2016

Exploring Critical Success Factors of Learning Management System Implementations in Membership Associations

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Abstract

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Valerie J. Whitcomb

MBA, George Washington University, 2004

BSBA, Strayer University, 2001

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Applied Management and Decision Sciences

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Abstract

Learning management systems (LMSs) are the technical foundation for online learning programs that offer benefits to learners in a variety of settings. As with many enterprise software systems, LMSs are expensive and carry considerable risk. Exploring critical success factors (CSFs) and using them as a foundation for decisions concerning complex software implementations helps increase the likelihood of success. This study addresses the gap in knowledge concerning CSFs for LMS implementations. The purpose of this phenomenological study was to discover CSFs by exploring the lived experiences of 8 association executives who identified themselves through email communications as having managed a successful LMS implementation. Organizations providing online continuing education programs were identified using a publicly available list, and program managers were identified from the organization's website. Interviews using semi-structured questions yielded a set of tightly correlated CSFs from 6 of the 8 participants. General systems theory and sociotechnical systems theory underpinned the study. Moustakas' data analysis methods were used to code the interviews and develop themes, which resulted in a set of actionable CSFs. Stakeholder support, a well-planned implementation, an experienced vendor, and software that provides a predictable user interface were among emergent CSFs for LMS implementations. This research may have a positive social impact because reducing the risk of LMS implementations will enable organizational leaders to extend learning opportunities to more individuals. Those opportunities, in turn, will lead to prosperity for membership associations and the industries they serve.

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Dedication

I could not have completed this journey without the support of my family, friends, and colleagues. Toward the end, my mother pushed me to the finish line with constant encouragement, support, and patience. Although my father did not remain on this earth to watch me graduate, he envelopes me every minute. His integrity, sense of purpose, unfailing work ethic, compassion, sense of responsibility, and humility helped make me the person I am today. I dedicate this dissertation to my parents, who, together with my children and a close circle of incredibly supportive friends, made this happen.

Acknowledgments

To all the wonderful participants who gave their time and shared their experiences so others may have the benefits of critical success factors for future e-learning initiatives, I truly thank you. The study was both difficult and valuable, as I spoke with countless people in associations who were struggling to bring online learning to hundreds of thousands of individuals who depend on continuing education for their careers and livelihoods.

I would like to thank my dissertation chair, Dr. Walter McCollum, for his exceptional guidance, consistent and valuable feedback, and unwavering commitment to a quality product. As my methodologist, he provided sound advice on constructing a study that included all dissertation requirements and that provides societal value as well. I would like to thank my content advisor, Dr. Anthony Lolas, who provided specific and timely advice and greatly improved the quality of my material. I want to thank and acknowledge Dr. Patricia Fusch, my University Review committee member, for helping me create the best possible dissertation. Dr. Sandra Kolberg also played an integral role in my progress towards completing the program. Her time, effort, and oversight were invaluable and I am grateful to have had her on my team.

Finally, I want to acknowledge the contributions of my research assistant, Ryan L. Whitcomb, who exhibited patience, dedication, and perseverance through the entire process. He performed tasks that were labor intensive and time consuming with cheerful enthusiasm. He remained organized and committed, and he substantially contributed to my success throughout the years.

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Chapter 1: Introduction to the Study

Learning management systems (LMSs) are the delivery technology for online learning and support the deployment of online courses. In addition to providing course delivery technology, they enable the tracking and reporting necessary to provide evidence that learning occurs (Radwan, Senousy, & Riad, 2014). Like other mission-critical enterprise software systems, LMSs are expensive to purchase and configure, and they carry considerable risk (Al-Busaidi, 2012). Learning management system technology includes many benefits, such as the flexibility of anytime, anywhere access to training and courses, and the industry has grown significantly since 2005 (Global Industry Analysts, 2014). Markets and Markets (2015) indicated the e-learning industry was likely to surpass $107 billion globally by the end of 2015, and that spending on LMS technology will grow from an estimated $4 billion to over $11 billion by 2020. Learning management system technology is the foundation software of the e-learning industry market.

Higher education is a major market for e-learning products and services. Over 95% of universities with over 5,000 students have online learning opportunities available (Allen & Seaman, 2015), and an LMS is an essential component of online programs. Leaders in government agencies use LMS technology to train employees at all levels, and leaders in the U.S. Armed Forces use LMSs to deploy online learning programs to increase critical skills and to bring just-in-time training where needed, quickly and efficiently (Berbary & Malinchak, 2011). Using LMSs facilitates online learning programs in a variety of industries.

Enterprise systems that commonly affect a variety of stakeholders in an organization are complicated and expensive to deploy and have high failure rates. Information technology and information systems (IT/IS) that affect an entire enterprise can be complex to design, develop, and implement and often have significant costs and associated risks (Maditinos, Chatzoudes, & Tsairidis, 2011). Understanding critical success factors (CSFs) that contribute to an effective implementation helps increase gains and lower risk (Almajed & Mayhew, 2013). Professional development and certification training products are a source of revenue for membership associations, and online programs are making a positive financial impact on association operations (Cox & Radwan, 2015). Understanding CSFs may help association leaders become more successful in deploying technology for professional and continuing education and provide better educational opportunities to more members.

Background of the Study

Organizational leaders deploy LMSs for a variety of reasons. Learning management system technology helps lower costs by reducing travel associated with training and development, and increases revenue by attracting distance and busy adult learners (Radwan et al., 2014). Information technology and information systems are vital to the successful operation of organizations around the world, and properly implemented IT/IS initiatives contribute to stakeholder value (Ahlan & Sukmana, 2014; Azimi & Manesh, 2010). They also form a basis for a strategic competitive advantage (Ab Talib & Hamid, 2014; Aziz, Salleh, & Mustafa, 2012). A method for reducing risks related to IT/IS implementations is to form a set of CSFs to use as a benchmark before, during, and

after implementations (Zheng, Yang, & McLean, 2010). The CSFs help ensure the success of a project from a business perspective (Kim, 2013). Exploring and establishing CSFs for LMS technology implementation is the focus of this study.

The concept of CSFs in IS/IT implementation dates back to the 1960s and has undergone continuous revisions. According to Aziz et al. (2012), Jack Rockart of Massachusetts Institute of Technology popularized CSFs in the late 1970s and the use of CSFs in many industries and for various types of technology implementations is extensive. Although numerous definitions of CSFs exist, they must receive top priority during the implementation process (H. Chien, 2014). If CSFs do not receive attention, the likelihood of implementation failure increases significantly.

Scientifically predicting CSFs for a given technology in a specific industry often starts with an analysis of literature concerning past implementations. The objective of the analysis is to learn what has worked in the past during similar system deployments and in industries comparable to the implementation situation under study (Hailu & Rahman, 2012; Ram, Wu, & Tagg, 2014). The literature analysis is a starting point for forming interview questions, surveys, and other empirical investigation tools that contribute to a study of an implementation process researchers have yet to explore (Ahlan, Kartiwi, & Sukmana, 2015). In this study, an overview of CSFs used to improve LMS implementation outcomes yielded information on projects primarily within the academic and higher education industries, which left other LMS implementations to explore, including those within membership associations.

