to develop a textural–

structural description of the individuals' shared experiences, which was valuable in

exploring commonalities in the development, delivery, and effectiveness of DBSGs.

I used interviews to collect data on shared L&D leadership experiences regarding

DBSGs. The transcendental phenomenological research methodology assists in

understanding how practitioners understood and experienced the design, development,

and implementation of DBSGs within their organizations.

Chapter 2 Summary

Most reviewed literature on DBSGs dealt with motivation, engagement, gamification aspects, and their use within educational settings. As an educational tool, BSGs have grown considerably in use during the past 40 years and have moved from being a supplemental exercise in business courses to a central mode of business instruction (Faria et al., 2009). This review of the literature as well as a meta-analysis of available literature on the topic (Carenys & Moya, 2016) showed that the BSG has become a positive factor in business education. These data essentially provide the scaffold for the issue at the heart of this research, which is that the overwhelming majority of research of business simulations has covered their use as an educational tool for students. The lack of attention and study of business simulations at the corporate level further validates the necessity for this study.

This literature review has explored research on a variety of relevant topics relating to the use of DBSGs within a financial service organization. The topics included exploring organizational decision-making frameworks and processes to help to conceptualize how a financial service organization may evaluate and determine the appropriateness of a DBSG to solve specific organizational problems or to align with organizational goals. It has also included a historical look at BSGs, which provided background on business simulations, as well as the movement from analog (paper-based) to digital simulations and the progression of sophistication and utilization.

This review has also provided background on factors within DBSGs that provide motivation and engagement, which is relevant to an organization's decision to pursue a DBSG. The research regarding motivation and engagement within digital business

simulations is extensive, as is the review of gamification in non-game settings. This portion included gamification concepts in a non-gaming environment and how these concepts may be useful to create a culture of rewards and autonomy, and thus to relate this culture to motivation and engagement. The review has also described the limitations of gamification and what an organization must do to implement gamified solutions effectively.

The literature review has examined theoretical frameworks for DBSGs, such as the theory of constructivism and its use for linking to the student-centered education models and active learning that are more prevalent today in corporate learning. Some of the literature about DBSGs (Calabor et al., 2019; Yusoff et al., 2010) argued that these learning theories are the necessary link between game attributes and DBSG effectiveness. The literature review has also provided a link between this theoretical framework and motivation and engagement, providing the basis for the framework to clarify motivation and engagement within DBSGs.

The review of the current literature has also provided a clearer view of the gaps in current research in relation to the use of DBSGs in financial service organizations. There were few academic articles on the use of business simulations in general for accounting and general business skills, which is clearly relevant to the financial service aspect of the research problem. However, the biggest gap was that most of the research in review dealt with DBSGs from an educational perspective, thereby approaching the usefulness of DBSGs from academic utilization, rather than for corporate or noneducational purposes.

The lack of clear study on the use and impact of DBSGs in financial service organizations also led to the selection of a qualitative study for exploration of this topic. I

addressed the need to identify practitioners from a minimal population of L&D leaders

from financial service organizations and to explore their experiences to understand

similarities and issues via a phenomenological study. Based on this literature review,

which provides background for organizational decision-making processes combined with

a conceptual framework using constructivism to identify motivational concepts, there is a

sufficient case for determining that an investigation examining the decision to design,

develop, and deliver a DBSG within a corporate environment would yield socially

important findings. The literature shows strong support for pursuing a research project to

answer the following research questions:

1. How did organizational goals impact the decision-making experiences that led to the development and implementation of a DBSG?
2. What was the perceived impact of the DBSG on learner motivation, engagement, and retention?

CHAPTER 3: METHODOLOGY

Introduction

The purpose of this qualitative, phenomenological study was to explore the experiences and perceptions of those experiences of a purposive sample of eight L&D leaders in the financial service industry. Then, analysis would assist in identifying the circumstances each organization faced in its decision to implement a DBSG, the details of design and development, the perception of learner engagement and retention, and the lessons participants learned from the experience. In doing so, the procedures explored and described the experience of deciding to build a DBSG as a viable solution to organizational goals and business objectives, as well as providing descriptions of the processes to implement the DBSGs within their organizations. The study technique was a modified van Kaam method as described by Moustakas (1994) based upon transcribed interviews using semistructured questions to capture the DBSG experiences of the L&D leaders, as well as their perceptions of the motivation and engagement of the learner, and the value to their organization. The results of the research led to useful recommendations for future use of simulations in financial service organizations based upon appropriate qualitative, phenomenological research.

Chapter 3 contains a description of the applicability of the qualitative research method and articulates the phenomenological design approach, research questions, data-gathering procedures, data analysis, and matters of participant confidentiality. It also includes information relating to the research design appropriateness, study population and

selection, sampling identification, data collection approaches, factors affecting internal and external validity, and data-analysis techniques. This chapter contains specific research instrumentation and data coding and identifies the software that provided baseline analysis and codification.

Research Methods

Qualitative research provides the framework to explore, define, and assist in understanding the social and psychological phenomena of organizations and the social settings of individuals (Berg, 2004). Creswell (2018) wrote that qualitative research is most appropriate when seeking to explore and understand phenomena. A quantitative approach was inappropriate to address the research questions in the study because of the need for context-specific knowledge to understand the phenomena of implementation of a DBSG within a very specific population (financial service organizations) to align with organizational goals and the decision-making process as described in the conceptual framework. Transcriptions of the interviews were used to code recurring themes in participant accounts. Upon identification of these themes, I described the phenomenon in detail. Phenomenological research design enables researchers to examine every day human experience in close and detailed ways (DeMarrais & Lapan, 2003). This methodology enabled identification of issues, themes, and specific situations in the study. I selected this specific methodology as it described how the participants experienced the phenomenon.

Transcendental Phenomenology

I further refined the qualitative research method to transcendental phenomenology. I investigated the organizational goals, and the decision-making

experiences of L&D leaders in financial service organizations that led to the development of a DBSG. In addition, I investigated the experience of implementing the DBSG and the impact on learner motivation, engagement, and retention. The chosen method addressed the specific experience and approach of a very limited population. This design also incorporated a transcendental theoretical framework for qualitative research guidance. A transcendental phenomenological research methodology is useful to "describe the common meaning for several individuals of a concept or a phenomenon" (Creswell & Poth, 2016, p. 76). These procedures require participants to answer a series of questions about their experiences and the results of their program. This methodology was an appropriate response to the research problem, as it produced detailed interview data from corporate learning leaders on DBSGs; alignment with business objectives; design, development, and implementation strategies; and outcomes.

Qualitative research requires a systematic ethical approach with a defined methodology, which applies careful planning and execution, thoughtful structured reflection, and full disclosure of methods to promote transparency and replication (O'Leary, 2004). Creswell (2018) wrote that in qualitative research, "claims of knowledge are based upon constructed perspectives from multiple social and historical meanings of individual experiences" (p. 18). Two major approaches—hermeneutic phenomenology and transcendental phenomenology—represent philosophical assumptions about experience and ways to organize and analyze phenomenological data (Moerer-Urdahl & Creswell, 2004). These two approaches each have their specific qualities and uses, and they differ in their proponents and methods of analysis. Meaning is the core of transcendental phenomenology, a design for acquiring and collecting data

that explicates the essences of human experience and that is the most suitable methodology for this research. Supporting this methodology in general, and selection for this research purpose specifically, phenomenology refers to a single person's experience (Giorgi, 1997) relevant to the topic.

Van Kaam provided the basis for the application of empirical phenomenology in clinical psychological research (Moustakas, 1994). This approach, however, provided a mechanism for application of phenomenology to broader applications outside clinical psychology studies. Transcendental phenomenology provides the appropriate strategy for qualitative inquiry by positioning the researcher within the study to collect data on participant meaning, focusing upon a phenomenon (Osborne, 1994). However, while the collection of data is more open-ended and identifies, explores, and promotes understanding of an experience or phenomenon, the methodology is not without its structure and rigor. Patton (1990) identified three steps in a phenomenological case study, namely epoché, phenomenological reduction, and structural synthesis. Epoché is the elimination of bias associated with common knowledge as the basis for truth and reality (Moustakas, 1994). Employing triangulation, where the design of a study incorporates thematic saturation to verify data, can reduce bias (Creswell, 2005). Bracketing is an additional method to assist in the elimination of researcher bias. In a bracketed interview, the researcher seeks to identify any assumptions, biases, and beliefs that may impede or interfere with understanding (DeMarrais & Lapan, 2003). Moustakas (1994) described phenomenological reduction as occurring when, "each experience is considered, in and for itself. The phenomenon is perceived in its totality, in a fresh and open way. A complete description is given of its essential constituents" (p. 34). This is the crux of the

design of the study: complete, unedited description with significant detail relating to the decision to implement a DBSG and the experiences of those involved.

This transcendental phenomenological study describes the experiences and impact of DBSGs from the perspective of L&D leaders, and therefore the researcher must employ epoché and bracketing. I also explored the organizational influences on and circumstances of the decision-making of the L&D leader, as well as subsequent differences in the experience of the participants in the study concerning these organizational influences and circumstances. I used semistructured interviews to understand the individual's use of and perspective on DBSGs. A transcendental phenomenological design requires the researcher to study the selected phenomenon with an open mind that is unencumbered with preconceived notions, which results in new understandings arising from the experiences (Moustakas, 1994). Other qualitative methods seemed inappropriate, as many approaches were more normative in design and inadequately addressed the researches intended focus, namely, the need for a context-sensitive basis for understanding the influence of digital business simulations in a financial service setting.

To collect, codify, and analyze the qualitative data within the parameters of a phenomenological study, the first step was to identify the target population for the study: L&D leaders within financial service organizations who have experience implementing a DBSG. It was necessary to choose participants based on their unique characteristics or experiences (Cooper & Schindler, 2006). The participants must be willing to provide detailed information anonymously on their experiences of approach, implementation, and outcomes.

With a qualitative methodology, an interview is the primary data-collection technique (Cooper & Schindler, 2006). This researcher used open-ended semistructured interviews to collect data, as this structure permits direct comparisons of responses. Interview delivery was virtually synchronous via the Zoom video conferencing platform. This study technique included a modified van Kaam method as described by Moustakas (1994) based upon transcribed interviews using semistructured questions to capture the experiences of L&D leaders and the implementation of DBSGs.

Moustakas (1994) wrote, "The empirical phenomenological approach involves a return to experience in order to obtain comprehensive descriptions that provide the basis for a reflective structural analysis that portrays the essences of the experience" (p. 13). Moustakas's approach aligns with this study, as it addressed the research questions via the recollection of first-hand experiences in designing, developing, and implementing a DBSG. There are seven principles providing guidelines for a modified van Kaam method within psycho-phenomenological methodology for planning and performing data analysis. The principles provide guidance on treating each interview as an individual data-collection event and offer structure for data alignment, codification, thematic review, relevancy, and reporting on results and interpretation.

Study Design

The purpose of this phenomenological study was to understand how L&D leaders in the financial service industry experienced the decision to develop a DBSG. It also explored their experience throughout the project and the perceived efficacy of the results of the effort for the business through the lens of the organization and the L&D leader. The study analyzed recurring themes and shared experiences of the participants. The aim

was to uncover the details of the participants' decisions while developing a DBSG

solution for their organization. As this study used a transcendental phenomenological

research design, it provided a rich and descriptive understanding of the use of DBSGs in

corporate learning environments. Figure 3 summarizes the research design.
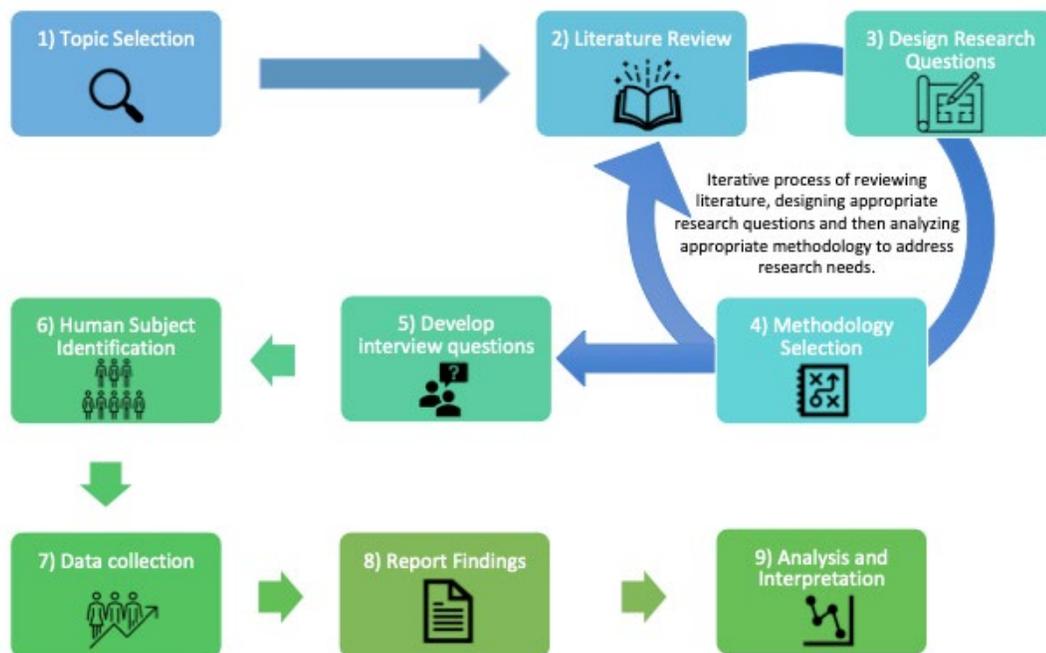
Figure 3   Phenomenological Research Design

Participants answered a series of questions on their experiences of implementing a

DBSG within their organization, how this implementation affected their organization

(outcomes in alignment with organizational objectives or business goals), and their

perceptions of the impact of the DRSG on learners (motivation, engagement, and

retention). Using transcriptions of the interviews, I uncovered and coded recurring

themes within participant accounts. Upon identifying these themes, I then described the

phenomenon in detail.

Research Timeline

To accomplish the study and to complete the synthesis of material for analysis and outcome, the study adhered to the following timeline (Figure 4).
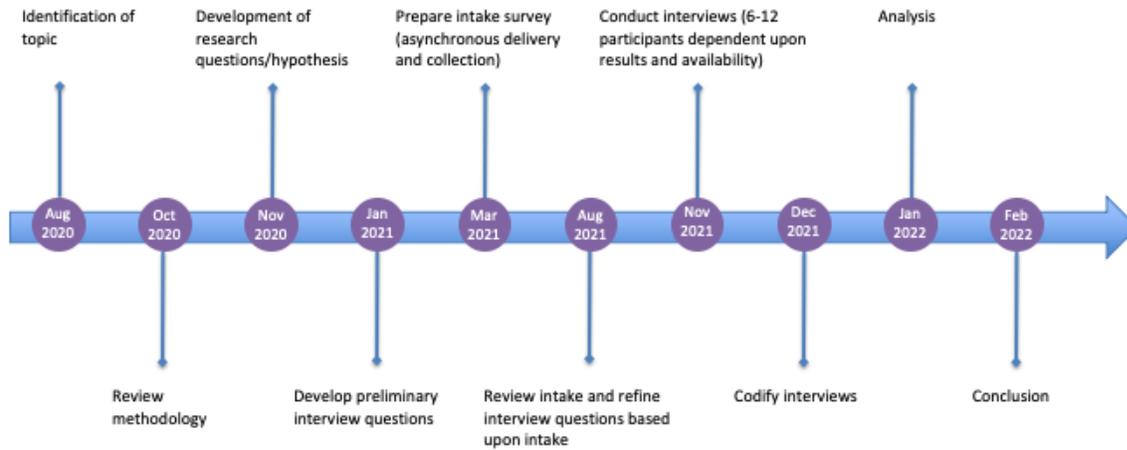
Figure 4   Research Timeline

The participant identification commenced upon IRB approval. Identification of a body of participants took approximately 2 weeks through email recruitment via a professional network of L&D managers in financial service industries. Interviews took place over a 3-week period. Codification and analysis of all transcripts took a further 3 weeks. The interviews continued until saturation of themes or content occurred. The analysis and conclusion documentation were written upon completion of all interviews and analysis.