This study was necessary because research concerning CSFs of LMS implementations outside the education industry is lacking, although the educational sector is only one of many industries that have LMSs. Studies conducted in the educational sector supported extending research concerning CSFs of LMS implementations to organizations outside the academic sector (Alhomod & Shafi, 2013). Bitzer, Menschner, and Leimeister (2013) mentioned that the researchers of many CSF studies incorporated LMS technology but also focused on other CSFs for e-learning implementations, such as content, which left technology underrepresented in CSF research. Examining and reporting on the actual scientific process of establishing CSFs for LMS implementations was also important, and in this study, I drew on research that included methods of discovering CSFs in a variety of enterprise software implementations.

Problem Statement

Learning management systems are the technological foundation for online learning programs and can be complex to deploy. Parsazadeh, Zainuddin, Ali, and Hematian (2013) indicated that LMS implementations require considerable resources and carry significant risks, but can lead to a competitive advantage if properly implemented. Identifying CSFs reduces the risk of failure of enterprise software system implementations (Ab Talib & Hamid, 2014; Subiyakto & bin Ahlan, 2013). The general problem was that there was a disparity between research of CSFs of LMS implementations and other enterprise technologies (C. Lin, Ma, & Lin, 2011). The specific problem addressed was that learning program managers outside the academic

industry had limited CSF research upon which to rely for making sound decisions concerning resources allocated to LMS implementations (Radwan et al., 2014). This phenomenological study reduced this gap by exploring CSFs of LMS implementations within membership associations because the study involved exploring the experiences of learning-program managers who have successful LMS implementation experience.

Purpose of the Study

The purpose of this qualitative phenomenological study was to explore the lived experiences of program managers within membership associations with LMS implementation experience to gain a further understanding of CFSs of LMS implementations. The intent of this study was to reduce risk and increase the likelihood of successful implementations by exploring the CSFs of these complex projects. Almajed and Mayhew (2013) explained that enterprise information technologies can yield benefits that lead to a sustainable competitive advantage if they realize a return, and discovering CSFs in advance of an implementation may contribute to this success. Breese (2012) also indicated that the large number of failures of enterprise systems makes research concerning CSFs essential. Critical success factors of LMS implementations are lacking in research outside academia, so the focus of this study was implementations within the membership association industry.

This phenomenological study included semistructured interviews for data collection and involved exploring the lived experiences of program managers who had experience deploying successful LMSs. Discovering CSFs from these managers may have increased the body of knowledge and understanding concerning the efficient

transfer of knowledge through LMSs. This project may have had a positive societal impact because understanding how to reduce the risk of LMS implementations may increase learning opportunities and provide prosperity and growth for individuals, for membership associations, and for the industries they serve.

Research Questions

The central research question was as follows: What are the lived experiences of program managers within membership associations with LMS implementation experience, and what are the perceived CSFs of LMS implementations? The study included a qualitative method and phenomenological research design to answer the research question. Phenomenological research is an exploration of a shared lived experience of a common phenomenon (Van Manen, 2014). In this study, I used semistructured questions to interview learning program managers within membership associations who had experience implementing and managing successful LMS deployments. The focus of the interviews was to explore the lived experiences, CSFs, and strategies for overcoming common challenges faced by program managers that contributed to a successful LMS implementation.

The population consisted of nine participants and continued until the data saturation occurred and common CSFs manifested themselves during the study. When reoccurring themes became apparent in the data that formed a common lived experience, data saturation had occurred. Participants in the study, all of whom were program managers in associations who had experienced successful implementations, answered the

research question because they shared many common experiences that yielded a set of actionable CSFs that are applicable in similar future situations.

Conceptual Foundation

The concept of CSFs for information systems originated in the 1960s and links requirements to successful outcomes. Critical success factors ensure the proper performance of the end user, the department, and the institution, which together form a general system that required underpinning the study with general systems theory (Ram & Corkindale, 2014). Of the known information system implementation CSFs, Rockart (1982) discovered that the proper management of human resources was the most important factor. Kull, Ellis, and Narasimhan (2013) explained that exploring human resource considerations in system implementations constitutes a need to incorporate sociotechnical systems (STS) theory in establishing a foundation for studying CSFs. Sociotechnical systems theory served as a foundation for the study of how humans interact with technology.

General systems theory applies to almost any complex system. Bertalanffy (1972) said that general systems theory is applicable to a variety of complex systems. To study an organization with a complex system such as an LMS, researchers must identify and model the subsystems to create a framework (Baxter & Sommerville, 2011). In many cases, scientists observe the components of a system to create a model, and in other instances, they design models based on past research (von Bertalanffy, 1972). With each study concerning a complex system, researchers make new discoveries, and paradigms shift.

In contrast to how researchers use general systems theory, researchers use STS theory to isolate the interaction between humans and the technology with which they work. For instance, integrating the study of human behaviors during technology implementation may help prevent a failed initiative (Kull et al., 2013). Researchers at the Tavistock Institute in London, England, developed and popularized STS (Trist & Bamforth, 1951) after a study concerning technology implementation in coalmines involved taking workers' attitudes, satisfaction, and productivity into account. The overarching premise is that individuals who interact with technology are important and must receive consideration in terms of CSFs during system implementations, and technology designs must incorporate the societal aspects of work groups (Cummings, 1978). Researchers have used and refined STS theory in numerous fields, including management (Cummings, 1978) and information technologies (Mumford, 2006). Baxter and Sommerville (2011) explained that incorporating STS theory in information technology (IT) implementations could significantly improve outcomes, including stakeholder value. The importance of incorporating both theories as a foundation for this study was that the resulting CSFs include human factors that may have remained undetected using general systems theory alone.

Nature of the Study

Phenomenology is a qualitative research design that researchers use to explore the manifestation of a bounded event in the minds of participants. Researchers design phenomenological studies to create a rich, thick account of an experience and its position in the world of the participants (Petty, Thomson, & Stew, 2012). Phenomenology is both

a philosophy and an approach to research used to explore a common experience culminating in a universal truth concerning shared phenomena (Finlay, 2012; Kafle, 2013). The phenomenological experience moves beyond an accurate accounting of an activity to an understanding of how the event manifests itself in the consciousness of the participants and providing deep insight to the phenomenon under study (Allen-Collinson, 2011). The phenomenological approach aligned with the remaining aspects of the study because participants who lived through the process of implementing an LMS within their organizations were able to explain their experiences in detail.

Qualitative research was suitable because this study revealed CSFs of LMS implementations from the perspective of those involved in the implementation process. In contrast, quantitative research involves numerical data and testing a hypothesis, which was inappropriate in this study because CSFs were unknown and an exploration was necessary (Almajed & Mayhew, 2013). Several other qualitative approaches received consideration, including ethnography, case study research, narrative inquiry, and grounded theory. Ethnography is useful for exploring a group of individuals with a common culture by participating in the lives of those under study (Sangasubana, 2011) and thus would not render the specific nature of CSFs sufficiently. Case study research, although used for studying CSFs, is not replicable unless cases are similar (Thomas, 2011), and while membership associations may have similar organizational structures, LMSs may have very different characteristics requiring a larger population to generalize CSFs for an industry segment. Narrative inquiry is useful for gaining a deep understanding in the context of social structures, personal identity, and close relationships

(Frost & Ouellette, 2011). Grounded theory requires in-depth interviews and numerous iterations of analysis and fact checking (Flint & Woodruff, 2015) and is inappropriate given the complexity and variety of features of LMSs. Phenomenology was an ideal method to discover CSFs based on the experiences of individuals because the objective of the study was to explore CSFs based on the lived experiences of learning program managers.

Definitions

The following terms appear throughout the dissertation:

Critical success factors (CSFs): Critical success factors are the limited number of areas that implementation managers must identify and attend to in order to ensure a successful project outcome (Huang & Lai, 2012).

Customer relationship management (CRM) system: Customer relationship management (CRM) systems are software programs designed to manage the customer experience, analyze customer interactions, and manage data throughout the sales and service life cycle (Šebjan, Bobek, & Tominc, 2014).

Enterprise resource planning (ERP) system: Enterprise resource planning (ERP) systems are a type of software used to help integrate and manage all aspects of critical business processes (Hanafizadeh, Gholami, Dadbin, & Standage, 2010).

General system: A general system is a system that has subsystems dependent on the other in some respect and each interacting with the world outside the system (von Bertalanffy, 1972).

General systems theory: General systems theory is the foundation for scientific exploration of wholeness as in a system that, together with its parts, constitutes a whole entity (von Bertalanffy, 1972).

Hermeneutic phenomenology: Hermeneutic phenomenology is the process of recording, interpreting, and reporting on a lived experience to understand the essence of the experience (Tan, Wilson, & Olver, 2009).

Information technology/information systems (IT/IS): Systems used by management teams to improve business operations (Azimi & Manesh, 2010).

Knowledge management (KM) system: Knowledge management (KM) systems are software programs used to collect, develop, share, and enable the use of knowledge across the enterprise (Matayong & Mahmood, 2013).

Learning management system (LMS): An LMS is the underlying platform for deploying courses online, as well as for administering, tracking, and reporting learning activities (Radwan et al., 2014).

Sociotechnical system (STS): An STS forms an interaction between technology and the users of the technology (Baxter & Sommerville, 2011).

Sociotechnical systems (STS) theory: STS theory is the underpinning concept concerning human interaction with technology and the human elements of information systems implementation (Davis, Challenger, Jayewardene, & Clegg, 2014).

Assumptions

This qualitative phenomenological study included several assumptions. Enough individuals who work for membership associations that have deployed LMSs

successfully were available and qualified to participate in the study. A successful system is one that meets organizational expectations. Participants in the study had firsthand knowledge of LMS implementation and provided insight into the factors that contributed to the success of LMS implementation. Interviews recorded from phone conversations or Skype interviews served as the requisite foundation for transcripts and resulted in data to analyze. Analysis managed with NVivo software had to produce a rich account of the phenomenon. Participants had to describe the process adequately.

Additional assumptions were inherent to the subject of the study. The selection process included sufficient parameters to ensure all LMS implementations experienced by the population were successful, as discussed further in Chapter 3. Participants must have lived the experience of implementing an LMS from a program management perspective and had a broad understanding of the CSFs underpinning their successful implementation. The assumptions were necessary to define the study sufficiently to identify and capture a common experience while leaving enough latitude to recruit a satisfactory pool of qualified participants to gain a common understanding of the phenomenon.

Scope and Delimitations

The scope of the study extended to individuals who managed the successful implementation of an LMS within their membership association. The LMS implementation must have occurred far enough in the past to demonstrate a successful outcome, but recently enough so participants could contribute clear recollections of the CSFs exhibited during the implementation phase. To limit the scope, recent meant that

the LMS was in use for over 1 year, and successful meant that the programs delivered by the LMS achieved organizational goals.

The parameters of participant selection included program managers with LMS implementation experience employed by membership associations. The American Society of Association Executives (ASAE) publishes a list showing associations with learning programs. Participants in the study all managed the implementation process and had intimate knowledge of all aspects of system deployment.

The specific aspects of the research problem addressed by the participants included CSFs addressed in the successful implementation of the LMS, regardless of whether they knew them in advance. Although I refer to these individuals as program managers, actual titles included IT managers, project managers, or continuing education directors. Areas outside the scope of this study included ancillary elements that may have contributed to the success of the program, including marketing and content delivered on the LMS. The exploration included only the implementation phase of the LMS software.

Limitations

Limitations of this study included the variety of LMS systems and uses that cause experiences to vary from one organization to another. Although membership organizations have similar missions, structures, and operating departments, the intended outcomes differ from one organization to another. Although program or project managers had an understanding of the CSFs of the LMS implementation, in some organizations others were better able to describe a part of the implementation for which they had

control. For instance, a program manager identified system integration as a CSF, but the IT team had intimate knowledge of that specific portion of the implementation.

The method for determining CSFs, as described in the literature, generally encompasses reviewing studies that reveal CSFs among similar prior implementations and then verifying, adding, or clarifying CSFs through surveys or interviews with individuals who have an understanding of CSFs in the given industry or setting. This study is transferable to studies of other membership association LMS implementations, but it may not be applicable to determining CSFs of LMS implementations in other industries, such as corporate training or higher education. The findings included probable success factors for enterprise system implementations in general, and the methods employed in this study are duplicable, are transferable, and provide opportunities for further research.

Significance of the Study

Understanding CSFs that are suitable for benchmarking successful LMS implementations will help membership associations and other organizations purchase and implement LMS technology. This study was significant because LMSs are the underlying technology in knowledge transfer programs and an essential component for e-learning (Bhuasiri, Xaymoungkhoun, Zo, Rho, & Ciganek, 2012). Learning management systems technology is expensive and carries risks that may prevent organizational leaders from deploying the technology, thereby limiting online learning activities (Alhomod & Shafi, 2013). Identifying CSFs that may aid in the success of LMS projects may have a positive effect on membership associations that offer education programs.

Significance to Practice

Learning management systems technology is a mature but growing industry. Organization leaders increasingly rely on enterprise technology such as LMSs to improve operations, increase profits, and reduce costs (Radwan et al., 2014). Learning management systems are the technology underpinning online learning programs; leaders in government, education, nonprofit, and for-profit organizations around the world use them for a variety of purposes (Berbary & Malinchak, 2011). Understanding the CSFs of LMS implementations benefits organizational leaders who attempted to implement LMSs but were not successful and others who chose not to deploy because of the risks (Bhuasiri et al., 2012). Research on the subject of CSFs for LMS implementations is lacking compared to other enterprise systems, so the LMS and e-learning industries may also benefit from this study.

Significance to Theory

Research of CSFs benefits many types of organizations whose leaders choose to deploy complex software systems to increase efficiencies. Much of the research concerning CSFs demonstrates the benefits of identifying, understanding, and attending to CSFs during the course of complex implementations (Ram & Corkindale, 2014). The void of understanding CSFs of LMS implementations compared to other enterprise systems leaves room for research that may provide significant benefits to organizations whose leaders want to deploy LMS technology for online learning programs (Hanafizadeh et al., 2010). Every advancement in the ongoing refinement of CSF research benefits organizations dependent on technology for growth and prosperity.