Role of the Researcher and Addressing Biases

Qualitative interviewing presents some concern for researchers in terms of instrumentation rigor and bias management: the researcher as an instrument can be the greatest threat to trustworthiness in qualitative research if there is inadequate preparation of the field and reflexivity of the researcher (Poggenpoel & Myburgh, 2003). These

concerns may not only jeopardize the overall quality of the study, but also impact the quality of each individual interview. However, it is imperative to state that to discover meaning in the data, one needs an attitude open enough to let unexpected meanings emerge (Giorgi, 2011). Through bracketing the researcher's own experiences, the researcher mitigates the risk of influencing the participant's understanding of the phenomenon. Bracketing is a methodological device in phenomenological inquiry that requires deliberately marginalizing or segregating the researcher's own beliefs about the phenomenon under investigation or what one already knows about the subject prior to and throughout the phenomenological investigation (Carpenter, 2007). The adoption of this attitude is unique to the phenomenological approach. Bracketing is a means of demonstrating the validity of the data-collection and analysis process (Ahern, 1999) and a necessary and critical element of the transcendental phenomenological study.

Description of the Participants

Participants were, at a minimum, management-level L&D professionals in the financial service industry, loosely defined as any learning professional working or having recently worked in banking, insurance, audit, tax and advisory firms, or other finance-related organizations. The participants had also worked on DBSG in a management role within a financial institution within the past 7 years. It is worth noting, however, that the intent was not generalizing to a population, but rather, as in all qualitative inquiry, developing an in-depth exploration of a central phenomenon (Creswell & Creswell, 2005).

Regarding the size of the study population, upon conception of the research design, I identified six to eight participants as an initial target number. This determination

drew on qualitative research studies that deal with population size. Bertaux (2003) argued

that for qualitative research, 15 is the smallest acceptable sample size, while Morse

(1994) recommended a minimum of six participants for phenomenological studies.

Creswell (2005) noted that for qualitative research, studying a few individuals or cases as

well as a single site is typical, because a larger number of cases becomes unmanageable,

resulting in superficial perspectives. The population size ultimately depends on the

analysis and coding, as once saturation of themes and contributions occurs, no further

interviews are necessary.

Instrumentation

"The idea behind qualitative research is to purposefully select participants that

will best help the researcher to understand the research question" (Creswell, 2018, p.

185). An objective of the study was to explore the impact of DBSGs on organizations by

assessing the responses of eight participants from financial service organizations. In

further support of purposive sampling for qualitative study, Berg (2004) wrote,

> Purposive samples are used to ensure certain types of individuals or persons displaying certain attributes are included in the study.… When developing a purposive sample, researchers use their special knowledge or expertise about some group to select subjects who represent this population. (p. 32).

Using purposive qualitative sampling as the selection method enabled the

researcher to select people who could best help him to understand the phenomenon

(Creswell, 2005).

To provide purposive qualitative sampling as a selection method for targeting

participants in this research, I identified potential participants via his extensive

professional network who met the criteria for the study, namely, management-level L&D

professionals in financial service industries. I sent recruitment emails, including the full

purpose of the study plus the criteria for participation, to provide potential participants with awareness of the nature of the study and to determine whether they believed they meet the criteria for inclusion. Once potential participants identified themselves for inclusion, the first part of the semistructured interview (Questions 1 through 4 in Appendix D), participant benchmarking, validated their backgrounds and experience before moving on to the remainder of the interview focusing on the decision-making aspects of the project as well as the perceived impact on the learner.

Data Collection

I used interviews to gather information from each participant. The reason for choosing this method of data collection was to provide robust accounts of participants' experiences leading to the decision to implement DBSGs in their organizations and the subsequent experiences and impacts of those decisions. I used the data to create a rich description of the motivations and strategies leading to the decision, the design and development techniques, participant engagement and retention, and downstream impacts on the organization due to the implementation of the DBSG. A review process with a pilot subject and a research advisor help to provide a baseline for the interview questions and style, and documented them for reflection to address personal bias within the subsequent participants' interviews.

Creswell and Poth (2016) identified nine steps in the overall interviewing process. The first step is to decide on the research questions for the participants during the interviews. In conducting this form of research, open-ended questions, which focus on uncovering the phenomenon, are useful. The second step in the interviewing process is to identify the interviewees. They recommend selecting participants who may best answer

the interview questions based on the chosen sampling method. For this study, I chose a purposive sampling method to assist in identifying participants with shared experiences of the phenomenon.

The third step of the semistructured interview process is to determine the type of interview. For this study, I used a one-on-one interviewing method. The fourth step is to use adequate recording procedures. All interviews took place via recorded video meetings using the Zoom videoconferencing platform. The recordings captured all audio, and any text entered into chat, plus files shared, as well as video and screen shares if the participants used them. This step also allowed for the interview questions to appear on the screen synchronously to help the interviewees to align their thinking directly to the questions.

The fifth step Creswell and Poth (2016) identified was to design and utilize the semistructured interview protocol. The interview protocol functions as an agenda for the discussion and serves as a guide for the interviewer. This guide can include main and sub-questions to encourage participants to give descriptive accounts of their experiences. The questions and sub-questions aligned with phases of decision-making relevant to the DBSG project, implementation, and outcomes.

The sixth step was to refine the interview questions through work with the dissertation advisor. This refinement enabled me to assess the level of observer bias, continue to develop and refine the research instruments, frame the questions, and adapt the research procedures. The seventh step of the interview process was to determine a location for the interviews. The current global pandemic, plus the anticipated geographic

disparity of participants, led me to use virtual synchronous meeting software (Zoom) for the interviews.

The eighth step was to have the respondents complete a consent form. This form provided more detail on the purpose of the study for each participant and reviewed the interview protocol. Participants each received a copy of the research description and plans for the interview results. They also received the output of the interview and final assessment. The ninth and final step of the interview process was to use good interview procedures. The interviewer needed to remain courteous, focus on the questions, and listen to each participant. Creswell and Poth (2016) recommended the interviewer to keep notes in the event audio recording was unsatisfactory. Therefore, I made notations during each interview.

<u>Interview Tool</u>

The semistructured interview was the key data-collection tool for this research. The semistructured interview had three sections. Appendix D of this document details the interview questions, and this section links each section of the interviews to the needs of the research. Section 1 of the semistructured interview, participant benchmark (demographics), allowed for validation of the participants' backgrounds and experiences to ensure the purposive sampling provided a resource that aligned with the needs of the research. Section 2, project background, included specific questions regarding the background of the organizational strategy and the alignment of strategy with L&D and the decision-making process that led to the implementation of a DBSG. Section 3, learning participation and engagement, identified interview questions that address the second research question regarding the learner experience and the provision, reception,

and measurement of the DBSG took place. The final section, additional questions, provided further questions regarding lessons the practitioners learned regarding the decision to implement as well as the experience designing, developing, and delivering a DBSG in their organizations.

<u>Member Checking</u>

Creswell and Poth (2016) noted the sensitive nature of topics that may be discussed in a phenomenological study. This study required participants to discuss their experiences and perspectives regarding systems their employers had implemented. Given that financial service organizations operate in both highly regulated and compliance-driven environments, participant anonymity, employer anonymity, and concern for non-disclosure agreements with participants' employers was a key component to ensuring a level of security and trustworthiness with participants' responses (more on informed consent follows later). Phenomenological studies provide "descriptions of lived-through moments, experiential anecdotal accounts, remembered stories of particular experiences, narrative fragments, and fictional experiences" (Adams & van Manen, 2008, p. 618). To ensure participants were represented accurately and ethically, I used member checking to provide a layer of accuracy and credibility to the study. During the interview stage, I restated and summarized information the participants shared to ensure the recording of information as the participants intended. In addition, reviews were performed to ensure anonymity.

Data Gathering and Analysis

This section discusses how the researcher gathered and analyzed the data during the research phase as well as organization and preparation of the data (Creswell & Poth,

2016). As previously addressed, it was essential for a researcher to remove themselves from the experience participants provide. To accomplish this distancing, qualitative researchers must practice epoché. Creswell and Poth (2016) described epoché as when "investigators set aside their experiences, as much as possible, to take a fresh perspective toward the phenomenon under examination" (p. 80). For this study, I needed to observe the phenomenon from an objective perspective to allow themes to emerge organically and holistically. Then, utilizing Epoché, identify themes in the transcripts objectively. I then used these themes to develop a detailed description of the phenomenon.

Each research project establishes its own methods and procedures to facilitate the flow of the investigation and the collection of data (Moustakas, 1994). While this uniqueness is inherently true for any research project, the methods and procedures are still grounded in the phenomenological frameworks for establishing data collection and analysis. This study followed the methodology Moustakas provided in his chapter on methods and procedures for conducting human sciences research.

First, I obtained a complete description of the phenomenon from the participants during the interview phase. Then the interviews were transcribed verbatim using Zoom's native transcription software. Each statement was analyzed for its significance to the phenomenon. I then used the transcripts to create a list of relevant statements and gave all the data equal weight. This process of horizontalizing allowed me to make the elements in a situation equal and placed the situation at a distance to allow for better interpretation without assumptions or bias (Bentz & Rehorick, 2008). I then clustered invariant meaning units under thematic headings using a table to organize the data. Then invariant

meaning units and themes were synthesized into a detailed description of the phenomenon.

Next, I reflected on the gathered data from each participant and built a textural–structural description of the essence of the participant's experiences (Moustakas, 1994). The findings were reviewed with each participant and each gave feedback in the final research description. The data was collected and stored as digital files in a password-protected cloud-based architecture and backed them up locally on the researcher's desktop computer where they were easily accessible.

Coding

Data from the interview responses were coded for analysis and to establish common themes, patterns, terms, or ideas that could inform a deeper understanding of the issue surrounding the research problem while articulating a rich description of the phenomenon of financial service organizations using DBSGs. The sources of research data were appropriate to the research design and strategy, and they provided valid and reliable empirical information. Moustakas (1994) identified a modification of the van Kaam methodology of analysis, which provided seven steps for analyzing the data from each participant's interview.

Listing and Preliminary Grouping

The first step involved the listing and grouping of relevant experiences. Each transcribed response was reviewed, listed, and grouped into statements of experiences that were relevant to the study (the process of horizontalization). I identified all relevant responses that described meanings L&D leaders attached to the decision-making leading up to the initiating a DBSG project as well as the design, development, and

implementation (See Appendix E). Classification nodes were then created for each grouping using NVivo and transcribed interview responses were loaded into NVivo as a dataset. I used queries to retrieve prevalent themes throughout the responses from the dataset.

Reduction and Elimination

The second step in Moustakas's methodology for analysis required reduction and elimination of extraneous data to capture the essential components of the phenomenon. All responses were tested for relevance and meaning, and then it was determined whether each response contained a significant moment of experience that was necessary for understanding. If the response was relevant (expressing an understanding of the experience in the interviewee's perception), the response was segregated for synthesis via labeling and further analysis. Responses not meeting these requirements (overlapping, vague, or repetitive) were eliminated.

Clustering and Thematizing the Invariant Constituents

The third step identified the core themes of the experience by clustering and thematizing invariant constituents (Moustakas, 1994). I grouped the core themes that emerged from the relevant responses together. Additional themes that contributed to the understanding of the meaning respondents placed on the decision-making, implementation, and the perceived value of DBSGs to the organization were also categorized.

<u>Final Identification and Verification</u>

To ensure explicit relevancy and compatibility, the fourth step included final

identification and verification against the participant's complete record. There are three

parts associated with this step (Moustakas, 1994, p. 121):

1. Are they expressed explicitly in the complete transcription?
2. Are they compatible if not explicitly expressed?
3. If they are not explicit or compatible, they are not relevant to the co-
   researcher's experience and should be deleted.

I validated emerging themes against the interview transcript to ensure that the

transcripts explicitly recorded the themes. A check for relevance and compatibility of the

recorded data took place.

<u>Developing Individualized Textural Descriptions</u>

The fifth step was to construct individualized textural descriptions of the

experience based upon the verbatim transcripts using relevant and valid invariant

constituents and themes. I identified emerging themes and then validated them against the

description of the experience from the interview transcript.

<u>Developing Individualized Structural Descriptions</u>

The sixth step was to develop "an individual structural description of the

experience" based upon "individual textural description and imaginative variation"

(Moustakas, 1994, p. 121). I validated textural descriptions of the themes that emerged

from relevant expressions against the transcript.

<u>Developing Composite Textural Descriptions and Composite Structural Descriptions</u>

The final step was to produce a textural–structural description for each

participant's response to the meaning and essence of the experiences. Moustakas (1994)

continued, "Each individual textural-structural description will be used to develop a

composite description of meaning and essence of the experience representing the whole group" (p. 121). Extending the duration of the study to verify the data can reduce bias (Creswell, 2005). Comparison of data from various participants through analysis of responses validated the emergent themes. I then analyzed recurring themes to determine when data saturation occurred.

Assumptions and Limitations of the Research

There were several assumptions within this study, but it is important to note that all qualitative studies contain assumptions to address researcher bias and are limited by the constraints under which the study operates (Simon, 2011). The first assumption in this case was that participants selected for this study would share their true experiences of the DBSG implementation in their organizations. Next, it was assumed that participants would answer each interview question honestly and without bias. Further, I assumed that participants would accept the invitation to share their experiences and to contribute to the research.

Delimitations define the boundaries or address the parameters of the study (Simon, 2011). The current included only sample participants who had participated in the design, development, and implementation of a DBSG within similar organizational environments, like financial service firms. Had identification of these individuals at this level proved difficult, expansion of the study might have been necessary to include other L&D leaders in corporate learning departments from closely related industries that operate in similar environments (aviation and aerospace, pharmaceutical, etc.).

The small sample of eight participants was a delimiting factor, but selecting a small sample size based on willingness to participate is appropriate for qualitative

research (Herr & Anderson, 2005). Given the specificity of the topic and the level of

participants required within their industry, the minimum number of interviews was six,

and, based upon the analysis of responses, determination as to whether further interviews

would be beneficial affected the final number of interviews. Herr and Anderson (2005)

documented several examples of qualitative research that included small leadership

groups based on the willingness of participants to take part in research. As Malterud et al.

(2016) wrote, the concept of information power can guide adequate sample size

calculations for qualitative studies. Information power indicates that the more

information the sample holds that is relevant for the actual study, the lower the necessary

number of participants is. The authors suggested that the size of a sample with sufficient

information power depends on (a) the aim of the study, (b) the sample specificity, (c) the

use of established theory, (d) the quality of dialogue, and (e) the analysis strategy. Based

upon the cited examples, and as appropriate to the study, data collection continued until

saturation occurred.

This research design contains additional limitations. First, it was challenging to

ensure pure bracketing in a transcendental phenomenological study, given my familiarity

and experience with the research subject. Therefore, I practiced epoché (Creswell & Poth,

2016). While I did have my own experiences with the topic, every attempt was made to

not integrate my own experiences with gamified applications, digital business

simulations, or his understanding of organizational decision-making processes into the

data collection phase. The research data were solely the detailed data the participants

provided, helping to ensure that personal perspective remained separate from the themes

that emerged from the collected data. The participants' ability to communicate their

experiences may have affected the level of data they provided during the interview process; therefore, the participants in the study were those who felt comfortable with the interview process and were able to share their experiences clearly. If participants were not comfortable with this process, data might not have shown an accurate picture of these individuals' perspectives.

Validation

To ensure trustworthiness and credibility in a phenomenological study, the researcher needs to transcribe interviews verbatim. In-vivo codes were used so that the participants' exact words identified recurring themes present in the transcripts (Creswell & Poth, 2016). NVivo coding software for qualitative studies aided this analysis. The use of member checking ensured credibility. Participants each had the opportunity to review the research to confirm that it represented their ideas accurately and clearly.

Credibility

To ensure accuracy and credibility, the researcher transcribed the interviews verbatim, and he presented the general structural description to each participant for review. The level of dependability of the study is contingent upon the degree to which the structural description reflects the data the participants provided (Creswell & Poth, 2016). I refrained from influencing the participants' descriptions of their experiences. Any influence in this regard can render the data inaccurate, as this influence would not be a true reflection of the participant's feelings and thoughts. I also wrote the transcripts verbatim, allowing for themes to emerge without discrepancies. This ensured consistency between the interviews, transcripts, and the general structural description.

Ethical Considerations

Ethical issues may arise during any stage of the research process (Creswell & Poth, 2016). To eliminate risk, the study received approval from the university's institutional review board (IRB) prior to beginning the data collection process (see Appendix A). Participants received reassurance before and at the conclusion of the interviews that their identities would remain confidential, and that the collected data would not include identifiable information on the organization. A recruitment email went to prospective participants (see Appendix B). Upon receipt and acknowledgement of interest in participating, participants received a letter of consent during the initial meeting prior to beginning the study (see Appendix C), which informed them of the purpose of the research and restated the confidentiality and the steps.