In addition to the concept of CSFs, there are sound theoretical underpinnings concerning systems that this study improved. General systems theory applies to systems of many types, including complex software systems (von Bertalanffy, 1972). Understanding the interdependencies of software subsystems and their interaction with the whole system and with the outside world helps researchers understand the complexities of large, highly integrated software programs (von Bertalanffy, 1972). Learning management systems are complex and, as knowledge transfer software, may affect numerous stakeholders in and outside an organization (C. Lin et al., 2011). The study of general systems theory, and how it relates to software systems, contributed to the body of knowledge regarding how to deploy these systems successfully.

Sociotechnical systems theory concerns the interaction of humans with technology. Human interaction with software technologies is a primary concern during complex software implementations and lack of attention to sociotechnical aspects of implementations contributes to failure (Sedighi & Zand, 2012). This CSF category is a factor often overlooked and pushed back to postimplementation, which contributes to the failure of system implementations (Eason, 2014). In the case of LMS technology, human interaction is of a very personal and intimate nature because learning systems deliver learning activities (Al-Busaidi, 2012), which makes the study of LMS CSFs important for STS theory research.

Significance to Social Change

This study may have a positive impact on social change in a number of ways. Positive social change occurs because membership associations have a positive impact on

the industries they serve when they can reach, educate, and certify more individuals using Internet technologies (C. Lin et al., 2011). The positive social change impact on membership associations is reduced risk of purchasing and implementing unprofitable LMS technology, which enables association administrators to extend reach and provide more services to more individuals (C. Lin et al., 2011). The impact of positive social change on individual learners includes additional opportunities for career development, higher wages, and a better standard of living for association members (Radwan et al., 2014). Learning management systems technology is the foundation for most online learning activities; therefore, it has the same impact on society as does e-learning.

Summary and Transition

Learning management systems technology implementations are susceptible to high failure rates and failed implementations like other enterprise systems. Almajed and Mayhew (2013) explained that LMSs are costly and difficult to implement like software systems such as enterprise resource planning (ERP) systems, customer relationship management (CRM) systems, and knowledge management (KM) systems. Understanding CSFs of enterprise software implementations helps reduce failure rates that are typically quite high in complex system implementations (Ram & Corkindale, 2014). The focus of the majority of LMS studies is on academic settings due to the pervasive use of LMS technology in colleges and universities (Parsazadeh et al., 2013). There is a gap in the literature concerning CSFs for LMS technology outside the academic industry.

The purpose of this study was to explore the lived experiences of program managers within membership associations with LMS implementation experience and to

discover the perceived CSFs of LMS implementations. Researchers have showed a two-step process for determining probable CSFs in a given industry for a specific type of enterprise system (Ahlan & Sukmana, 2014; Azimi & Manesh, 2010). A review of literature concerning CSFs revealed that the first step in conducting a study of CSFs was to conduct a literature review to identify what CSFs have manifested in previous studies (Hailu & Rahman, 2012; Shaul & Tauber 2013). Literature concerning CSF studies showed that the second step in the process to identify CSFs was to conduct an empirical study that included either questionnaires or semistructured interviews among individuals who had firsthand knowledge of similar implementations (Bhuasiri et al., 2012; C. Lin et al., 2011). The second chapter of this dissertation includes a review of the literature concerning the concept of CSFs and their role in implementations of enterprise software programs, including LMSs. The chapter involves reviewing, critically examining, comparing, contrasting, synthesizing, and reporting upon relevant literature concerning the concept of CSFs. Chapter 3 includes conceptual and theoretical underpinnings of the study, along with the methods used to conduct the phenomenological study. Chapter 4 covers data analysis and results of the study including the research setting, bracketing, data collection, saturation of the data, and discrepant cases. Chapter 5 comprises a discussion of the results, and a comparative analysis between CSFs discovered in the literature and those discovered in the study. Chapter 5 also contains recommendations for further research and significance of the study in terms of social change, theory, and practice.

Chapter 2: Literature Review

Enterprise technologies are prevalent in most large and medium-size organizations in a variety of industries. Information technology and information systems enable growth and expansion of organizations and are essential for global operations (Aziz et al., 2012; Gomes & Romão, 2013). Technology is overcoming physical boundaries (Beheshti, Blaylock, Henderson, & Lollar, 2014; Duan, Nie, & Coakes, 2010), and a new era of communication is beginning between all organization stakeholders, including customers, employees, suppliers, and vendors (Badewi, 2015; Dabestani, Taghavi, & Saljoughian, 2014; Yazdanpanah & Gazor, 2012). Information technology is pivotal in the orderly development of society, and success is dependent on the ability to integrate information systems for a variety of purposes (Pavlovna, Aleksandrovich, Petrovich, & Yuryevna, 2015). Uses of technology continuously shift and evolve, which creates change for organizations and industries.

The use of technology to support business activities has grown exponentially in the last several decades. Information technology applications have evolved since the early 1980s to the point of operational dependency on IT/IS hardware and software (Doherty, 2014; C. Lin et al., 2011). Dahlberg, Kivijarvi, and Saarinen (2015) acknowledged the significance of IT/IS in terms of enormous investments for enterprise applications of various types. Arif and Shalhoub (2014) and Hailu and Rahman (2012) noted that investments in technology are often seen as an avenue to a competitive advantage. Kehr, Bauer, Jenny, Güntert, and Kowatsch (2013) and Tarhini, Ammar, and Tarhini (2015) asserted that IT/IS investments often serve as a method of reducing costs and increasing

revenue, thereby improving profitability and shareholder value. Properly implemented technology may add tremendous value to an organization.

Academic industry leaders have researched LMS implementation CSFs. Researchers have studied successful LMS implementations from student' perspective to help leaders of institutions of higher education increase the likelihood of success (Almajed & Mayhew, 2013). Numerous factors that are inherent in LMS implementations are not critical in other system implementations, but some CSFs overlap in all large-scale software projects (Parsazadeh et al., 2013). Research of CSFs for LMS implementations is critical to the ongoing success of LMS software and the e-learning industry (Parsazadeh et al., 2013). A need exists for a consistent model for researching CSFs of LMS projects, especially outside academia, where most LMS research has occurred (Radwan et al., 2014). There are large volumes of articles concerning learning technologies in general, with few pointing to CSFs of LMS software implementations (C. Lin et al., 2011; Salmeron, 2009). I addressed this gap by providing insight into previously unexplored areas of LMS implementations.