<u>Informed Consent</u>

Gaining the trust and support of research participants is critical to informed and ethical academic inquiry and phenomenological research (Walker, 2007). Prior to the onset of the study, the Boise State University IRB reviewed the informed consent form to ensure that it complied with standards regarding the protection of human subjects. The IRB approved the application (Appendix A). The informed consent addressed the nature of the study, anticipated time commitment, level of risk, intended benefit, withdrawal options, voluntary nature of participation, and non-disclosure of data to outside parties as the IRB required.

Before participating in the interview, all participants received an electronic version of the informed consent cover letter (Appendix C). All participants read and signed the informed consent letter to indicate their willingness to participate in the study.

A review of the consent form took place with each participant prior to interviewing, and digital copies of the forms were retained. The purpose of the informed consent letter was to introduce the research effort, provide contact information, articulate the intent of the study, request voluntary participation by the recipients, and identify the anticipated information that participants needed to provide.

<u>Confidentiality</u>

The informed consent letter articulated the procedural steps in maintaining privacy, confidentiality, and the non-attribution of individual responses. The informed consent letter also declared that the participant's information would remain confidential and would not go to any outside party. The informed consent letter included information about maintaining confidentiality and anonymity and assured participants that all responses would remain secure from inappropriate disclosure to enhance the reliability and validity of provided data. All participants digitally signed and returned the letters of consent before commencement of the interviews.

Each participant received a number from 1 through 8 in order of interview sessions for identification. The master list for identification remains digitally secured and password protected in a cloud-based storage architecture. There was no identifiable information in the Zoom recording. The transcribed interviews also remain electronically on a cloud storage architecture and are password protected. Additionally, the interviews were archived on my desktop for added security, since desktops are not carried around and have far less probability of being stolen. All signed consent forms and digital audio recordings of responses remain accessible only to the researcher. Per the IRB, all digital documents and audio files relating to the interviews will be retained for 3 years after the

conclusion of the research. All electronic files associated with the research from both the cloud-based repository and the researcher's desktop computer will be purged at that time.

An additional consideration is the fact that this researcher has been involved as an L&D leader in implementation of a DBSG within a financial service organization, from strategy and decision-making, through implementation and measurement. This consideration alone defines the need for epoché and bracketing as a mechanism for removing researcher bias from the interviews and for focusing entirely on the responses and experiences of the participants. Figure 5 gives a summary of the research structure.

Problem Statement: Given the perceived value digital business simulation games provide with regard to conceptual frameworks such as constructivism, and motivation, engagement, and retention, there is significant lack of research around the alignment to business strategy, use, and outcomes of DBSGs within a corporate learning environment.

Research Question 1: How did organizational goals impact decision-making experiences that led to development and implementation of a DBSG?

Research Question 2: What was the perceived impact of the DBSG on learner motivation, engagement, and retention?

Data Gathering Approach: Phenomenological study using semi-structured interviews with 6-12 participants from a distinct population (via collected demographic data) tailored to the focus of the research questions.

Q1 Analysis: The detailed descriptions of the needs of the organization as well as the strategies the project were aligned and analyzed against the model of the phases of rational decision-making process. Additionally, initial desired learning outcomes were explored in alignment with overall organizational strategy.

Q2 Analysis: Review the experience and details provided by the subjects and align to motivation, engagement and retention theories to analyze whether decisions made in question one had an impact on question two.

Impact: Q1 examined alignment between the needs and strategy of the organization and the experiences of the L&D professionals that led to deciding to develop a DBSG. Through analysis of these experiences, parallels or discrepancies between needs of the organization and the decisions made by L&D functions, applied through the lens of a decision-making framework were determined.

Impact: Q2 provided analysis of the perceived impact of the DBSG through the framework of motivation, engagement and retention and identify whether the decision to implement was a positive impact to the organization and to the learner.

Figure 5   **Research Structure**

Chapter 3 Summary

The purpose of this qualitative, phenomenological study was to document the decisions behind and the impact of DBSGs in financial service organizations, as perceived by eight participants who have experienced and had influence in L&D strategy, design, development, and implementation. Techniques within the study included a modified van Kaam method. Semistructured interviews were used and results triangulated by manifest content analysis using the NVivo 1.6.1 qualitative analysis software program to assess emergent themes.

Chapter 3 has included a rationale for qualitative research methods (Creswell, 2018; Creswell & Creswell, 2005; Creswell & Poth, 2016; Moustakas, 1994), and a description of the research design and its appropriateness (Creswell & Poth, 2016; Moustakas, 1994). It has also focused on the research population (Guest et al, 2006; Patton, 1990), data-collection approaches (Creswell & Poth, 2016; Moustakas, 1994), and data-analysis techniques (Moustakas, 1994). Chapter 4 presents the results of the study.

CHAPTER 4: ANALYSIS AND RESULTS

Introduction to Data Analysis and Results

This transcendental phenomenological study examined the use and perception of DBSGs in financial service organizations. The study explored the basis for financial service organizations to select DBSGs as a method to support the learning needs of the organization as well as perceptions on motivation, engagement, and retention concerning the implementation of a DBSG as a learning solution. Finally, the study allowed for the collection of key takeaways and best practices drawing on the experiences of the practitioners involved in the strategy, design, development, and delivery of DBSGs. Using interviews, I endeavored to gain a thorough understanding of the perspectives of those involved in the decision-making process and the design and development of DBSGs for financial service organizations.

After completing the review of literature concerning corporate decision-making and L&D (Brousseau et al., 2006; G. Johnson et al., 2005; S. Scott & Bruce,1995; Taylor, 2017; Udell & Woodill, 2019), digital game-based learning (Azadegan et al., 2012; Carenys & Moya, 2016; Eseryel et al., 2014; Kim, 2015; Kim & Watson, 2017; Lean et al., 2015), BSGs (Barnaby et al., 2020; Buckless et al., 2014; Csikszentmihalyi, 2003; Faria et al., 2009; van Bilsen et al., 2010; van der Zee & Slomp, 2009; Wolfe, 1993), game-based learning and adult learners (Boulet, 2012; Dorn, 1989; Egenfeldt-Nielsen, 2003; Hunter, 2013; Jennings & Wargnier, 2010; Knowles, 1970; Lee, 1999; Porter & McKibbin, 1988; Riedel & Hauge, 2011; van Eck, 2006), and motivation, engagement,

knowledge gain, and business impact (Anderson & Lawton, 2009; Barab et al., 2007; Brown, 1994; Foster, 2008; Greeno, 2007; Greeno et al., 1996; Kim & Watson, 2017; Malone, 1981; Malone & Lepper, 1987; Moreno-Ger et al., 2009; Phillips & Soltis, 1998; Whitton, 2011) I found limited research on the use of DBSGs in corporate learning, and gaps in the research pertaining to regulated environments such as financial service industries. As a result, this study explored the use and impact of DBSGs within financial service organizations.

In order to complete the research, a modified van Kaam method, as described by Moustakas (1994), incorporated transcribed interviews using semistructured questions to capture the experiences of the participants. Content analysis of collected and transcribed data used NVivo 1.6.1 qualitative software to identify relevant elements, to manifest themes, and to explore any emergent attributes of the central phenomenon of the use of DSBGs in a financial service organization. To study the process leading to deciding to implement a DBSG as well as the impacts of the implementation, I posed the following questions:

1. How did organizational goals impact the decision-making experiences that led to the development and implementation of a DBSG?

2. What was the perceived impact of the DBSG on learner motivation, engagement, and retention?

To answer the research questions, semistructured interview questions were developed to investigate how participants experienced the approach to decision-making regarding implementation of a DBSG (what were the organizations' needs/gaps, goals?), and the process involved in gaining project approval. The interview questions also

addressed a variety of other topics relevant to design, development, implementation and

measurement of the DBSG to address the perceived impact on motivation, engagement,

and retention. Additionally, the final portion of the interview allowed the study

participants to elaborate on key takeaways from their experience as well as critical

success factors to inform additional conclusions, inform additional areas for future

research, and reinforce themes in data gathering by allowing them to revisit key topics

from their experience.

Study Demographics

The study design required individuals with very specific qualifications. This

included having financial service industry experience and being involved in a DBSG

project for that organization. It also involved having a certain level of experience to

establish authority, having a high degree of insight from a strategic perspective on the

organization's needs, and the power to either impact or make a decision to implement a

DBSG. The following interview questions identified the population for the study:

1. Financial Service Experience—Do you work for, or have you worked or consulted in the financial service industry within the past 7 years, including (but not limited to) the following industries: insurance, banking, audit tax and advisory services, or other financial industry?
2. If no, for what type of industry or organization did you work?
3. How many years of experience do you have in the organizational learning & development field?
4. Is your current title manager or higher?
5. Do you have experience planning or implementing a digital business simulation within your current or previous organizations?[2]
6. If yes, what was your role in implementation:

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[2] The researcher used the demographic data to qualify participants to participate in the study, as an established level of experience in organizational L&D as well as experience implementing DBSGs was necessary. The needs of the study required a yes response rate of 100% to qualify for participation as well as a minimum of 10 years in L&D to establish authority on the topic.

Because of the specificity of need regarding the population, there were eight
participants in the study. Table 2 gives a demographic breakdown of the study intake.

Table 2   Study Participant Demographics

Participant	Level	Financial Service Employee or Consultant	Sim Experience	Role(s) During Implementation	Years of L&D Experience
1	Executive	Employee	Y	Multiple	20
2	Manager	Employee	Y	Multiple	15
3	Executive	Consultant	Y	Strategic Leadership	12
4	Executive	Consultant	Y	Multiple	13
5	Manager	Employee	Y	Manager	20
6	Executive	Employee	Y	Strategic Leadership	23
7	Executive	Employee	Y	Strategic Leadership	19
8	Executive	Consultant	Y	Multiple	23

Level. For this study, a manager (M) is a leader managing a team of individuals to
accomplish tasks within the scope of the program or project. An executive (E) is a
strategic-level senior leadership role responsible for or involved with the decision-making
process for learning programs. Participant breakdown: M = 25%, E = 75%.

Financial service employee (Em) or consultant (C). This indicates whether the
participant was an employee of or directly consulted for a financial service organization.
Participant breakdown: Em = 62.5%, C = 37.5%.

Role(s) during implementation. This indicates whether the participant was a
Strategic Leader (SL) for the DBSG implementation or whether the participant had
Multiple (Mu) roles including both strategic decision-making participation through
tactical design and development of content, and specific tasks within the implementation.
Manager (M) indicates that the participant managed a team responsible for project work

within the DBSG but had limited scope in decision-making. Participant breakdown: SL = 37.5%, Mu = 50%, M = 12.5%

To verify that all purposive samples were eligible for participation in the study, each participant answered six interview questions. Questions 1 and 2 established industry experience. Question 3 established general L&D experience (as the study required those with significant levels of participation and experience in DBSGs). Question 4 asked for background information about the level of leadership within the organization. Question 5 established participant experience specifically with DBSGs. Question 6 established participants' level or role within the implementation of a DBSG.

Data-Collection Procedures

Creswell (2005) identified observations, interviews, documents, and audio-visual materials as forms of data collection. Documents and audio-visual materials were not available for this study or consistent with a modified van Kaam phenomenological approach (Moustakas, 1994). Unstructured observational data in different venues from participant observers or non-participant observers were also unavailable, which precluded the opportunity to take field notes or to record data to inform the research. The most appropriate and available data-collection method was semistructured interviews.

After receiving approval to proceed with data collection from Boise State University IRB (Appendix A), all participants signed informed consent forms (Appendix C) to indicate their willingness to be participants in the study. The consent form explained the intent of the study and the potential risks to participants. Participants who gave their consent received identification codes to maintain anonymity (P1–P8). I then transcribed all the Zoom data into a written document using Microsoft Word.

Interview transcripts went to the participants via email for verification. Stored digital copies of all signed informed consent forms and transcripts, coding and additional interview data, and email verifications of transcripts were kept in a secure, password protected folder on the Boise State University server. Interview data collection took place within a 21-day period after the provision of informed consent. Transcription and responses for verification took an additional 28 days after the final interview.

Data Analysis Procedures

The data analysis began after the collection of interview responses using video conferencing file outputs (.MP4) and interview notes (.docx). Initial transcription of MP4 data used Zoom transcription protocols, and then were matched against the audio output from the recording to ensure exact transcription of the participants' words. All transcripts were edited and saved using Microsoft Word into individual documents named with the participant code name and interview date. I used two different data analysis techniques for the study: Moustakas's (1994) modified van Kaam method, and NVivo 1.6.1 qualitative research software program to analyze the data and to reveal emerging themes.

The steps for analyzing the data from each participant's interview followed Moustakas's (1994) seven steps: listing and preliminary grouping, reduction and elimination; clustering and thematizing the invariant constituents, identification of the invariant constituents and themes by application, developing individual textural descriptions for each participant, developing individual structural descriptions for each participant, developing textural-structural descriptions for each participant, and developing composite textural descriptions and composite structural descriptions for the participants as a whole.

From the participants' transcribed audio interviews, I captured codes from the text and structured them into parent and child codes within each of the questions in the semistructured interview. As I developed and categorized codes across all transcripts, themes emerged. Appendix E details the codebook of responses from code analysis within the NVivo 1.6.1 qualitative analysis software program. Triangulation of data from various participants through analysis of responses resulted from the emergent themes. Triangulation of information from the NVivo 1.6.1 qualitative analysis software program and van Kaam method preserved the responses from each participant. Recurring themes formed a basis to determine when data saturation occurred.

Findings

General Simulation Characteristics

Before diving into thematic analysis and findings, it is important to set the context and defining characteristics of what these business simulations entailed from an implementation perspective. Each simulation described by the participants was longitudinal in nature, meaning it took place over a defined period of time and was not either a one-time event, or an 'open world' type experience where learners could return at their leisure to practice or perform within an environment. A majority of the simulations were aimed at leadership development, with a select few focusing on technical development, or a hybrid of the two major topics.

Technology components as described by the study participants were a combination of interactive laptop-based programs for technical engagement (practicing auditing techniques for example or examining controls and deficiencies in data within a system) with facilitated live or virtual live components using fact patterns in a variety of

case studies with supporting data to accompany a digital portion of the simulation. For simulations that were addressing leadership training in these organizations, the focus was using online simulations for data collection, virtual engagement and interactivity, and dissemination of content/knowledge, but had combined the content delivery with live facilitated discussions and breakouts with key decisions being made live in a group setting and based on the data collected, with responses and information being entered back into the system for recording/scoring.

Collaborative components were also of note from the participants. While thematic analysis goes into detail on collaboration and measurement topics, it was noted that most of the simulations had live or virtual live collaboration and team-based scoring, rather than individual practice and individualized scoring mechanics. Only two of the simulations described had individual digital-based approaches with individual scoring.

Thematic Review

Following review of the listing and grouping (Appendix E) to cluster the invariant constituents, and analysis of each question responses, the emergent themes were the themes with the highest frequency during the individual interviews with the participants. The themes that emerged are spread across multiple participants, as follows (Table 3):

Table 3   **Themes and Subthemes by Research and Interview Questions**

Research Question	Theme	Subthemes	Question(s)	Number of Participants	Number of References
RQ1	(1) Needs intake and leadership support		Q7	7 (87.5%)	22
		(1) Subtheme 1: Leadership Commitment in Concept Development	Q17, Q18	4 (50%)	6
	(2) Safe space to practice		Q7, Q9	5 (62.5%)	10
	(3) Innovating on current learning curricula		Q7	5 (62.5%)	7
RQ2	(4) Higher degree of engagement		Q11, Q12, Q13, Q15, Q16	6 (75%)	9
	(5) Positive measurement results		Q12, Q13, Q14	7 (87.5%)	13
		(2) Subtheme 2: Challenges with long-term measurement approaches and DBSGs	Q 15, Q16	4 (50%)	11

Theme 1: Needs Intake and Leadership Support

In support of RQ1, Interview Question 7 addressed the strategic and business goals of the organization including the research and decision-making processes involved. Some 87.5% of the study population referenced needs intake coupled with leadership understanding and support of the needs, with 22 distinct references throughout the eight interviews. All but Participant 5 referenced an understanding of the needs plus leadership awareness and support of the needs.

Common trends in the theme included the sense that leadership needed to be empowering and actively involved from the start. Participant one stated, "in the sense that they were very interested in exploring and innovating an approach that was unique." This was further reflected in other participants' responses that leadership needed to either have or look to gain clarity regarding the needs of the organization (participants 3 and 4). This was reflected and represented both from the employee as well as the consultant perspective, but more so from the consultants (participants 3, 4 and 8).

Each of the consultant participants discussed in great detail the needs intake process, and the critical success factor of establishing problems, and desired outcomes as the first step in their process, and how leadership was an integral part of that determination. Participant 4 stated, "For the decision-making process, we do in most cases a half day concept workshop.… Out of that half day you receive a broad concept, how we can help you, how we can solve your problem, how we can tackle the challenge." Participant 8 illustrated nearly the same exact process as well, "So that is exactly how I go in in any organization, I say what is it that you're trying to achieve. What is it that you really want to do; what's the end goal here; what's the end game?"

Subtheme 1: Leadership Commitment in Concept Development

One subtheme that was represented by half the participants was the value of getting not only leadership sign-off, but also, leadership representation and buy-in for the conceptualization and design of the DBSG. Participants 1, 4, 6, and 8 each referenced a phase in early conceptualization or design where leadership buy-in was a positive impact towards the success of the program.

Participant 1 discussed having leadership commitment and trust in the process as well as involvement as a success factor for the DBSG, "the leadership commitment to having success with it and the trust, of the risk that was being taken. I think that was important for people to feel comfortable that we were going to try some things that were new and not having that fear of failing. That was often, again, reinforced through constant communication so it gets back to it sort of cliche right but that communication across levels within the organization." Participant 3 put this more succinctly by simply stating, "get the client integrated in your concept development as soon as possible." Participant 4 added this upon reflection of key success factors for DBSG implementation, "Looking back on the last 15 years, the more the client was part of the project, the better the results, the better the learning program was."

There were common terms concerning leadership involvement and needs intake. These terms included language on exploring organizational challenges, leaders identifying perceived needs, and gaps or actual business risks and concerns. The language also captured information on the decision-making process, particularly how participants worked with a leader or client on identification of needs and challenges and then explored potential solutions. Additionally, Participants 3, 4, and 8 all mentioned running a more formal needs analysis and workshop-style exploration of gaps or problems, and each of those participants was a consultant to financial service organizations. Employees within organizations (Participants 1, 6, and 7) had a less formal approach in working with their leadership and gaining buy-in on the decision to move forward with a DBSG. The full details of each participants' quotes on this specific topic are included in Appendix F.

Theme 2: Safe Space to Practice

In support of RQ1, Questions 7 and 9 allowed participants to elaborate on the goals and reasons for development of a DBSG in support of identified needs. As participants discussed the goals for the DBSG or the reasons they decided to develop one, the concept of providing learners a safe space to practice emerged as a consistent goal and reason, as referenced by 62.5% of the participants in the study.

Participants 2, 3, 4, 5, and 8 discussed providing a safe space as a goal/reason for development. Participant 3 stated that simulations can be effective when, "specific practice [is] needed to be both conducted and then repeated. This is especially true in heavily regulated industries where there's a lot of really particular detail that needs to be followed by those who are working in those industries."

This concept was taken a step further with regards to heavily regulated industries such as Financial Services, where a financial service company was using a simulation to help leaders not only test organizational and business development strategies, but also include team-building, communication skills and leadership dynamics into the experience. Participant 8 stated, "[The simulation] shows you how you react, it shows you how the team forms together, it fosters an environment of having the right conversations, but it's still safe, because if they fail, if they tanked their company … if [they] make a huge mistake, then, nothing has happened, and they can use this as an opportunity to learn."

Most participants referenced the concept of having a safe space to practice, and they further clarified in the content above that the safe space was not just for psychological safety or a place to experiment; it was also noteworthy as a constructivist

approach to learning. It used experiential learning to construct an approach and scaffolded knowledge from the learners' decisions and experiences, as well as the experiences of other learners participating in the DBSG alongside them. Full participant quotations on theme 2 are included in Appendix G.

Theme 3: Innovating on Current Learning Curricula

In addition to Theme 2: providing a safe space to practice, and in support of RQ1, Questions 7 and 9 also indicated an additional theme with the same level of comment among the participants. As participants discussed the goals for the DBSG or the reasons they decided to develop one, the concept of innovating on current learning opportunities emerged as a consistent goal and reason, as referenced by 62.5% of the participants in the study.

Participants 1, 2, 3, 6, and 7 discussed the need for the organization to innovate on its current curricula as a goal/reason for development. Participant 3 spoke about using the innovation of a DBSG as a motivating factor, "These kinds of things are new enough that they seem kind of cool and interesting." Participant 6 continued with that theme, "We were talking about just really 'breaking the mold,' so to speak, for assurance and tax primarily in our leadership programs." And Participant 7 summarized the theme with a simple quote about leadership's desire to innovate, "The thing that drove us to do it was, the need to do more." The full transcript of participant quotes relative to theme 3 are included in Appendix H.

Most participants referenced the concept of innovating on current learning curricula and experimenting with offerings to learners, and they further clarified that innovation was not only to provide a new experience as a motivating factor (Participants

3 and 6), but also to change the approach of learning interventions to address key strategic needs for the organization (Participants 1, 2, and 7).

Theme 4: Higher Degree of Engagement

In support of RQ2, Questions 13, 14, 15, and 16 allowed participants to elaborate on learner participation and the impact of the DBSG on motivation, engagement, and specific observed impacts relevant to these topics. As participants responded to these questions, a clear theme emerged around realizing a higher degree of learner engagement, as referenced by 75% of participants in the study.

Participants 1, 2, 3, 4, 7, and 8 discussed an increase in motivation due to a variety of characteristics of the implemented DBSG. Participant 2 explained this higher degree of engagement based upon their experience of facilitating a simulation, "the dynamism of that in like a classroom or whatnot contributed to 'wow this is actually interesting!' Like, it felt very deep for them." Participant 3 directly referenced increasing engagement, "One of my favorite parts about these simulations is that it tends to be easy for the learner to see that it's useful.… The thing that I've seen come out most positively from working with simulations really has been to learner engagement." Participant 4 discussed the impact of various motivating factors found in DBSGs as a positive impact to engagement "From apprenticeship guys, up to executives, in various industries…it is engaging, it motivates, you got a competition.… So various triggers of a personality and motives [are] being brought out for the business simulation itself." The full quotations from each participant relevant to theme 4 can be found in Appendix I.

Most participants references the concept of a higher degree of learner engagement, and they further clarified in the content above that connection to relevancy

of role as well as realism in scenarios and connection to emotions were key motivational components leading to deeper engagement. Participants 2, 4, and 8 each referenced either realism and applicability, or connected them to participants' emotions in some way as key components of engagement with the DBSG. Participant 3 supported this indirectly with a quote about the challenges with motivation and engagement in traditional learning interventions.

Theme 5: Positive Measurement Results

In support of RQ2, Questions 13 and 14 allowed participants to elaborate on measurement results from DBSGs. As participants responded to these questions, a clear theme emerged around positive impact resulting from a variety of measurement efforts, as 87.5% of the participants in the study noted.

Participants 1, 2, 3, 4, 5, 6, and 8 discussed measurement impact across a variety of measurement levels and areas within the DBSG. One key factor Participant 1 commented upon was the ability to get real-time results from the DBSG and apply that to a live debrief, and the power this mechanism contained, "I think the power was [that] the instructors were able to see reporting at both an individual and aggregate level, and could quickly, almost like an item analysis and a final exam, could do that analysis in their results of these work papers and say, 'here's the common areas that this audience is struggling with. And I can see why they're struggling with it based on the answers they're providing.' So, they could then do a more custom debrief for feedback session." Participant 3 reinforces the ability of the DBSG to measure not only immediate knowledge transfer and satisfaction but also value, "The real measure of a successful training program of any kind, and certainly a simulation like this one, is the way it takes

those who are going to be languishing and kind of at the bottom and brings them up, at least to the middle of the pack."

Additional context around the positive measurement results was not only from knowledge transfer, or satisfaction with the experience, but also long-term gap and needs analysis. Participant 5 explains how the data collected from the simulation was more than about the individual's experience and knowledge but led to deeper understanding for the organization around potential issues or gaps, "We also started to use those simulators to help us figure out where are our biggest needs for training and being able to provide very accurate data.… What I think it did more than seeing an improvement is, it highlighted areas of not only where we might want to train more. But it also highlighted areas of where we needed to improve process and procedure." A complete table of all relevant quotes from participants on effective measurement are included in Appendix J.

Most participants referenced the concept of the positive impact of the DBSG based on measurement results. Further analysis of participants' responses indicated that it is easier to measure more technical or specific procedural content than it is to measure decision-based outcomes for leadership DBSGs. Participants 1, 2, 5, 6, and 8 each referenced specific measurable outcomes within the sim, or consequentially, but still in support of the impact of measurement, and they referenced the difficulty of specific measurement based upon the topic within the DBSG (Participants 3 and 4).

Subtheme 2: Challenges with long-term measurement approaches and DBSGs

While most participants recognized the immediate impact of a DBSG to the learner, there were identified challenges with longer-term measurement efforts for the organization relative to the simulation. In support of RQ2, Questions 15 and 16 allowed

participants to elaborate on measurement results from DBSGs, specifically what challenges were represented in implementing a DBSG. As participants responded to these questions, a clear subtheme emerged around challenges of measuring long term effectiveness and organizational impact, as 50% of the participants in the study noted.

Participant 3, when discussing challenges encountered with development and deployment of a DBSG, indicated that "The biggest challenge for me is really measuring the effectiveness. The more complex the situation gets the harder it is to tell it it's the training that is actually had an impact. Now these simulations are necessarily complex, and so that makes the measurement necessarily difficult." Participant 4 reinforces this when discussing using specific data points within a DBSG as part of overall learner performance analytics, "In all the 12 years in the business sim industry, we never had, so far, a client who was actually trying to use the data, as you said, clicking points, but also results in the business game, to use this for analytics reason." And additionally, participant 8 went so far as to warn against trying to measure too much, "I always try to say, do not measure too much in a sense of a sim is still a learning environment. And, in order for a learning environment to be safe, there cannot be too much measurement in there."

Summary

The purpose of this study was to explore the perceptions of a purposive sample of eight leaders involved in the implementation of a DBSG within a financial service organization (either as a consultant or employee of the financial service organization) to understand the alignment between the goals and reasons for development as well as the decision-making process leading to the implementation of a DBSG better, and then also

to understand their experiences with learner motivation, engagement, and measurement of those results. Eight participants were interviewed, each providing their experiences and perceptions from having taken part in at least one DBSG implementation over the past 7 years.

The method and design resulted in the development of themes as well as abstract meanings from the experiences and participants' perspectives (Creswell, 2005). The interviews included open-ended questions, which were then transcribed and the participants verified their transcription. Five prevalent and relevant themes resulted from the analysis of the responses to the research questions for the study.

In support of Research Question 1: "How did organizational goals impact the decision-making experiences that led to the development and implementation of a DBSG?" three themes emerged. Theme 1 addressed needs assessment and leadership support and understanding of the needs as a consistent topic, with 87.5% of participants describing their experience as part of the decision-making process. Theme 2 identified the goal of providing a safe space for practicing the content of the DBSG, with 62.5% of participants indicating this was a driving factor for the decision to implement. Theme 3 also highlighted that implementation represented an innovation on current learning experiences within the organization. This theme also included responses from 62.5% of study participants.

In support of Research Question 2: "What was the perceived impact of the DBSG on learner motivation, engagement, and retention?" two additional themes emerged. Theme 4 identified a higher degree of learner engagement through the implementation of a DBSG in the organization, with 75% of respondents indicating that through a variety of

mechanisms, the DBSG led to an increase in motivation and engagement from the learner. Theme 5 identified positive impacts of the DBSG through measurement results, with 87.5% of respondents indicating either a recognizable or perceived positive impact due to the implementation of a DBSG within the organization.

Problem Statement: Given the perceived value digital business simulation games provide with regard to conceptual frameworks such as constructivism, and motivation, engagement, and retention, there is significant lack of research around the alignment to business strategy, use, and outcomes of DBSGs within a corporate learning environment.

Research Question 1:
How did organizational goals impact decision-making experiences that led to development and implementation of a DBSG?

Research Question 2:
What was the perceived impact of the DBSG on learner motivation, engagement, and retention?

Data Gathering Approach: Phenomenological study using semi-structured interviews with 8 participants from a distinct population (via collected demographic data) tailored to the focus of the research questions.

Q1 Analysis: The detailed descriptions of the needs of the organization as well as the strategies the project were aligned and analyzed against the model of the phases of rational decision-making process. Additionally, initial desired learning outcomes were explored in alignment with overall organizational strategy.

Q2 Analysis: Review the experience and details provided by the subjects and align to motivation, engagement and retention theories to analyze whether decisions made in question one had an impact on question two.

Key Findings RQ1: Through analysis of each participants' responses, the following themes were discovered:
1. Needs Intake
    a) Leadership Commitment
2. DBSGs provide a safe space to practice
3. DBSGS provide an innovation on traditional learning organization curricula

Key Findings RQ2: Through analysis of each participants' responses, the following themes were discovered:
1. DBSGs lead to a higher degree of engagement
2. Positive measurement results obtained
    a) Challenges with long-term measurement approaches on the impact of DBSGs

Impact: Q1 examined alignment between the needs and strategy of the organization and the experiences of the L&D professionals that led to deciding to develop a DBSG. Through analysis of these experiences, parallels or discrepancies between needs of the organization and the decisions made by L&D functions, applied through the lens of a decision-making framework were determined.

Impact: Q2 provided analysis of the perceived impact of the DBSG through the framework of motivation, engagement and retention and identify whether the decision to implement was a positive impact to the organization and to the learner.

Figure 6   Research Table with Key Findings

Chapter 4 has included a detailed description of the pilot study, population, data collection procedures, data analysis procedures, and themes resulting from the interview questions in alignment with the research questions. Chapter 5 provides interpretations and recommendations based on the results from the data and the literature review, as well as additional findings outside the scope of the research questions.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

Introduction to Conclusions and Recommendations

As organizations continue to feel a squeeze to ramp up talent to higher degrees of competency faster than ever before, they will continue to explore new technologies and innovative ways to develop individuals more efficiently in support of the needs of the organization. Not only will they look to onboard new hires to greater levels of competency, but organizations will also need to prepare the existing workforce for future capabilities and skills (Helyer & Kay, 2015). This study examined the implementation of DBSGs in a regulatory environment. My experiences, and the available pool of potential interview candidates, led to refinement of this research not only to include a specific industry (financial service) but also to identify the key factors leading up to the implementation of the DBSG, as well as the impact of the implementation of the DBSG on learners and the organization.

To address the need to identify key factors relevant to the implementation of a DBSG, and to understand the impact of this implementation, a transcendental phenomenological study was conducted. I sought to discover how eight L&D leaders working in or consulting for financial service organizations with a minimum of 10 years' experience and at least one DBSG implementation as part of their past 7 years, had experienced the decision to implement and then the impacts of the implementation of a DBSG. Each participant answered the same series of open-ended questions on the process leading up to and the implementation (Research Question 1) and then their

experience with the impact of the implementation (Research Question 2). Respondents gave detailed accounts of their experiences through the series of interview questions around project background, learner participation and engagement, lessons learned, and key takeaways.

Chapter 5 provides a discussion of the research findings. This chapter presents and discusses the results of the study as they relate to the literature review and the conceptual framework. It also presents the limitations of the study, the implications of the findings for practice, recommendations for further research, additional practice recommendations for further research, and a conclusion.

Summary of Results

Using a transcendental phenomenological methodology, I compiled data from eight participants using purposive sampling techniques to ensure demographic homogeneity to meet the requirements of the study. To study the implementation and impact of DBSGs within corporate learning, and more specifically within a financial service organization, I proposed the following two questions:

1. How did organizational goals impact the decision-making experiences that led to the development and implementation of a DBSG?

2. What was the perceived impact of the DBSG on learner motivation, engagement, and retention?

The research investigated the organizational goals and the decision-making experiences that led to the development of a DBSG. The research also investigated the experiences implementing the DBSG and the impact on learner motivation, engagement,

and retention. The chosen method was selected to understand the specific experience and approach of a very limited population.

The interview questions aligned with the theoretical framework, which provided guidance for the study. Outside the demographic section of the interview questions, the design of Section 2 questions followed a rational decision-making process (G. Johnson et al., 2005) as well as an examination of how the decision to develop a DBSG aligned with understanding the initial desired learning outcomes and with overall organizational strategy. Sections 3 and 4 in the interview questions addressed the impacts of the implementation of the DBSG in alignment with the theories of motivation, engagement, and retention, examining how the DBSG affected learners' motivation and engagement as well as the subsequent measurement of the impacts on both the learner and the organization (Kim & Watson, 2017). Section 4 also allowed for the participants to provide self-examinations on the lessons they learned, key takeaways from their experiences, and recommendations or best practices for organizations exploring the implementation of a DBSG as a solution.