Literature Search Strategy

The purpose of this qualitative study became apparent after a survey of the literature concerning CSFs in LMS implementations revealed a gap that needed exploring. This study revealed CSFs in LMS implementations within membership associations. The study involved exploring the lived experiences of membership association program managers to discover factors that contributed to, or were barriers to, a successful outcome. The search for information relevant to this effort was cyclical and

led to a saturation of articles that contribute to a collection of CSFs from a variety of enterprise software implementations. The search cycles had common elements. The first element was a broad search conducted on keywords in articles less than 5 years old. The search involved reviewing abstracts to determine the relevancy and keywords of applicable articles used as search terms in subsequent rounds of searches. Reading articles in their entirety involved highlighting interesting citations and pulling the articles for consideration if they were recent. I searched all articles in Google Scholar to explore which researchers had cited the selected articles, and I reviewed each of these. The final step included looking for commonly cited journals and sources and then surveying each for recent articles that might be relevant. This cycle continued with each article admitted to the collection until the same works came up in searches repeatedly.

The process led to identifying just over 300 articles. Researchers have established the concept of CSFs in the literature, and the keywords were useful for finding articles on IT/IS. Another closely related concept was benefits realized from implementations, so I added keywords surrounding *project benefits management* to the keyword search. Examples of keyword search strings included *IS/IT success and/or failure, implementation strategy, project success, project management, key success factors, benefits realization management,* and terms that indicated research models and methods typically used to analyze CSFs, such as *analytic hierarchy process, DeLone McLean model,* and *factor analysis.* I combined each term with several types of enterprise technologies, including LMS, ERP, KM systems, and CRM systems, and searched all these words in groups with *and, or,* and *not* to discover articles that might be relevant.

The most applicable articles were studies of CSFs that demonstrated a process of determining CSFs and that produced CSFs verified by an empirical study. Thirty-seven articles in an initial, brief analysis yielded general categories of CSFs that might have a bearing on this study. I included these articles in a deeper analysis that informed the open-ended interview questions used during the phenomenological study.

Library resources included those at Walden University, the George Washington University, and Salisbury University, as well as databases from the Maryland State University system. Specific databases searched included Academic Search Complete, EBSCOhost, ProQuest Central, ABI/INFORM Complete, Sage Premier, Google Scholar, and Questia. An additional step included cross-referencing articles through crossref.org when looking up information on digital object identifiers. During the lookup process, crossref.org presented similar articles, and I tagged potentially useful articles, located them in other databases, and added them to the collection.

Conceptual Framework

The concept of discovering and applying CSFs in enterprise system implementations became a focus several decades ago as organizational leaders began investing heavily in systems that failed during or after implementation. Program managers and key personnel use CSFs to help focus on factors that are likely to contribute to a successful project (Keramati et al., 2012). Identifying and attending to CSFs is a systematic method of achieving better results in complex software implementations (Dabestani et al., 2014). Critical success factors need careful attention and must receive prolonged attention to ensure project success (Tarhini et al., 2015). The

importance of identifying and attending to CSFs during expensive implementations increases in proportion to the complexity, risk, and investment of the project.

Researchers agree on the definition of CSFs and consider them important. Critical success factors generally refer to the key areas that need addressing to ensure a successful outcome (Ika, Diallo, & Thuillier, 2012; Sangar & Iahad, 2013; Sedighi & Zand, 2012). They will influence the result of a project (Mas-Machuca & Martínez Costa, 2012) and contribute to enhanced organizational performance if monitored and achieved (Huang & Lai, 2012). Ahmad and Cuenca (2013) explained that exploring CSFs, and creating key activities to address them, is essential for success in the modern age of complex IT systems. Using CSFs to improve outcomes in enterprise system implementations has become a common practice.

General systems theory and STS theory comprised the framework for this study. Von Bertalanffy (1972) explained that researchers use general systems theory to research complex systems, such as the human body, the world's ecosystem, and multifaceted societies, as well as to explore complex software systems and the ways they affect various aspects of an organization, its stakeholders, and the environment. Bansal (2013) explained that enterprise software is a complex system because it affects almost every aspect of an organization, including its extended enterprise, and all parts are dependent on one another and the environment. There are several essential elements to consider when using general systems theory to study complex systems. The first is that there is a whole system dependent on several subsystems. Each subsystem is dependent on itself,

on other subsystems, and on the system as a whole. Finally, each subsystem interacts with the environment and changes over time.

General systems theory applies to almost any system. To study complex software systems, researchers must identify the subsystems and model them to create a framework. In many cases, scientists observe the components of a system to create a model, and in other instances, scientists design models based on past research (von Bertalanffy, 1972). First, a scientist creates a model that becomes a benchmark to design interventions, to identify methods of improvement, and to form a foundation for theoretical assumptions that will bear further scrutiny. With each study concerning a complex system, researchers make new discoveries, and paradigms shift. Research becomes more refined, and new variables develop that add complexity and provide additional opportunities for research. Technology has created a situation that supports learning anywhere and at any time using a variety of technologies, so identifying a bounded system is difficult. However, an open and dynamic systems theory creates an opportunity to research CSFs that affects a complex system such as enterprise software.

Sociotechnical systems theory concerns how people interact with technology. Researchers underpinning studies using STS theory have an interest in understanding how humans use technology to benefit themselves, their organization, and ultimately society. Like general systems theory, STS theory underpins the study of subsystems and their dependency on one another and with the environment. Baxter and Sommerville (2011) explained that developing software implementation plans using STS theory engineering increases the likelihood for system success. Researchers evaluate end users,

who are critical in all implementations, because new work is designed and new work groups form. Trist and Bamforth (1951) were instrumental in discovering the power of STS thinking, which has been instrumental in improving the understanding of work environments, work groups, and other aspects of human interaction within the context of complex software implementations (Greenwood & Sommerville, 2013). Managers must anticipate technology's effect on workers' productivity, attitude, and morale (Kull et al., 2013). Humans are often unaware of the complexity of a system and their place in it, which contributes to poor productivity (Eason, 2014). Sociotechnical systems theory can help researchers understand complex interactions among end users of enterprise software implementations (Kurapati et al., 2012). When researching CSFs, the human element appears frequently in the literature.

Review of the Literature

Uses and benefits of technology vary by organization and industry. The larger the organization, the more significant the potential benefit, especially in global markets and in knowledge-based industries (Samad, Kazi, & Raheem, 2014; Venkatraman, Sundarraj, & Seethamraju, 2015). IT applications often create a platform for sharing knowledge, which is the only true source of a sustainable competitive advantage in a global economy (Dabestani et al., 2014; Karami, Alvani, Zare, & Kheirandish, 2015). In terms of IT applications that support knowledge sharing, LMSs are a reliable and tested form of technology that adds value in a variety of organizational settings (Karami et al., 2015). Learning management systems are an avenue for disseminating knowledge and resources that enable knowledge workers to have the right information at the right time to

maximize productivity that provides beneficial effects on organizational performance (Radwan et al., 2014; Salmeron, 2009). Learning throughout the enterprise, which encompasses all stakeholders, is possible in part because of LMS technology in many types of organizations.

Enterprise Technology Implementation Risks

Enterprise systems are expensive to purchase and implement, so they carry significant risk. Implementing any software system that stretches throughout an enterprise requires substantial resources and the integration of numerous groups and departments inside an organization (Pavlovna et al., 2015). Azimi and Manesh (2010) explained that although the adaptation of enterprise application technologies is increasing significantly, they suffer from flawed implementations and failed results. The high cost and corresponding high failure rate of enterprise systems led to an emphasis on discovering CSFs of complex IT/IS implementations beginning in the 1980s (Sorgenfrei, Ebner, Smolnik, & Jennex, 2014). Research on successful, large-scale software implementations extends to all areas of the world and touches virtually every industrial segment (Almajed & Mayhew, 2013). Understanding how and why implementations fail, and what helps prevent failure is a subject of much research and debate among scholars.