Discussion of the Results

I sought to answer to research questions by allowing those with specific DBSG implementation experiences to share their knowledge of the processes, goals, and requirements leading to the decision to implement a DBSG as well as their experiences with the impact of an implementation. Table 9 shows the themes that emerged from the coding phase of the study. This section describes each theme as it relates to the research questions. The descriptions also reveal the phenomena the participants experienced. I

expected participants to give honest accounts during the data-collection phase of the study.

Table 4   Themes in Relation to Research Questions

Research Question	Theme	Interview Question
RQ1	1) Needs intake and leadership support	Q7, Q8
	Subtheme 1: Leadership Commitment in Concept Development	Q17, Q18
	2) Safe space to practice	Q7, Q9, Q10
	3) Innovation on current learning	Q7
RQ2	4) Higher degree of engagement	Q11, Q12, Q13, Q15, Q16
	5) Positive measurement results	Q12, Q13, Q14
	Subtheme 2: Challenges with long-term measurement approaches and DBSGs	Q15, Q16

Research Question 1 – Results and Findings

The results of the interviews and the subsequent data analysis indicated a strong need for an appropriate needs assessment by the organization as part of the preliminary decision-making phase. The results showed that not only a clear understanding of the needs, but also leadership understanding and support of the identified needs was necessary. Chapter 4 provided the results of a needs assessment and leadership support of those needs; however, further examination of participant responses also told the story of what can happen when organizations omit this key part of the decision-making process.

Participant 7: ultimately the thing driving the need, driving the project, was that leader person saying that people didn't know how to do something and insisting we developed a solution for that. There was not enough work done to validate what people actually did or didn't know. So that essentially was the whole crux of the whole thing … like okay, people don't know how data flows through the ERP system.… We will build a sim that shows how data flows from the ERP system and teaching them basic terms of that. So, we did do that. We did build a sim that accomplished those things. But we did a pilot with a couple different groups and interns, and others and then they were all like "we know all

this stuff; this is basic, fundamental stuff we've learned in college.… You need to really zero in on the needs of the learner and validate the need of the learner and make sure that what you're building is going to address that need. I think we if we had taken some time to do some needs analysis would learn, we were to come to a different conclusion on what the same would have taken.

The concept of the Importance of this step as a key component of the decision-making process leading to implementation is further supported by the following:

> *Participant 8*: the biggest mistake a consultant can make is coming in and say, I have the solutions, and I have the tools and here you go. Right, that is not how it works, you will have resistance everywhere in your organization. What you need to do is be like "explain to me, what is it you're trying to do? Explain to me how you were thinking about doing this, and now let me help you get this done."

In support of Research Question 1, participants were asked additional questions relating to the goals or reasons for development (the results of the needs analysis). Themes 2 and 3 identified a main goal and a main reason for undertaking the development of a DBSG. Theme 2 explored the goal of creating a safe space for learners to practice and explore content on a variety of topics, or a safe space to practice skills and to learn from their mistakes and construct a framework of knowledge to apply on the job. Theme 2 directly supported a situative perspective of learning in which learners are processing information through a process of interactions that depends on the context or specific setting (Brown, 1994; Greeno, 2007; Greeno et al., 1996; Lave & Wenger, 1991; Phillips & Soltis, 1998). Ten distinct references from five participants discussed the need for a safe space to learn and the benefits of this environment to the learner. In addition to the refences in Chapter 4, participants discussed additional support via Questions 15 and 16 in the interviews, allowing them to expand on their own key takeaways and lessons they learned from their experiences implementing DBSGs:

Participant 3: audit is obviously a very high-stakes situation for the person being audited and a lot of things are like that, so simulations are great at helping the learner practice in a safe space.

Participant 4: I love the approach of learning through mistakes … yeah learning sometimes something must hurt. And this is … the more mistakes you can make the better is the opportunity to learn out of it.

Participant 5: there's a lot of value in them. I think, mostly from the perspective of giving professionals, or you know, whatever, employees, the ability to make mistakes and a safe environment and repeat them over and over again until they can get them, you know correct.

Participant 8: It's wonderful because again it's safe, so you can reflect with the folks and be like "Okay, what happened there, why did you get frustrated what happened when communication and all these things went overboard?" and didn't work so well.

Theme 3 examined a reason for pursing the development of a DBSG, namely the need to innovate on current learning curricula or provide a differentiated experience for the organization's learners. Five participants discussed the concept of providing something new as a motivational factor as well as a way to impact engagement and knowledge retention positively. Concepts like: "bring[ing] the curriculum to life" (Participant 1), "providing a new experience" (Participant 3), doing something besides "checking the box" (Participant 2), "breaking the mold" (Participant 6), and "the need to do more" (Participant 7) were all primary reasons to explore and ultimately to implement a DBSG within the organization.

Analysis of the themes in context with the factors leading to the decision to implement a DBSG provided recognition of the need for partnership between L&D departments and general organizational decision making. The collected data reinforced the need for strategic alignment and decision making based on the analysis of the approach, goals, and outcomes that a decision-making framework provides. The high frequency of responses and the key takeaways that identified this as a critical success

factor suggest that this is a key component in the success of a DBSG implementation, and it will also have a positive outcome with regards to the impact of the DBSG on engagement and retention.

<u>Research Question 2 – Results and Findings</u>

The results of the analysis of participant data indicated that a DBSG has the potential for a higher degree of learner engagement. There is a well-established correlation between motivation and engagement and increased knowledge gain. Eseryel et al. (2014) examined the premise that game-based learning environments can enhance player motivation, which in turn increases engagement. Theme 4, as discussed in Chapter 4, identified that most participants experienced an increase in learner motivation and engagement across a variety of factors.

The participants recognized a higher degree of engagement based on a variety of factors. First, participants discussed motivation as either intrinsic or extrinsic. Examples of intrinsic motivators that accompanied the deployment of the DBSG were the need for the DBSG to be relevant to their learning needs and to provide a real-world and immersive experience. The need to provide relevance and real-world application to a learner is a standard requirement for any adult learning intervention. Knowles (1970) and many others have discussed this as a key tenet of andragogy, so it should come as no surprise that participants discovered and elaborated on this. Responses by a variety of participants reinforced this concept by reporting that they saw increases in engagement based on the immersiveness and real-world applicability within the DBSG.

> *Participant 2*: clearly a course was not a way to do it [develop an enhanced understanding of the client] because it wasn't dynamic enough, so that's when we started going down this road of business simulation route. It feels real I guess is my point. And because it feels real, you're like "Oh, this is cool," you

know, like I don't feel like everybody who is going through this experience has a similar experience as me because I feel like my inputs are really driving what the outputs are.

      Participant 6: we just really didn't find any way that we could do that, you know, without putting them into more of an immersive program that they would have identified, or they would have, I guess, competitive outcomes.

Extrinsic motivators are motivators that impact learners independently of their own internal motivations (like career advancement, addressing a self-identified knowledge gap, etc.). One key extrinsic motivation that DBSGs provided was competition. While Theme 4 did not directly address this, it is worth noting that not only was competition a part of each DBSG, but also that motivation and engagement increased with collaborative or team-based competition. Keys and Wolfe (1990) pointed out that there are three necessary factors for effective management learning: dissemination of content, opportunities for experience, and feedback. Competition provides a mechanism for feedback that also has links with emotion, and therefore incorporating it within a team-based DBSG had an impact on motivation and engagement.

      Participant 1: when they [tax sim participants] would break for lunch, you had teams not wanting to go to lunch, because they were so engaged trying to further enhance their score result within the sim. So that kind of organic behavior, or engagement, that was that was pretty cool to see.

      Participant 2: I sat in, and you could see … nobody left. I mean everybody was down.… It didn't feel like learning because they were dealing with business problems, that we're dealing with something that was very realistic. When you see another team working on something and Okay, we need to beat them, right?

      Participant 4: And then suddenly this competition feeling gets in place and [participants] said, "okay now the facilitator yeah, the other team receive props from him because they perform very well … and now guys, now we have to improve." So this motivation commitment aspects [are] much better.

      Participant 6: we have a leaderboard within the LMS that allows, and it starts out with I think number of issues, I'd have to go back and look, I should probably have that. You know, number of issues identified because different

teams get the same client. And so, we get, you know, I can see so we're working on Client X, Y, Z, and I can see that you've identified 15 issues…. I've only identified three; what's wrong, what am I missing?"

The analysis of the participant responses suggested that there were higher levels of engagement when there was a connection to learner emotion, a team based/collaborative and competitive element, and the DBSG was immersive and directly applicable to participants' roles and needs.

A higher degree of engagement would naturally lead to greater positive measurement results, as Theme 5 indicated. Faria and Wellington (2004) identified various advantages of BSGs, including (a) experiential learning, (b) integration of different functional areas, (c) application of theory, (d) demonstration of the consequences of decisions, (e) teamwork and involvement, (f) interactive/dynamic exercises, (g) realism, (h) exposure to business competition, and (i) fun, interest, and motivation. The data analysis indicated that participants recognized and confirmed most of those advantages through their related experiences, most notably, Advantages 1, 4, 5, 6, 7, 8, and 9. Consistency of data within measurement results, performance outcomes, degrees of confidence and general comments from participants suggested that DBSGs are providing learners with greater satisfaction with the experience and greater opportunities for learning transfer. The results also suggested that DBSGs provide organizations with safe spaces for learners to apply information, make critical decisions, and in a few instances, recognize significant ROI or positive organizational impacts.

Significance of the Study

Corporate L&D departments face increasing challenges in supporting the strategy of the organizations within which they work. The ability to provide learning to address multiple competency development goals, skill gaps, and workforce orientation, and to

provide an engaging and impactful experience is necessary to remain competitive in evolving business landscapes. Given the established value digital business simulations can provide within a variety of conceptual frameworks, including constructivism, motivation, engagement, and retention (Gee, 2007; Wu et al., 2014), as well as satisfying a variety of goals and learner needs in alignment with an organizational strategy, there is a significant lack of practical research and understanding about how organizations decide to utilize a DBSGs, and what the impact of the implementation is for the learner and the organization.

As businesses continue to explore and push the boundaries of continuous skill development for their workforce, both for upskilling and remaining competitive in their marketplace (Deubel, 2006), the potential for learning from simulations and games to satisfy this need for the organization and the learner remains great. Allen and Hartman (2008) posited that evaluating simulations and games activities has proven difficult. The current study may bridge some of the gaps in the literature. This study provides additional insight into not only the value of DBSGs to a financial service organization, but also the processes leading up to implementation. This provides input into what real-world practice has had a positive impact on the organization, but it also provides input into critical success factors for implementation for organizations exploring DBSGs as a potential solution in alignment with their organizational strategy.

Emergent Themes

Additional questions were asked with open-ended data collected from the participants' experiences regarding lessons learned or best practices concerning DBSG implementation. I assumed participants would cover a large variety of topics and simply

allowed participants to provide top-of-mind thinking based on their experiences. Some of the responses to Questions 17, 18 and 19 provided further support for the themes identified in Chapter 4 (such as Theme 2: providing a safe space, and Theme 4: higher degree of engagement), which resulted in additional analysis and stronger conclusions. However, a variety of topics arose that, while not consistent across all participants (which is not surprising, given how open-ended the questions were by intent), provide valuable insight for practitioners who may be in the nascent stages of analysis or design and development of a DBSG.

Emergent Theme 1: Budget for Development and Maintenance

Participants mentioned budget considerations for development and then considerations for maintenance, which also led into qualitative data on shelf-life and customization costs. Some 62.5% of participants mentioned the costs of development and maintenance at some point in the interviews, as follows:

Participant 1: Every year, at least within the first few years of the first year launch … it was iterated improved, and even changed hands, right, where there was a method to pass on responsibility to managing and supporting and implementing.

Participant 2: this may have a shelf life of a couple years because the markets change, you know, like now it'd be like for doing FS [financial service] you know, like three years ago … nobody would talk about crypto.… Now crypto is a big part, so probably one of the companies [in a sim] will be crypto, you know?

Participant 6: I feel like you know what works well, I mean now, as of today, It's evolved to, I feel it's, you know, we're making continual updates and pieces like that, but it really is a program that requires review."

Participant 7: I mean, this, this project was a couple million-dollar project.… Shocking, it was shocking at the time, and shocking when we had to cancel it, that this is what we, we end up with. So that I think is one of the biggest challenges with it is it's just it's expensive and costly to build a sim.

Participant 8: "If you [are] talking [a] full-blown sim that they developed for themselves, and that is really something that represents their ecosystem, their business model in a one-to-one setting, that's a big investment. You're talking two, three, four hundred thousand euros or dollars, whatever it is. That is not an investment anybody's taking lightly."

This is a significant consideration for organizations as they explore DBSGs, because they need to examine the initial cost needs, as well as the cost of delivery and maintenance of the simulation.

Emergent Theme 2: Challenges and Failures

In response to Question 18 "What would you have done differently?" participants included a variety of topics as their responses to provide context to their experiences and what lessons they had learned from implementations of DBSGs. More specifically if there was an issue or negative response to a DBSG, it asked how they would go back and mitigate that issue. The following represents the challenges or failures that participants discussed most frequently.

Technology: Three participants indicated that challenges with technology had a negative impact on the delivery of the DBSG.

Participant 1: challenges just with the technology itself, which, which can be a barrier to, not that the concept of design was the problem, right, it simply failed for other reasons. You have mitigation strategies, honestly, right, for example, if the bandwidth isn't working, what, what impact does that have on what you're trying to accomplish based on the technical design of what needs to happen?

Participant 2: Some of the biggest issues that we had early on were how smooth it was from like a tech perspective: getting the technology to work very seamlessly, because I think a couple of issues that we had early on were just, teams were getting confused with where to enter it in the tablets, and then some things popped up in German or things like that, you know, it was it was more clunky than it should have been.

Participant 7: But one thing that's interesting: I remember one of the challenges in the first group was the software had problems. And so, it was incredibly slow and lagged, so people had a lot of frustration around just using it:

that was a big problem. The other big failure was … we're not a technology programming company and we don't know what it takes to manage programming or to test it properly and vet it properly. So, we basically hired a company to do that programming and that was smart but … did we hire the right company do the programming? I don't think we did. We hired one that had done sims before but, ultimately, this thing didn't work well. We had huge issues with lag and based on [the] number of people who put [work] into it, … I mean, there were huge issues with that.

Thus, technology issues can have a negative impact on learner experience, leading to a reduction in motivation and engagement. Participants discussed mitigating factors to combat these issues, such as additional end-user testing, load-testing, and questioning the impact of technology on design and development.

Timelines: Three participants also indicated the need for extended timelines and adding more time to phases of analysis, design, and development to impact the delivery and outcomes of the implementation of a DBSG positively.

> *Participant 1*: I think when you're, when you're doing something new, where you don't have an example, or repeatable process, you make a lot of assumptions about how long things take, right. And that, you know, is, is an area where you have to, you have to again, upfront, recognize there's some ambiguity, and when it comes to a timeline, there's going to be some fluidity and unlikeliness of getting it done.

> *Participant 6*: Probably would have had a better plan I probably would have held it off a year and actually had all the pieces in place [laughs].

> *Participant 7*: I would have pushed for a lot more needs analysis validation [at] the beginning, but the reality is [that] a lot of times as a business, you don't have time for that robust validation and this leader that's looking for us to do something … those projects are difficult and time consuming to program.

Each response discussed the importance of providing teams enough time to accomplish the necessary tasks for design or development and, in the case of Participant 7, re-validation of the needs and audience analysis.

Emergent Theme 3: Success Factors

      The collection of qualitative data and in-vivo coding allowed for the collection of a list of success factors. The factors in Additional Findings 1 and 2 were the largest with regard to topical alignment through the interviews; however, there were a few others that merit consideration by practitioners, and thus they are listed below for consideration with brief quotations from the participants associated with each topic.

      Shelf life: Shelf life needs to be considered from an ROI perspective. Three participants (1, 2, and 7) mentioned the consideration of shelf-life in the analysis of a DBSG as a solution.

      Data to support the learning: Three participants (3, 4, and 5) mentioned that audience analysis also supports the sim design (scenarios) as a key factor for success.

      Participant 3: the more I know about that, about how each auditor is going to spend their time, then we can shape the learning and the simulation around that.

      Participant 4: We [are] trying to get everything, information … all your expertise in our funnel, and then we think through how we can bring it in the pedagogical program, in the software and the programming.

      Participant 5: "I think doing that [data collection analysis] and having to put that up front and think about that up front really helped us with the design of the scenarios and the evaluations."

      Delivery Model: Each participant provided details on the delivery model. Some 62.5% of participants discussed the flexibility of delivery approach and a hybrid model for delivery, with most of the delivery taking place longitudinally (over a period of time), with elements of digital interaction (both synchronous and asynchronous) and either virtual or in-person classroom-based (synchronous) portions. Half the participants also discussed the value of this model in the form of the positive impact of feedback from both the sim and facilitators between rounds. They reported that a larger degree of

learning was happening between rounds in the sim where reports from the DBSG were available to facilitators, and facilitators could tailor remediation or additional instruction based on the reporting from the sim.

Best Practices Derived From Findings

The value and positive impact of a DBSG to achieve a variety of development goals for learners in alignment with the strategy and needs of the organization was a nearly unanimous finding across all participants in this study. Even the participant who encountered negative experiences with an implementation of a DBSG still saw value in the concept, even if their experiences with a specific project provided unexpected or undesirable results. Participant 7 said they would avoid doing large scale sims based off past experience with cost, management, maintenance and long-term value, but also stated, "what I would do is small simulations right… scenarios are huge in learning… so [simulating] scenarios that make the training authentic and real resonate with the learner, there's huge value in that."

With acknowledgement from the participants around the value they've all experienced, there was an opportunity to ask follow-up questions specific to best practices or lessons learned, to help other corporate L&D managers or executives make better decisions from needs analysis through implementation and evaluation phases of the program. While the previous section included additional findings from a statistical perspective based on the qualitative data coding, interview questions 15 through 19 also provided guidance on best practices from the perspective of planning and releasing a DBSG as well as the perception of DBSGs in general as well as specific to their

organization. Consistent themes were discovered across these questions as well which can be used as further guidance for DBSG planning.

1. *The learner as part of the process* – include the learner from the beginning. The value of the learner as part of the design and testing processes in a DBSG was mentioned by a variety of participants. The learner is ultimately 'the client' or consumer of the DBSG solution and therefore significant effort needs to be put forth in the analysis phase to ensure the outcomes of the development will map directly back to the needs of the learner. Participant 1 stated "importance of the learner being part of the development design development process…there are, I think, many opportunities to engage the learner in terms of a way of validating its future success, right, and having that that that broader view of how it's going to play out in the environment." Participant 7 approached this from a lesson learned perspective, "we spent so much time into validating the need with the leader and selling the leader on it, so I would say, the learner was not considered enough in that project." This provides evidence not only to validating the needs and gaps the DBSG addresses from the organizational strategy perspective, but also includes the perspectives of the audience as a driving force in design and development. Participant 2 confirmed this sentiment as well, "in hindsight, being able to kind of more focus on like an end user or learner experience I think probably would be the big thing that I would change." It becomes clear that a focus on the learner experience and satisfying the needs of the learner becomes a key component relative to the success of a DBSG in an organization.

2. *Budget* – DBSGs can be costly to build and maintain. They take a lot of time and resources through all phases of analysis through implementation. In addition to this, there is a cost associated with maintenance. Given the needs and strategies of organizations change more frequently now, and learners need to reskill or upskill with that pace of change, maintenance of content and experience must be considered as well. Having a mechanism in place to maintain and manage the process is a critical component of the success of a DBSG. In support of this, a majority of participants in the study commented on this topic. Participant 1 said, "Every year, at least within the first few years of the first year launch… it was iterated improved, and even changed hands, right, where there was a method to pass on responsibility to managing and supporting and implementing." Participant 2 provided a specific maintenance example relative to changes in scenarios based upon market pressures, "this may have a shelf life of a couple years because the markets change. For [Financial Services], three years ago…nobody would talk about crypto…now crypto is a big part, so probably one of the companies [used in the sim] would need to be crypto you know?" Participant 8 discussed the lack of planning around maintenance and value of the DBSG as a long-term investment, "They have this wonderful sim but everything has to be maintained, has to be updated. They've been letting this lie on the side for the last three years. So…I think they never did the math."

3. *Time to develop* – Complex systems with multiple learning outcomes, addressing multiple needs take time. Multiple participants indicated that they

would have planned for much longer timelines for design, development and testing. DBSGs, while valuable, are also not common tools for L&D organizations to build or buy, and therefore do not have established or repeatable processes relative to the implementation. Participant 1 reflected on their experience developing a DBSG, "I think when you're when you're doing something new, where you don't have an example, or repeatable process you make a lot of assumptions about how long things take, right. And that, you know, is, is an area where you have to, you have to again upfront, recognize there's some ambiguity and when it comes to a timeline there's going to be some fluidity and unlikeliness of getting it done." Other participants spoke about time to plan and be more thoughtful around the needs and solution. Participant 6 said, "Probably would have had a better plan I probably would have held it off a year and actually had all the pieces in place [laughs]." And Participant 7 stated, "I would have pushed for a lot more needs analysis validation the beginning, but the reality is a lot of times as a business you don't have time for that robust validation and this leader that's looking for us to do something…. those projects are difficult and time consuming to program."

4. *Real-world, Applicable and connected to emotions* – One of the pillars of adult learning is that in order to foster engagement and retention, a learning intervention needs to be relevant to the needs of the adult learner and immediately applicable or provide a perceived value to foster that engagement. DBSGs are no different and participants in the study emphasized

this fact. While this is relative to Best Practice 1 Including the Learner as part of the Process, this topic needed its own subsection to include feedback provided from the participants relative to practicality, approachability and connectivity to the learner's role or needs. Participant 2's response to the question on lessons' learned provided an excellent experience relative to this topic, "I think a big reason why it was successful was [because] it was practical. It was like you're making strategic decisions when people went through it…nobody was like 'this wouldn't happen, or oh this seems ridiculous.' It didn't seem hypothetical, it seemed very practical…people were like 'Okay, you know, i'm going to put my best foot forward, because I can see this happening, and this probably has or will happen." Participant 3 spoke about this as well, "I mean the real the real problem with so much of training is that It just doesn't replicate what's going to happen on the job, and that familiarity is one of the most important things we can give someone in a training situation like this. Simulations do that really well." With regards to connecting to emotion and providing a real-world scenario, Participant 8, when discussing a leadership simulation used in a financial services company, stated, "what you will see in any Sim is, it starts to feel so real. You have to tell the story, and you will tell the story so well that it feels so real to them, [that] they really are in that sim and suddenly they have to run the company. They take this extremely seriously and they get frustrated, they get angry, they get scared and sad, they get happy… to feel these emotions, but this shows who they really are…their personalities and that's your sweet spot. You then

come in as a leadership coach and be like, 'What happened here? How did you work to that team dynamic?'"

Operationalization of Best Practices

It's one thing to organize and present information on best practices and findings from experts in the field of study, with dedicated rigidity of practice, care towards methodology and thoughtful analysis. It is an entirely different subject to operationalize the themes, findings and best practices into a world of corporate L&D where the realities of time constraints, budget concerns, competing priorities and enduring flexibility are the rule of law. It is, however, a worthwhile endeavor to use this research and these findings to synthesize the best practices into real-world applicability in an attempt to make this effort more impactful to L&D professionals everywhere. It is, therefore, imperative that the L&D professional embarking on deciding to design, develop and implement a DBSG consider a few key operational targets in order to increase the potential for success; not for the project, but for the learners, and for the organization. First, due diligence must be done on the organizational problems the DBSG is looking to solve. As the project team and stakeholders drill into the problems of the organization, clearer understanding of what a DBSG can and cannot do for the organization will come into focus. Needs intake in alignment with organizational strategy and audience analysis are the nexus of establishing a true DBSG project plan that has any chance of achieving the lofty goals L&D teams set out with at the start of any big program. Set aside time for these activities in your preliminary planning and innovation sessions.

If it is determined that a DBSG would satisfy the needs of the organization, focus groups, needs intake, stakeholder interviews, as well as learner interviews must

commence in order to establish two parts: 1) Confirming the goals of the project will address the problems that this effort is looking to solve, and 2) level-setting expectations of stakeholders, the project team, and learners. By developing a decision-making protocol, a scope document, a roles and responsibilities matrix inclusive of SMEs, and getting stakeholders, the project team, and a key demographic of learners to commit to being involved in key decisions, budgeting (time, resources, and money), testing assumptions, development and delivery, the L&D practitioner, and the L&D team responsible for the DBSG will be a better position to deliver to expectations, limit scope creep, manage roles and responsibilities and deliver a final product that will address the needs of the organization and provide a great experience for the learner.

Another key factors is to make the DBSG relevant to the needs to the learner. While a sim may address or look to satisfy the organizations goals, if the basic tenets of androgogy are ignored, it will be unsuccessful. What this means is simply make sure the learner sees a clear link to their needs, their career, their role in the organization or some other key motivating factor. While evidence pointed to not needing the DBSG content to be directly reflective of the industry or role of the learner, especially in the case of leadership development simulations, the relevance of the learning (the '*why am I here and why should I care*') must be front and center.

A key consideration was connecting to the emotions of the learner to elicit a great level of engagement and then greater retention of the learning objectives and achieving the goals of the program. Participants spoke about the competition factor that greatly enhanced motivation and engagement, specifically in generally competitive atmospheres like Financial Service organizations. However, to operationalize this mechanism to

enhance learner engagement, the L&D practitioner must conceive of mechanisms to not only track achievements, but a way of scoring and displaying these achievements. Corporate intranet sites, certain LMS platforms and even basic excel documentation that can be viewed by participants and updated easily by facilitators (or automatically, depending on the type and nature of the DBSG) adds a new consideration to design and development, and should be addressed early on. Project teams need to consider what will be scored, weight, frequency, and tracking, then consider updates to scoring (real-time or over time) and how teams or individuals can review their scoring and compare to other teams or individuals in the organization.

Recommendations for Further Research

Further studies on the implementation of DBSGs in other organizations and industries are warranted to examine whether the results of this study are consistent, and whether there are differentiators or variables based on types of organization to refine the needs gathering, decision-making, alignment to strategy, and implementation of DBSGs further. A study within this topic would also develop the practical application of theoretical knowledge and provide additional guidance to organizations looking to implement a DBSG.

Additionally, this study revealed gaps in the information as well as inconsistencies of experience. An example of this is within specific measurements of DBSGs. While five participants mentioned increasing competency as a goal for development, clearly defined measurement planning and examination of knowledge gain and transfer was missing from the participants' experiences. Within this potential gap, an examination of modality and delivery method is also warranted to identify the impact on

motivation, engagement, and retention. Participants also had a large variety of delivery mechanisms in their relative experience, and while there was a clear theme concerning the high degree of engagement linked to collaborative learning within the DBSG, other mechanisms of delivery and measurements of engagement would assist in understanding more about delivery of the solution, and thus inform best practices for design and development as well.

Conclusion

This transcendental phenomenological study has examined the experiences of eight L&D professionals with experience implementing DBSGs in financial service organizations. Using semistructured interviews as the data-collection method allowed participants to establish demographics and credentials as leaders in their field and to share their experiences on a variety of topics. These topics related to organizational goals and decision-making for implementing a DBSG at their organization or experiences consulting directly for organizations implementing DBSGs. This study also provided an opportunity for participants to share their experiences of the implementation process and how the DBSG impacted learner motivation and engagement. Finally, it offered the opportunity for participants to reflect on their experiences and offer their thoughts on success factors, challenges with, and perceptions of DBSGs from their perspectives.

Participants generally spoke positively about DBSGs, but they had a range of experience, including some unsuccessful implementations. Through analysis of the transcripts, five relevant themes emerged. The themes were: RQ 1—(a) needs intake and leadership support, (b) a safe space to practice, (c) innovating on current learning; RQ 2—(d) higher degree of engagement, and (e) positive measurement results. The themes

that emerged were consistent with the theoretical and conceptual frameworks relevant to DBSGs, and they reinforced the positive impact DBSGs can have in organizations looking to provide impactful learning solutions to complex problems or scenarios in alignment with the strategic needs of the business.

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APPENDIX A

IRB Approval

B

BOISE STATE UNIVERSITY
RESEARCH AND ECONOMIC DEVELOPMENT
Research Compliance

Date: December 22, 2021

To: Brett Shelton   **cc:** Jeremy Manjorin

From: Social & Behavioral Insitutional Review Board (SB-IRB)
c/o Office of Research Compliance (ORC)

Subject: SB-IRB Notification of Approval - Original - 101-SB21-220
A Phenomenological Study of Digital Business Simulation Games and Implementation for Corporate Learning

The Boise State University IRB has approved your protocol submission. Your protocol is in compliance with this institution's Federal Wide Assurance (#0000097) and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46).

Protocol Number:	**101-SB21-220**	Received:	12/6/2021	Review:	Expedited
Expires:	**12/21/2022**	Approved:	12/22/2021	Category:	6, 7

Your approved protocol is effective until 12/21/2022. To remain open, your protocol must be renewed on an annual basis and cannot be renewed beyond 12/21/2024. For the activities to continue beyond 12/21/2024, a new protocol application must be submitted.

ORC will notify you of the protocol's upcoming expiration roughly 30 days prior to 12/21/2022. You, as the PI, have the primary responsibility to ensure any forms are submitted in a timely manner for the approved activities to continue. If the protocol is not renewed before 12/21/2022, the protocol will be closed. If you wish to continue the activities after the protocol is closed, you must submit a new protocol application for SB-IRB review and approval.

You must notify the SB-IRB of any changes to your approved protocol and the committee must review and approve these changes prior to their commencement. You should also notify the committee if your activities are complete or discontinued.

Current forms are available on the ORC website at http://goo.gl/D2FYTV

Please direct any questions or concerns to ORC at 426-5401 or humansubjects@boisestate.edu.

Thank you and good luck with your research.

1910 University Drive Boise, Idaho 83725-1139
Phone (208) 426-5401 orc@boisestate.edu
This letter is an electronic communication from Boise State University

APPENDIX B

Recruitment email

Recruitment email for the following research: A Phenomenological Study of Digital Business Simulation Games and Implementation for Corporate Learning

Subject: Research Request – Digital Business Simulations

Greetings,

My name is Jeremy Manjorin, and I am a doctoral candidate working with Dr. Brett Shelton at Boise State University. We are conducting a research study about the implementation of digital business simulation games in a financial service industry. We're looking to collect the experiences of L&D leaders in corporate learning who have had experience implementing a digital business simulation in the past 7 years. If you fit this demographic, I am hopeful that you will be willing to share your experiences in a virtual interview (between 30 and 60 minutes). Participation is completely voluntary, and all recordings will be transcribed, codified, and anonymized.

If you have any questions, please do not hesitate to contact me: jeremymanjorin@u.boisestate.edu or via phone at: 973-903-2897

Thank you for your time and consideration for this research.

Jeremy Manjorin

Doctoral Candidate

Boise State University – Educational Technology

APPENDIX C

Copy of Informed Consent

Dear Study Participant,

My name is Jeremy Manjorin, and I am a student at Boise State University working on a doctoral degree in Educational Technology. I am conducting a research study entitled "A Phenomenological Study of Digital Business Simulation Games and Implementation for Corporate Learning." The purpose of this qualitative, phenomenological study is to understand the factors that lead an organization to choose a digital business simulation game as a learning solution better, as well as to understand its effectiveness within financial service organizations.

The study pool consists of learning and development professionals who have at least 10 years of experience in a corporate L&D environment and experience with digital business simulations. Your participation will involve a 60-minute virtual, synchronous interview in which you will be asked to describe your experiences and the lessons you learned. The interview will be recorded with your permission. A transcript of the interview will be provided to you for your review and validation. Your participation in the study is voluntary; you may choose to withdraw from the study at any time. The results of the research study may be published, but your identity will remain confidential (including, but not limited to, any identifiable company information) and your name will not be disclosed to any third party.

In the research, there are no foreseeable risks to you. Although there may be no direct benefit to you, a possible benefit of your participation is the opportunity to share information about your experiences with digital business simulations and to contribute to the themes discovered from implementing digital simulations and games activity and its influence within business organizations. If you have any questions concerning the

research study, please call me at (1) 973-903-2897 or email me at

jeremymanjorin@u.boisestate.edu. As a participant in the study, you should understand

the following:

1. You may decline to participate or withdraw from participation at any time without consequences.
2. Your identity will be kept confidential.
3. Jeremy Manjorin, the researcher, will thoroughly explain the parameters of the research study and will address all your questions and concerns.
4. Interviews will be recorded. You must grant permission for the researcher, Jeremy Manjorin, to record the interview digitally. You understand that the information from the recorded interviews will be transcribed, and direct quotes may be included in the research. The researcher will structure a coding process to assure that anonymity of your name is protected.
5. Data will be securely stored and accessible only to the researcher. The data will be held for a period of 3 years, and then destroyed.
6. The research results will be used for publication.