The failure of large technology applications often costs more than money. In some cases, failed projects can erode competitive advantage and even bankrupt a company (Dwivedi et al., 2015). Academic and industry literature is prolific in potential solutions to high failure rates and factors that may aid in successful outcomes (Hailu & Rahman, 2012). Detailed analysis exists on various aspects and stages of large

implementations to discover potential factors that may contribute to success (Badewi, 2015). Researchers continue to focus on identifying CSFs that have a high probability of contributing to successful enterprise implementations.

Reducing Risk

Efforts to identify CSFs continue to yield useful methodology for researching CSFs and the effect they have on implementations of various types of enterprise software systems. Identifying CSFs in advance of an implementation helps manage risk and increases the chances of a successful outcome (Ling, 2011). Critical success factors continue to gain notoriety, and interest continues as system implementations become more expensive and complex (Chih & Zwikael, 2015). Enterprise software system implementations have a direct effect on organizational effectiveness; therefore, CSFs have an impact on shareholder value (Ab Talib & Hamid, 2014; Al-Hinai, Edwards, & Humphries, 2013). Numerous researchers have established the benefits of identifying CSFs, but some researchers have questioned their usefulness.

Several researchers have noted that CSFs have flaws and that relying on them may lead to project failure. For example, Bansal (2013) explained that CSFs are not an exact science and, although useful, might have gained unjustified popularity in academic circles. Coombs (2015) added that researchers should view research on CSFs in a large context because projects vary greatly from one company to another, even with similar systems in similar industries. Identifying CSFs will not guarantee successful outcomes, but if taken in proper context, they should do no harm (Azimi & Manesh, 2010). Understanding the methods for determining CSFs might be as useful as the CSFs

themselves, because undertaking research to explore probable CSFs creates an awareness of a broad range of factors that should receive consideration in complex software implementations (Azimi & Manesh, 2010). The majority of articles containing empirical studies on CSFs yielded both a general methodology for establishing CSFs and specific CSFs that may be applicable to enterprise system implementations of various types, including LMSs, ERP systems, KM systems, CRM systems, and others.

The scientific method of conducting CSF research is a by-product of prolific research on CSFs in various fields. A strong research model is necessary to ensure the value of CSFs (Dahlberg et al., 2015). Researchers must evaluate the variety and nature of CSFs, plus the variables inherent in enterprise systems projects, because a standard method for determining CSFs may not fit a particular industry segment or software type (Al-Hinai et al., 2013). Each organization has complex internal factors that greatly affect enterprise system implementations, and research on prior projects will never be sufficient to capture all probable CSFs of a forthcoming implementation (G. T. Lin, Lin, Chou, & Lee, 2014). Identifying CSFs is a worthwhile exercise in general because the cost and risk of large-scale software projects justify the effort of conducting a well-planned study that may help mitigate risk.

Undertaking research to identify probable CSFs in a given industry, or for a particular software application, generally requires reviewing past projects that are similar to the focus of the study and then verifying results with an empirical research project. In addition to the basic project management aspects of software implementations, it is critical to examine CSFs in various stages of implementation and postimplementation

activities (Odusanya & Coombs, 2015; Serra & Kunc, 2015). Organizational complexities also need to receive consideration when conducting research (Venkatraman et al., 2015). Given these variables, it is difficult to research CSFs with any great degree of standardization but adhering to proven research strategies has been effective (Shaul & Tauber, 2013). Using standard research methods to explore CSFs allows researchers to consider very complex interactions that managers might overlook and that could contribute to organizational performance (Hesselmann & Kunal, 2014). Although research methods for determining CSFs are standard, industries vary greatly, as do software types and purposes, so the CSFs differ from one study to another.

LMS Implementations and CSF Research

Knowledge management systems and LMSs are gaining popularity because organization leaders are increasing efforts to encourage knowledge sharing and knowledge transfer, especially in knowledge-based industries and geographically disbursed companies. Effective knowledge transfer aids in producing benefits such as better customer service, lower costs, and improved employee relationships (Arif & Shalhoub, 2014; Breese, Jenner, Serra, & Thorp, 2015). Much of a firm's value derives from intangible assets such as knowledge (Dabestani et al., 2014). The trend is for organizational leaders to help their organizations become learning organizations to enable a rapid adaptation to market and economic conditions (Karami et al., 2015). Sharing knowledge across the enterprise is increasingly becoming the work of LMSs that provides a platform for rapid training and development of employees for a fraction of the

cost of traditional instruction (Parsazadeh et al., 2013). In addition to KM systems, LMSs are the primary enterprise software systems that capture, codify, and transfer knowledge.

Learning systems gained popularity for training and development in large organizations beginning in the 1980s and transformed industries that produce and transfer knowledge for revenue. Learning management systems technologies evolved through the rapid development of related information and communication software platforms to become a staple in higher education (Alhomod, Alsadhan, & Shafi, 2014). Learning management systems technology has transformed the entire academic industry because the technology enhances the knowledge transfer product (Alhomod et al., 2014). Investments in LMS technology are likely to increase, as organizational leaders seek methods to transfer knowledge in the most effective and efficient manner possible (Parsazadeh et al., 2013; Radwan et al., 2014). An LMS affects many parts of an organization; therefore, it is an enterprise technology and carries significant costs and risks during the implementations process.

Whether leaders in an industry use LMS technology to deliver a service, such as in the case of higher education, or merely to improve operations LMSs touch virtually every aspect of an organization. Learning management system implementations require considerable resources in terms of software purchase, configuration and implementation, end-user and technical training, and labor required to develop content that resides in the LMS for individuals to access (Bhuasiri et al., 2012). The LMS technology is largely dependent on Internet access and technology in general; therefore, implementations are complex.

Critical Success Factors

Management team leaders often identify and address CSFs. Critical success factors were originally an upper-level management concern dating back to the 1960s and 1970s when the concept of CSFs emerged as an information-gathering tool to aid in making complex decisions (Arif & Shalhoub, 2014). Organizational leaders cull CSFs from real-world examples and apply them to pending projects (Ahlan & Sukmana, 2014). People discover rather than create CSFs, and it is important to gather CSFs using a scientific method to ensure the best project outcome (Ika et al., 2012). Practitioners and scholars used and refined these methods in past decades as they strived to identify the CSFs that aided in organizational success (Coombs, 2015; Herbst, Urbach, & Brocke, 2014; Sedighi & Zand, 2012). Management teams commonly associate enterprise system implementations of various types with CSFs, and addressing them has become a common business practice (Ram, Corkindale, & Wu, 2013). Success factors are a proven aid in achieving success in complex IT/IS implementations, but their impact on the long-term success of those systems is less certain.

Some experts believe that identifying CSFs is a sound administrative concept similar to employing a solid project management protocol. Basic CSFs receive much attention, although most of the concepts embodied in CSFs, such as solid project management skills, should be common practice (Dwivedi et al., 2015). Excellent project management skills or proper allocation of resources to address common CSFs may not achieve expected objectives (Ram & Corkindale, 2014). In these situations, each department may have a set of CSFs that helps organizational leaders participate in a

successful implementation (Azimi & Manesh, 2010). When many internal stakeholders must adjust to a new software platform, processes and procedures shift, as do culture, practices, and morale (Arif & Shalhoub, 2014). Complex project planning may take many variables into account, but identifying large numbers of CSFs can also dilute resources, as can managing them during implementations.

Identifying CSFs is not a negative factor, unless organizational leaders rely too heavily on them or ignore other factors that may be important. Management sometimes delays investing in CSFs that have the potential for a larger benefit to the organization, such as end-user training, because of the expense (Ram & Corkindale, 2014). Tying CSFs closely to organizational achievement, rather than merely proper software implementation, may reduce the risk of focusing on CSFs (Ram et al., 2013). Ahlan and Sukmana (2014) stressed the importance of identifying CSFs using the best means possible, including expert opinions, scientific inquiry, and organizational knowledge. Basing CSFs on a literature review, or any one method of discovery, could lead to CSFs that do not contribute to project success (Ram & Corkindale, 2014). Empirical evidence helps reduce the possibility that organization leaders will waste resources through a focus on the wrong success factors.

Importance of CSFs. Organizations of all types seek a competitive advantage in the marketplace. Purchasing and installing enterprise software to streamline operations, reduce costs, and improve information for decisions is common (Bansal, 2013). Enterprise systems are complex and expensive; therefore, business managers and researchers continuously seek methods to increase the success rate of large-scale software

implementations (Ab Talib & Hamid, 2014). Critical success factors are important because managers use them to allocate resources during high-risk, high-reward situations (Chih & Zwikael, 2015). Researchers looking for methods to improve various types of complex IT/IS systems in various industries recognize the importance of CSFs.

Several industries gained significant benefits from the concept of CSFs. Complex system implementations that are similar to one another in terms of function or use provide insight on CSFs for upcoming implementations (Azimi & Manesh, 2010). Past projects should be a subject of study with solid methodology so that management teams can rely on the validity and reliability of CSFs (Azimi & Manesh, 2010). Grouping projects for study in terms of types of end users who access the software, industries using similar systems, and past implementations of the same software type are examples of grouping prior studies to create CSFs for upcoming implementations (Hesselmann & Kunal, 2014). Management teams evaluate studies of previous supply chain management software implementations, for instance, to discover CSFs for supply chain software projects (Denolf, Trienekens, Wognum, van der Vorst, & Omta, 2015). Grouping similar types of technology with similar characteristics helps improve the chances that the CSFs discovered provide value in future implementations.

Although studying CSFs in a specific software domain may help narrow CSFs to those that are relevant to a specific project, certain CSFs are generic to many types of complex IT/IS implementations. The concept of CSFs originated as a generic tool to aid in making decisions, and this continues to undergo refinement as researchers use the concept to gain successes (Dabestani et al., 2014). Enterprise resource planning systems

are the most complex and often serve as a baseline to predict CSFs for implementing other systems (Ram & Corkindale, 2014). In addition to studying CSFs in a specific software domain, researchers frequently group the factors they discover into categories.

Sources and categories of CSFs. Researchers first identify and then evaluate CSFs. There are several steps involved in identifying the best CSFs to use in a given implementation (Keramati, Samadi, Nazari-Shirkouhi, & Askari, 2012). The first step involves identifying CSFs using the best method resources will permit, followed by evaluating the CSFs to decide if some need excluding, and finally ranking the probable CSFs in terms of importance (Mas-Machuca & Martínez Costa, 2012). Managers then evaluate the CSFs for feasibility and resources required, which results in a pared down list of CSFs that have a high probability of adding value to the project (Mas-Machuca & Martínez Costa, 2012). An insightful evaluation will reduce the number of CSFs and account for their interactions with one another (Schniederjans & Yadav, 2013). Critical success factors should be measurable and controllable and as few in number as possible to maximize the use of a finite set of resources (Mehregan, Jamporazmey, Hosseinzadeh, & Kazemi, 2012). Following the culling process to identify which CSFs are likely to contribute the most value, management typically groups them by area of responsibility, skill required, or another logical grouping to make managing CSFs easier.

Logical groupings also help organizational leaders to be aware of CSFs that may be beyond internal control. A wide range of environmental factors such as legal and political concerns may affect complex systems implementation (Arif & Shalhoub, 2014). Together with internally controlled CSFs, the list can become complex and specific to a

certain type of implementation (Azimi & Manesh, 2010). Organizational leaders often group CSFs by things that are controllable within the organization and try to allocate fewer resources to those items out of company control (Gomes & Romão, 2013). Critical success factors could come from many different areas inside and outside the organization, and organizational leaders should group them accordingly (Azimi & Manesh, 2010). Grouping CSFs helps managers analyze the potential impact of CSFs because analyzing groups of CSFs by specialized individuals or departments may be best.

Several factors influence ranking and grouping CSFs. The most important factor in analyzing the impact of CSFs is institutional knowledge (Breese et al., 2015), along with knowledge of the potential impact of the software on the process and procedures of the organization. Sedighi and Zand (2012) expanded the required knowledge to include similar implementation experience, which often comes from a vendor or an outside consultant. An experienced project manager will also know which CSFs are dependent upon one another and how they line up in chronological order within the implementation process (Badewi, 2015; Hailu & Rahman, 2012). In many cases, a competent project manager will manage complex projects with interdependencies and will group each of the interdependent projects in terms of CSFs.

Recommendations for grouping or categorizing CSFs vary from one study to another. Ranking according to spheres of responsibility, so work groups or teams handle one or more categories of CSFs, is a common practice (G. T. Lin et al., 2014). Yazdanpanah and Gazor (2012) advocated three broad categories: technology, company processes and procedures, and customer or stakeholder needs. Sedighi and Zand (2012)

divided CSFs into five categories, and each had a bearing on a specific operating group. Proper classification is more important than the number of groups, and the categories must fit the project (Karami et al., 2015; Ram & Corkindale, 2014). Researchers often let the categories reflect the research, but trends in discovering CSFs continue to evolve.

One of the most important elements is using a method to discover CSFs that was effective in the past and fits the current situation. In many cases, researchers suggested categories that manifest from the literature review or prior empirical studies (Huang & Lai, 2012). An initial scan of literature provided information on how past project managers have successfully grouped CSFs for optimal management (Tarhini et al., 2015). Researchers often provide a framework duplicated in similar implementations (Farzin, Kahreh, Hesan, & Khalouei, 2014). Collecting and establishing CSFs, and then allocating CSFs to individuals in the organization other than top management, is a sound business practice.