By electronically signing the form you acknowledge that you understand the

nature of the study, the potential risks to you as a participant, and the means by which

your identity will be kept confidential. Your signature on the form also indicates that you

are 18 years old or older and that you give your permission to serve voluntarily as a

participant in the study described.

_____ _____ _____

Signature of Participant　　　　　　Printed Name　　　　　　　　Date

_____ _____ _____

Signature of Researcher　　　　　　Printed Name　　　　　　　　Date

APPENDIX D

Semistructured Interview Questions

Research interview questions – The following set of questions was used for the virtual synchronous participant semistructured interviews. The structure and questions were adopted and modified from a previous phenomenological study on simulations in an adult learning environment (Adedunye, 2011).

Participant ID# _____

Section 1 - Participant Benchmarks (Demographics)

1. Financial service experience: Do you work for, or have you worked or consulted in the financial service industry within the past 7 years, including the following industries (but not limited to): insurance, banking, audit tax and advisory services, or other financial industry: Y_____ N_____

2. If no, what type of industry or organization did you work for?

3. How many years of experience do you have in the organizational learning & development field? _____

4. Is your current title manager or higher?

5. Do you have experience planning or implementing a digital business simulation within your current or previous organizations? Y _____ N_____

6. If yes, what was your role in implementation:

    a. Strategic/Leadership _____

    b. Project/Program Management _____

    c. Programmer/Developer _____

Section 2- Project Background

7. Describe your organization's strategic and business goals that led to exploring a digital business simulation game.

    a. How was project researched?

    b. How was the project presented?

    c. Was there a decision-making process implemented prior to receiving approval to begin?

8. Tell me about how the project was organized and run.

9. Describe the content that was included in the DBSG.

Section 3 - Learning Participation and Engagement

10. Describe how the DBSG was rolled out to the learning community.

11. How did learners respond to the DBSG once implemented?

12. Tell me about the measurement around the DBSG. What did you measure and how?

13. What did you discover from your measurement efforts?

14. Describe the impact of the digital business simulation game.

Section 4 - Implementation and Lessons Learned

15. What were your key takeaways from the experience?

16. What do you think the learners took away from the experience?

17. What worked really well and how do you know it worked well?

18. What would you have done differently?

19. Tell me about your overall perception about the value and use of DBSGs in a corporate learning environment.

APPENDIX E

Code Analysis
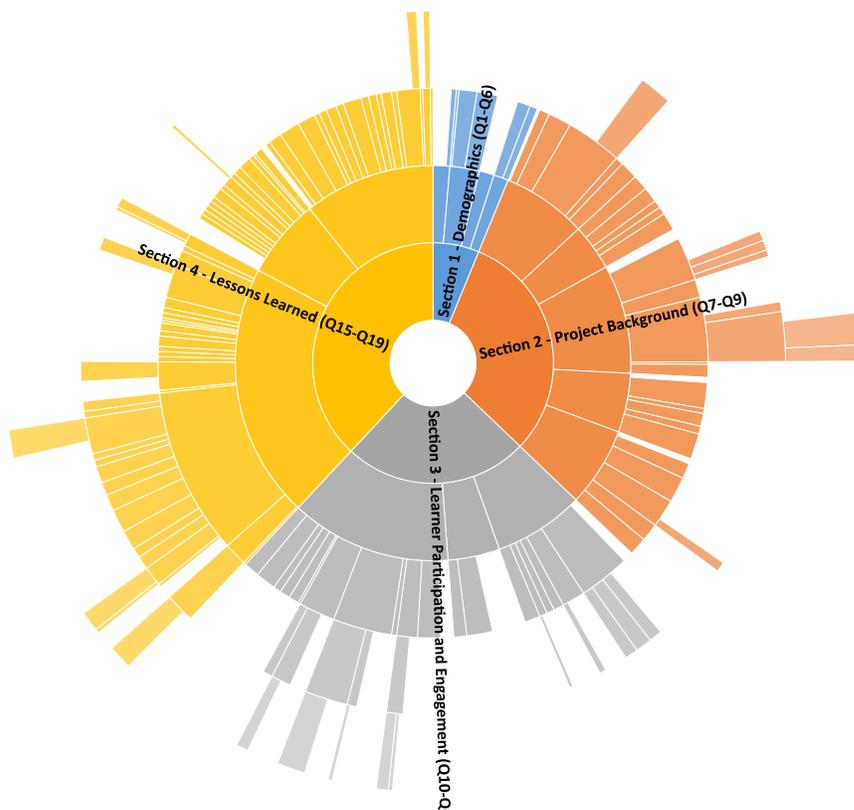
Figure 7 **Sunburst representation of code references by interview questions**

Name	Description	Files	References
Section 1—Demographics (Q1–Q6)			
Employment history (Q1) (Q2)	Did the participant have recent financial service experience as an employee or consultant.	6	7
Consultant (Q2)	Consulting experience with financial service organizations.	2	2
Role or level (Q4) (Q6)	Parent code for role/level of participant.	0	0
Developer	Developer level participant in sim program or project. Having responsibilities relating to instructional design, content development, or technology development and coding.	0	0
Manager	Manager-level role with sim program or project. Responsible for a part of the project or a team within the project. Multiple deliverables related to this role.	1	1
Multiple roles	Responsible for multiple roles throughout the sim program. Includes strategic guidance, program management, design, development, delivery, and measurement.	7	7
Strategic leader role	Strategic leader role for sim program. Responsible for strategic guidance across the entire program, from analysis through implementation and measurement.	5	8
Sim implementation experience (Q5)	Does the participant have direct sim implementation experience within the past 5 to 7 years.	8	8
Years of Experience (Q3)	Parent code for participant years of experience in organizational design or learning development.	0	0
10–19 years	10–19 years of experience in organizational design or learning and development	5	5

Name	Description	Files	References
20+ years	20 or more years of experience in organizational design or learning and development	3	3
Section 2—Project Background (Q7–Q9)			
Decision making and support (Q7)	Decisions and support by organizational leadership prior to the implementation of a DBSG.	1	1
Communication		4	4
Consultative approach	Taking a consultative approach with leaders during the solution analysis and decision-making processes.	3	9
Needs intake and leadership support	Needs intake with leadership understanding of the needs as factor in analysis and decision making.	7	22
Leadership support	Gaining commitment from leadership.	5	10
Organization historical perspective	Organization's historical perspective has an impact on the decision-making process or analysis.	1	3
Sign off	Sign-off/approval process for sim program to begin design.	5	7
Goals for development (Q7)	Parent code for sim development goals.	0	0
Flexible content	Sim development goal of flexible content.	3	3
Immersive experience	Sim development goal of providing an immersive learner experience.	5	6
Increasing competency	Sim development goal of providing knowledge transfer or increasing the level of competency in a specific topic or topics.	5	6
Innovating on current learning	Sim development goal of innovating on current learning offerings.	5	7
Realistic experience	Sim development goal of providing learners with a realistic experience or environment relating to the content/topics.	3	3

Name	Description	Files	References
Project structure (Q8)	General information on the structure of simulation projects including team structure, development framework, use of vendors, and other considerations.	4	4
Development framework	The development framework for a simulation program.	4	7
ADDIE model	The use of the ADDIE model as a development framework for a sim program.	2	3
Agile model	The use of the agile model as a development framework for a sim program.	1	3
Benefits of agile	The benefits of the agile model as a development framework for a sim program.	2	3
Leadership awareness in development	The benefits of the agile model as a development framework for a sim program concerning including leadership during the development process.	2	4
Level of learner engagement in development	The benefits of the agile model as a development framework for a sim program relating to including learner feedback and engagement in the development process.	1	1
Iterative approach	The benefits of the agile model as a development framework for a sim program relating to an iterative approach to design, development, and testing.	2	4
Internal learning team	Information on the client learning team relating to the project structure.	5	9
New development experience	Impact of a new development experience on the client learning team relating to the project structure.	2	3
Program management	Information on the program management and support aspects of the client learning team relating to the project structure.	2	3

Name	Description	Files	References
Technical operations	Information on the technical and programming operations aspects of the client learning team relating to the project structure.	2	2
Multiple leads	Information on the impact of having multiple leads relating to the project structure.	1	1
Project management	Information on project management relating to the project structure.	4	5
Vendor(s)	Information on vendors and vendor management relating to the project structure.	4	7
Reasons for development (Q7)	Parent code for reasons for developing a sim.	1	2
Gap in curricula	Sim development to address a gap in current organizational curricula.	4	10
Regulatory compliance	Sim development to address a regulatory compliance need for the organization.	1	2
Remaining competitive	Sim development to address a need to remain competitive in the marketplace.	2	5
Safe space to practice	Sim development to provide an environment that offers a safe space to practice and make mistakes.	5	10
Speed to knowledge	Sim development to address a gap in speed to knowledge for the learner or audience.	2	3
Sim content (Q9)	General information on simulation content.	2	2
Decision making	Simulation content used as a mechanism for teaching decision making.	4	8
Confidence rating	Addition of confidence ratings as part of the content for teaching decision making.	1	3
Methodology and process	Sim content used to teach methodology and process within an organization.	4	6

Name	Description	Files	References
Shifting perspective	Sim content used to provide a shift in learner perspective.	3	7
Technical content	Sim content used to teach technical content.	3	7
Understanding clients	Sim content used to teach client perspectives.	3	10
Section 3—Learner Participation and Engagement (Q10–Q14)			
Measurement (Q12)	General concepts around measurement within a DBSG.	4	4
Algorithm	The use of algorithms as measurement tools within a simulation.	1	2
Subjective scoring	The use of subjective scoring as part of an algorithm used as part of a measurement in a simulation.	1	1
Feedback	General information on the use of feedback in a DBSG.	4	7
End user	End-user feedback as part of the data-collection and measurement process in a simulation.	3	5
Instructors	Instructor/facilitator feedback as part of the data-collection and measurement process in a simulation.	2	4
Targeted feedback	Targeted feedback as part of the data-collection and measurement process in a simulation.	3	4
Job impact	Measuring the job impact of a simulation.	5	6
Learning effectiveness	Measuring the learning effectiveness of a simulation.	5	7
Exams	Using exams to measure the learning effectiveness of a simulation.	2	2
Level 1 data	Level 1 data as part of measurement in a sim program.	4	4

Name	Description	Files	References
Recognition	The use of recognition tied to measurement results in a sim program.	1	3
Measurement results (Q13) (Q14)	Measurement results of a sim program.	7	13
Correlation between sim performance and work performance	Measurement results and the correlation between a learner's performance in the simulation and the learner's performance on the job.	2	5
Performance outcomes	Linking measurement results and performance outcomes.	3	10
Sim delivery (Q10) (Q11)	General data on simulation delivery.	2	5
Classroom based	Analysis of classroom-based simulation delivery.	4	9
Cohort size	Details on sim delivery—Cohort sizes and impacts.	3	3
Learner demographics	Sim delivery information on learner demographics.	1	1
Heterogeneous audience	Learner demographics—Heterogeneous audience characteristics and value.	1	1
Homogenous audience	Learner demographics—Homogeneous audience characteristics and value.	2	3
Communication	Internal communication and impact of sim delivery.	1	2
Gamification	The use of gamification in the DBSG.	5	7
Individual gamification	The use of gamification in the sim—Individual gamification mechanisms.	2	2
Lower level of engagement	Individual gamification elements in sim delivery and perceived lower level of engagement.	1	1
Team-based gamification	The use of gamification in the sim—Team-based gamification mechanisms.	4	6

Name	Description	Files	References
High level engagement	The use of gamification in the sim—team-based gamification mechanisms and the perceived impact of increased engagement.	3	7
Hybrid delivery	Hybrid delivery of sim content—Portions of the sim were live and synchronous, other portions were asynchronous.	5	8
Motivation	Motivation elements used as part of a sim delivery.	2	5
Extrinsic motivation	Extrinsic motivators as part of a delivery mechanism.	2	3
Mandatory	Mandatory training as part of a motivator for sim delivery.	2	3
Intrinsic motivation	Intrinsic motivators as part of a delivery mechanism.	3	3
Pilot testing as delivery	Pilot testing of simulation.	1	1
Sim integrated into existing live training	Simulation delivery was integrated into an existing program as an enhancement to a larger curriculum.	3	4
Sim onboarding and intro	Sim onboarding and learner acclimation.	1	4
Stand-alone digital sim	Sim delivery as a stand-alone digital experience.	4	6
Various delivery methods	Simulation used in multiple delivery methods—Stand-alone digital, stand-alone hybrid, and classroom based.	1	3
Section 4—Lessons Learned (Q15–Q19)			
Key takeaways (Q15) (Q16)	Parent code for key takeaways from participants' sim program experience.	0	0
Accelerating competency	Key takeaway on accelerating the competency of the learner.	1	1
Budget		5	9
Budget for development	Participants' key takeaways on budgeting for the development of the sim.	5	9

Name	Description	Files	References
Budget for maintenance	Participants' key takeaways on budgeting for maintenance year over year.	4	6
Iteration year over year	Participants' key takeaways on resources and planning for iterations on content and delivery year over year.	3	3
Challenges and failures	General challenges and or failures of the sim program.	8	65
Alignment to organization strategy	Challenge or failure in aligning the sim program with the overall organizational strategy.	1	1
Change management	Challenge or failure in change management processes for the sim program.	2	5
Complexity		3	6
Complexity of delivery	Challenge or failure in managing the complexities in the delivery of the sim.	1	1
Complexity of development	Challenge or failure in managing the complexity of the development of the sim.	3	5
Consider outcomes and evaluations prior to design	Challenge or failure in not considering the outcomes and evaluation of the sim prior to its design and development.	3	4
Content not appropriate for audience level	Challenge or failure in that the content developed was not at the appropriate level for the intended audience.	1	4
Customization	Challenge or failure relating to the customization of content or bespoke creation of content for the sim.	2	3
Empowerment	Challenge or failure in empowerment of the project or program team or individuals involved in the sim program.	1	5

Name	Description	Files	References
Facilitator training on the sim	Challenge or failure in preparing and training facilitators to deliver the simulation.	1	2
Limit new stakeholder involvement	Challenge or failure in limiting stakeholder involvement to combat scope creep or timeline issues.	2	2
Measuring the effectiveness of sims	Challenge or failure in measuring the effectiveness of the sim program.	3	4
Reviews through multiple lenses	Challenge or failure in not scheduling or receiving sim reviews through various levels of reviewer (end-user, SME, leadership, etc.).	2	2
ROI analysis	Challenge or failure in the ROI analysis or determination of the sim program.	3	7
SME involvement	Challenge or failure in SME assignment or involvement throughout the sim program.	3	6
Technology challenges	Challenge or failure in the technology development or delivery of the sim program.	3	7
Timelines	Challenge or failure in the timeline management or project management relating to the timeline for sim program implementation.	3	3
Clarify expected outcomes	Key takeaway on the clarification of expected outcomes of the sim program.	2	2
Higher degree of confidence	Key takeaway on the sim and the impact on confidence for the learner.	3	4
Higher level of engagement	Key takeaway on the sim and the impact of engagement for the learner.	6	13
Connection with emotions	Key takeaway on the sim and the impact to engagement through the lens of connecting to the learner's emotions.	1	4
Innovative learning elements	Key takeaway on the sim and the impact of including innovative learning elements.	1	1

Name	Description	Files	References
Learner as part of the process	Key takeaway on including the learner as part of the sim development process.	4	6
Learning from mistakes and safe space	Key takeaway on the sim and the impact on learning from mistakes and providing a safe environment for practice.	3	5
Out of their comfort zone	Key takeaway on the value of getting learners outside their comfort zones concerning providing a safe space to practice within a sim.	2	6
Led to new sim development projects	Key takeaway on the success of a sim program leading to the development of future simulations.	1	2
Long-term engagement	Key takeaway on the sim and its impact on long-term learner engagement.	1	2
Project sunset	Key takeaways on sunsetting a simulation program.	2	2
Recognition of project risks	Key takeaway on recognition of project risks as part of the Sim program.	1	1
Recognizing ambiguity in the project	Key takeaway on recognizing the ambiguity in development and approach for a new sim project.	1	1
Technology not integral to success	Key takeaway on recognition of the role of technology relating to the success of a simulation.	1	3
Sense of familiarity on the job	Key takeaway on the value a simulation can provide relating to a level of comfort or familiarity within a given content or topic.	2	2
Sim as a transformation tool	Key takeaway on the value a simulation can provide as an organizational transformation tool.	1	4
Sim for career development	Key takeaway on the value a simulation can provide for individual career development.	2	2

Name	Description	Files	References
Sims challenge perceptions	Key takeaway on the value sims can provide for challenging learner perceptions.	2	3
Storytelling	Key takeaway on the value of storytelling in the design and development of a sim.	1	1
Understanding what data to collect	Key takeaway on the need to understand what data to collect from a sim.	1	1
Works well for complex situations	Key takeaway on the value of a simulation for preparing learners to perform in complex situations.	1	2
Perception of DBSG (Q19)	General perception of the use and value of a DBSG.	5	7
Acceptance of sim correlated to age of participant	Perception of learner acceptance of a DBSG relating to the age of the participant.	2	2
Data collection	Perception of the use and value of a DBSG relating to robust data collection.	1	2
Expensive solution	Perception of the use and value of a DBSG relating to the expense involved in creating and maintaining it.	2	2
In complex learning situations	Perception of the use and value of a DBSG in complex situations with multiple variables or outcomes.	1	2
Investment relative to success of program	Perception of the perceived success of a DBSG relative to the expense to develop and deliver it.	2	2
Learner perception of sim	Perception of the use and value of a DBSG relative to learner experience.	2	3
Level of customization	Perception of the use and value of a DBSG relative to the necessary level of customization.	4	5
More realism = more value	Perception of the use and value of a DBSG relative to the perceived level of realism in the sim and the value provided.	1	2

Name	Description	Files	References
Organizational leader perception	Perception of the value of a DBSG from the organization's leadership perspective.	3	4
Organization impact based on sim	Perception of the impact of a DBSG on the organization.	2	2
Provide safe environments	Perception of the use and value of a DBSG in providing a safe environment for learners to participate and practice.	3	3
Builds confidence	Perception of the value of a DBSG in building learner confidence by providing a safe space for learners to participate and practice.	1	1
Successful if managed well	Perception of the success of a DBSG if the program is well managed.	2	2
Target multiple learning objectives in one experience	Perception of the use and value of a DBSG in targeting multiple learning objectives and outcomes in one learner experience.	1	1
Viability of generic sims	Perception of the use and value of a DBSG relative to the viability of generic sims to address challenges in design, development, and implementation of sims.	3	3
Success Factors (Q17) (Q18)	General success factors relating to DBSG programs.	1	2
Communication across levels	Communication across various organizational levels as a factor for success.	2	3
Complex but not complicated	Finding a balance between complexity of content but not complicated user experience as a factor for success.	1	2
Customizing to organization and impact	Customizing content and delivery to the organization as a factor for success.	2	3
Diverse group of skills	Having a diverse set of skills across the project teams and levels as a factor for success.	2	2

Name	Description	Files	References
Having budget	Budgeting as a factor for success.	3	4
Having necessary resources	Resource management as a factor for success.	2	2
Having research and data to support the learning	Research and data to support the content as a factor for success.	3	5
Leadership commitment	Client leadership commitment as a factor for success.	4	6
Client buy-in	Gaining buy-in from the client up front as a factor for success.	2	3
Matching delivery to organizational culture	Matching delivery to the organization's culture as a factor for success.	1	1
Real-world and applicable	Making the content and experience relevant to the audience's needs as a factor for success.	3	8
Shelf life	Understanding and managing the shelf life of sim content as a factor for success.	3	7
Social collaborative learning	Incorporating social and collaborative learning as a factor for success.	2	2
Strong facilitation for classroom-based events	Ensuring strong facilitation for classroom-based events as a factor for success.	1	3
Time to build	Considering time to build (development timelines) as a factor for success.	1	1
More time to test	Consideration of multiple testing events as a factor for success.	1	2
Trust	Establishing a strong core project team and empowering it with trust as a factor for success.	1	4
Understanding limitations	Understanding the limitations of a sim and specifically the scope of the program as a factor for success.	2	3
Understanding risk factors	Understanding the risk involved with a DBSG as a factor for success.	1	1

Name	Description	Files	References
Validation of needs and gaps	Validation of the learning needs, knowledge gaps, organizational needs, and learning outcomes as a factor for success.	3	7

APPENDIX F

Theme 1- Needs Intake and Leadership Support Quotations

Participant	Quotation
Participant 1	"Leadership was very empowering in the sense that they were very interested in in exploring and innovating an approach that was unique."
Participant 2	[asking leadership] "What are the issues that you're having and what can't you do with your current team, you know, the people in your sector, and so they started describing the problems that they had."
Participant 3	"I lead … solution design teams, so we would go into a customer's organization, kind of identify what their needs were, and then find the right learning approaches to meet those needs."
Participant 4	On needs intake: "For the decision-making process, we do in most cases a half day concept workshop.… Out of that half day you receive a broad concept, how we can help you, how we can solve your problem, how we can tackle the challenge." On needs assessment and leadership awareness: "with this [as a] starting point to better understanding, 'Okay, what do you want to achieve?'… So, we try to understand okay so, for instance, you're now in the financial industry … what are actually your most important KPIs? What does success mean for your business? And therefore, so if we go a step back … what, from your perspective, are the most important decisions in your business? So, we have the success criteria, and we have the decisions, and then we with every single workshop, of course, including clients, we try to get more interrelatedness, make connections, and evolve the model itself."
Participant 6	On needs intake: "We started … with, you know, identifying outcomes identifying, you know, what the, what the competencies needed to look like upon completion of the three different programs." On decision making: "our CEO, he and I had we're just, you know, I guess, we were talking about where do we want to go over the next few years, and we are you know part of the firm strategy discussions and I just came up with it. I was like, 'hey why don't we do something that's more immersive that's in smaller chunks, that is, you know more on demand?' and in the approval process was like: 'hey let's try it.'"
Participant 7	"we had a new leader at the time. She saw these gaps in new hires … and she really felt like people missed coming out of the new hire training [with] a real realization of what an audit is actually like, and she felt like a sim can help us get there."
Participant 8	"So that is exactly how I go in in any organization, I say what is it that you're trying to achieve. What is it that you really want to do; what's the end goal here; what's the end game? At the very beginning, it's really trying to understand what is the, what is the ecosystem you're trying to work with, so you have to talk to the folks that are involved that have to find the solutions, the one[s] that really have to implement the solution for whatever it is that they want to do."

APPENDIX G

Theme 2 – Safe Space to Practice Quotations

Participant	Quotation
Participant 2	"that [industry disruptors] was like the buzzword of the year, so we built our simulations around helping to experience in a safe way, but a learning way, around these different disruptors and trends that are happening."
Participant 3	"simulations [can] be effective when really specific practice [is] needed to be both conducted and then repeated, right. This is especially true in heavily regulated industries where there's a lot of really particular detail that needs to be followed by those who are working in those industries. I mean it's not something, going right out of college and stepping into, let's say a pharmaceutical industry.… I'm not going to know what all of those regulations how they're how that's going to affect my day-to-day job, actually get in and practice and, in a situation like that, simulation can be, can be really effective.

So, in the case of, you know, accounting practices that there's a lot of those regulations as well, especially when dealing with large companies with government all that kind of stuff, so a business simulation is really helpful." |
Participant 4	"we want to have [a] business simulation to get into the idea of the flight simulator … to get a nice learning approach, a motivating learning approach, which is realistic, and where people can experiment in the field of leasing."
Participant 5	"[We wanted] to get them comfortable with those particular skills whether there are critical thinking skills and having to do that thinking under high pressure situations, or developing kind of the muscle memory."
Participant 8	"Where the sims come in is for them to practice those tools in a safe environment.… And that is usually where [I] recommend a sim so very much because, they create exactly that. It … shows you how you react, it shows you how the team forms together, it fosters an environment of having the right conversations, but it's still safe, because if they fail, if they tanked their company … if [they] make a huge mistake, then, nothing has happened, and they can use this as an opportunity to learn."

APPENDIX H

Theme 3 – Innovating on Current Learning Curricula Quotations

Participant	Quotation
Participant 1	"[Looking at] what was the remit or goal of using digital sim in these particular examples, it was looking at what would be a traditional classroom-based training, you know, comprehensive curriculum, and looking for ways to bring that to life from a practical real-world component, right. So, trying to give … the learners a little more immersive experience around what it's really like to work within a client environment."
Participant 2	"We call the national sector leader and then, you know, typically the conversations before would be: 'okay well … you have this course, and this is the usage on it do you want to re-up it or do you want something else?' It was very sort of, you know, reactionary … and so what I was looking at us and saying, well, how can we do something a little bit better slash different?" On innovating current offerings: "An issue that we saw was one of the issues is that the organization, the business, doesn't really see value from L&D, which, in all honesty, when I joined, I didn't see the value either, like … 'What were we doing besides just you know checking the box?' and so we said, 'how can we elevate the game?'"
Participant 3	Innovation as a motivating factor: "The good news is these kinds of things are new enough that they seem kind of cool and interesting, so that there's a little bit of a head start. Now I suspect [in] 20 years, that might not be the case anymore, when the simulations are more common. But right now, there's still a little bit of 'ooh this is kind of fun,' right?"
Participant 6	"it's probably going to sound very informal, we had a very forward-thinking CEO, and we were talking about just really 'breaking the mold,' so to speak, for assurance and tax primarily in our leadership programs."
Participant 7	"The thing that drove us to do it was, the need to do more.… They [leadership] felt like our new hires didn't understand how actual financial transactions move through a system. They didn't understand ERP [Enterprise Resource Planning] systems are how those things worked. And there was a question from them (and the leader of the audit practice at the time had come out of the technology practice). And he was saying, you know, is it possible, we could do some kind of sim?" And so, we started researching that … to possibly do a simulation out of that request from the leader to solve that problem.

APPENDIX I

Theme 4 – Higher Degree of Engagement Quotations

Participant	Quotation
Participant 1	"The results of the of the measurement data collected certainly [indicated] a level of engagement in understanding their job, and a stronger confidence, I think, or comfort in applying what they've learned in the real world."
Participant 2	"It felt like this was something that … everybody had something unique, and they had a different perspective … and the dynamism of that in like a classroom or whatnot contributed to 'wow this is actually interesting!' Like, it felt very deep for them."
Participant 3	"One of my favorite parts about these simulations is that it tends to be easy for the learner to see that it's useful.… The thing that I've seen come out most positively from working with simulations really has been to learner engagement. It's always a challenge to get anybody excited about training, I mean there's all kinds of reasons for that … it reminds us of high school and whatever, you know, when we hated it. But, learning on the job, it is always a bit of a challenge. The simulations, and again I think at least part of it is the newness, but, but I think I don't think it's just that but, but we see much higher engagement with these kinds of learning programs."
Participant 4	Motivation leading to a higher degree of engagement: "So after the first debriefing, the result is.… See okay, actually, yeah I make a decision, and I see the consequences of the decision and I realize, for some, it is a good consequence and for others, is not the best consequence.… From apprenticeship guys, up to executives, in various industries because … it is engaging, it motivates, you got a competition.… So various triggers of a personality and motives [are] being brought out for the business simulation itself."
Participant 7	"We didn't talk about those off the shelf [sims].… I actually liked it … so the leadership one was hokey … but I thought it kept my interest, and I like the learning points, and I felt it kept me moving through it, and I wanted to move through it."
Participant 8	Higher degree of engagement through emotional connection: "They [leaders] really are in that sim and suddenly they have to run the company. They take this extremely seriously and they get frustrated, they get angry, they get scared and sad, they get happy … to feel these emotions, but this shows who they really are … their personalities and that's your sweet spot to come in as a leadership coach and be like, "What happened here? How did you work to that team dynamic?'… [learners say:] 'Yes, it was stressful, yes it was uncomfortable, but it was really, really good because it gave us insight in[to] ourselves in our team that we wouldn't have had otherwise.' … we learn by trying things out and creating an emotional connection with what we have to experience, and the best thing you can do is give people something they have fun with that creates this human dynamic of doing something together.… So that is what every single learner says, depending on the outcome, you know, the more you have to stress them to really press the message home, the more they will say 'this was uncomfortable I didn't know how to handle it. But it was really impactful and insightful.'… Most of the time they say, 'it was fun; I didn't see the time go by.' This was, you know, something I didn't even feel like learning.' And that's where you want to be, because it shouldn't feel like learning, it should feel that something that you know it's just fun to do."

APPENDIX J

Theme 5 – Positive Measurement Results Quotations

Participant	Quotation
Participant 1	"On the audit side [the sim] was more about bringing to life the methodology, which was a lot about knowledge transfer, and understanding the nuance of customer relationships and in the conversations you have, which are which are a little, I guess, more subjective right…. and how you drive a behavioral change per se. Whereas in the tax sim, which was much more mechanical in the sense, you're learning the ins and outs of using data to produce an optimal result…. And you were scored based on your ability to bring together all the right points of data. So it had a much more concrete outcome or result that you can measure, but it was, it was to me a [simpler] thing to measure because of the nature of its, of its outcome or what you're trying to achieve in the objectives…. I think the power was [that] the instructors were able to see reporting at both an individual and aggregate level, and could quickly, almost like an item analysis and a final exam, could do that analysis in their results of these work papers and say, 'here's the common areas that this audience is struggling with. And I can see why they're struggling with it based on the answers they're providing.' So, they could then do a more custom debrief for feedback session around: here's the most common areas you struggled, and saw the remediation, right, was very targeted in that sense it wasn't that broader one size fits all, which I thought was very powerful at an individual and group level."
Participant 2	"We [piloted it and] ran it through, and sort of, long story short, when the evaluations came back, I guess, out of like 50 courses that they ran … on our first go, we were number two. So, I was like 'Okay, we got something here,' you know it was like the very first time we ever ran it, and we were number two of 50." Additional measurement added after pilot: "After we ran some of the pilots we added in confidence [ratings to their decisions] to just help them better understand like you can be overconfident and certain things which often happens, you know. People have large egos and [we] use it as a learning moment. So, where we found the best learning really to happen wasn't really in the rounds, or they were working as teams and making decisions, which was good … but in between, where the vendor work and they kind of did some analysis and then they presented back, 'okay here's what this team did and here's you know here's the decision that they made…. Give us some insight into why you made that decision and then how confident were you that what happened, happened.' So, it was kind of like that debriefing in between the rounds is really where we found that that was probably the greatest level of, you know, focus and learning, and really you know where things really started to stick for them."
Participant 3	"The highest performers were going to be the highest performers in most cases. The real measure of a successful training program of any kind, and certainly a simulation like this one, is the way it takes those who are going to be languishing and kind of at the bottom and brings them up, at least to the middle of the pack."
Participant 4	"I believe that [a] business sim is one of the most impactful methods in learning. And I'm not just saying this because I work in the field, for a long time … I'm saying this because the feedback I received from the participants was actually always from testing."

Participant	Quotation
Participant 5	"Even though sims help us not only train them on things that we would, you know, around safety and things, but we also started to use those simulators to help us figure out where are our biggest needs for training and being able to provide very accurate data.… What I think it did more than seeing an improvement is, it highlighted areas of not only where we might want to train more. But it also highlighted areas of where we needed to improve process and procedure."
Participant 6	"we get comments back at completion and in through evaluations, that's the first time that they really understood, and it really solidifies, you know, all of the learning that they've done up to that point as far as from a technical standpoint and they've been told, like 'look up don't just do what you're doing, look up and look at the client, look holistically, you know, think about consulting opportunities,' and it's interesting because that's the comment we get back like, 'that's the first time I've actually looked at a client holistically,' and 'Okay, when we were doing [this] and I don't know cash … now I know why we're doing we're doing what we're doing instead of just kind of being, you know, following procedure.' So, we've gotten a lot of really good feedback and consistent feedback along those lines that it really helps them to understand the end result, so to speak, of the work they're doing. And it's interesting, because it from an adoption standpoint, I think that feedback informally has built the enthusiasm of, like, the next year, you know the participant the prior year talking to the next year [participant]. We really have seen that. They come into it ready to hit the hit the ground running."
Participant 8	Measurement impact for ROI [return on investment] and retention: "even if you account for 250,000 euros, building the sim was cheaper than anything they've done before. The success was much higher and not a single hire left them, they all stayed within the company"

Measurement impact on decision-making and leadership DBSG: "Leadership programs are there for them to be and become better leaders, whatever that means, so there's always a certain amount of measurement included to that: do they have less people leaving the department? Is their department more successful? Are they on a career track in alignment with their skills? These kinds of measurement aspect you can pull in there, but you need to work very closely with the client because measurement of leadership programs is tricky at best and not everybody if anybody really knows how to do it well.… And all the feedback we got was like, 'this was the best leadership program I ever did, because for the first time was hands-on: we could really try to connect the dots we could really apply.'" |