History of CSFs. The concept of CSFs and their use in IT projects dates back as far as the software programs themselves, and research concerning CSFs has evolved with the systems. The concept emerged in the 1960s and helped frame management decisions outside the IT environment. Then researchers adapted it to software systems as they became important for organizational growth (Ram & Corkindale, 2014). Rockart and colleagues from the Sloan School of Management at the Massachusetts Institute of Technology coined and popularized the term in the late 1970s (Hailu & Rahman, 2012). Rockart was ultimately responsible for tying CSFs to complex software system

implementations (Hailu & Rahman, 2012). Rockart popularized the concept, which continues to evolve.

The concept of CSFs has evolved and become synonymous with success, and management teams regard the application of the concept as prudent while the absence of CSFs in complex implementations are a recipe for failure. As the concept spread, management applied it to almost every industry in the context of IT implementations, and the concept became associated with resulting organizational success (Aziz et al., 2012). Enterprise systems are a solid foundation for success; therefore, implementation CSFs have become associated with a competitive advantage (Ram & Corkindale, 2014). The concept is general enough to apply in a variety of situations, and management teams use it to drill into core management concerns in a quantifiable way, which makes it a popular and enduring model (Garrison, Kim, & Wakefield, 2012). Using CSFs inappropriately can cause significant harm if organizational leaders rely on inaccurate CSFs.

CSFs are not always useful. Despite the popularity of identifying CSFs for enterprise software implementations, many projects continue to fail. Using CSFs without establishing them scientifically or using sound methodology often results in wasted resources (Dwivedi et al., 2015). The methods have improved since Rockart's original work, but many researchers tend to refer to the earlier studies that do not adequately reflect the complexity of current enterprise systems (Dwivedi et al., 2015). Some CSFs are counterproductive from an investment standpoint but upper-level managers often include them based upon their ranking, which contributes to wasted resources that might

be used more effectively elsewhere (Ram et al., 2013). Linking CSFs with outcomes is important and often overlooked in studies.

Some CSFs are of little value because they are too general or have a bearing on organizational success but do not correspond specifically to the implementation. Proper system integration, which is a core implementation CSF, and end-user training are critical for the software implementation and the achievement of long-term goals (Dabestani et al., 2014). Confusion is common concerning the value of CSFs because of poor research, but using tested methods of determining CSFs helps establish CSFs that have the greatest impact on project success given the resources available (Ahlan et al., 2015). The biggest misuse of CSFs is that researchers provide results only to top management when it takes the entire enterprise to achieve success (Sedighi & Zand, 2012). When organizational leaders rely on inaccurate CSFs, they do more harm than good, so some researchers have focused on failure factors instead, as discussed later in this paper.

Enterprise Systems

Enterprise systems are a means to achieve a competitive advantage. Bansal (2013) explained that IT/IS can be highly effective if implemented properly and if organizational leaders use the system to its full capacity. The software need not be custom to affect every aspect of firm operations (Fakieh, Blount, & Busch, 2014). The larger and more complex the system is, the more extensive the impact that corresponds to the potential for a sustainable competitive advantage (Sedighi & Zand, 2012). Some of the benefits of enterprise systems are increased operational efficiency, reduced or controlled costs, better financial oversight, and enhanced technical expertise (Bhuasiri et al., 2012; Farzin et al.,

2014; Pavlovna et al., 2015). Well-implemented enterprise systems can lead to a nearly flawless operating environment (Shaul & Tauber, 2013). Given the benefits of large, complex software applications, it is understandable that many organizational leaders seek to invest in these systems.

A common element in all enterprise software implementations is the breadth and depth to which the organization changes with the installation of the new system. Installing complex systems requires a commitment from all stakeholders and multiple groups within a company (Lindner & Wald, 2011). Dedication, hard work, skill, and experience are necessary, along with a significant investment in end-user training (Beheshti et al., 2014; Mas-Machuca & Martínez Costa, 2012). Project management skills are highly desirable during implementations (Hanafizadeh et al., 2010), but the complexity of the installation is minor in comparison to the ancillary work needed at the institutional level to realize maximum gain. Enterprise systems pull disparate operating groups into one platform, often requiring negotiation and change on the part of multiple parties (Noordin, Othman, & Zakaria, 2013). For these reasons, CSFs are a focus of ongoing study and research.

In practical terms, a new enterprise system nearly always transforms an organization in some way. Learning management systems are enterprise systems that have the potential to affect all aspects of an operation by supporting learning activities and knowledge sharing throughout an organization, which facilitates change management through knowledge transfer (Radwan et al., 2014). Learning technologies overlap with KM technologies and are vital to efficient operations in large multinational companies

(Mehregan et al., 2012). Learning management systems provide a platform for e-learning that can reduce the cost of training and development (C. Lin et al., 2011). Like other enterprise systems, LMSs can be costly to purchase, configure, and implement.

Enterprise systems such as CRM systems, content management systems, and ERP systems hold the promise for growth and profitability. Complex software systems also extend an enterprise by helping to reach more customers, hire more people efficiently, and manage diverse supply chains (Beheshti et al., 2014). Delivering just-in-time knowledge may have a significant positive impact depending on the industry (Parsazadeh et al., 2013). Organizational leaders often use LMS technology to deliver revenue-producing knowledge products as well, which makes it an essential technology in the educational sector and among associations that provide continuing professional development (C. Lin et al., 2011). Leaders of academic institutions have invested heavily in LMS technology to increase revenue.

Learning management systems as enterprise technologies. Information technology systems aid in knowledge preservation and transfer. Information technology solutions provide just-in-time knowledge that can be a source of competitive advantage (Mehregan et al., 2012). Learning management systems move beyond transferring knowledge to codifying and storing knowledge for large, geographically disbursed groups (C. Lin et al., 2011). The ability to transcend space and time in sharing knowledge has led to increased demand for LMSs among organizations of all types (Beheshti et al., 2014). The ability to disseminate knowledge rapidly and to ensure it is in the minds of knowledge workers may be a source of sustainable advantage, depending on the industry

and its reliance on knowledge (Parsazadeh et al., 2013). Organizational leaders deploy LMSs to connect and train employees, suppliers, customers, members, and other groups by extending learning opportunities about products and services to an organization's enterprise.

Learning management systems are primarily for delivering knowledge programs, tracking and reporting learning outcomes, and acting as a repository for information. Modern LMSs reside primarily in a hosted environment and are capable of serving all stakeholders in an organization, regardless of physical location (C. Lin et al., 2011). Learning management systems technology is a growing trend and constitutes a significant portion of IT/IS spending (Parsazadeh et al., 2013). Learning management systems technologies are the underpinning technology for e-learning and used as a profit center for organizations that provide learning experiences for revenue (Radwan et al., 2014). Learning management systems provide a variety of benefits to for-profit, nonprofit, and government organizations, such as rapid access to information, uniform learning experiences, accountability in job performance, self-paced learning, and convenience (Bhuasiri et al., 2012). Various aspects of e-learning constitute a large and growing market, and LMSs are the underpinning technology for online learning programs.

Learning management system technology is a mature but growing industry. Selim (2007) said that e-learning has existed for several decades, and researchers tested e-learning thoroughly in business applications before online learning became popular in higher education. Leaders of LMSs facilitate learning over the Internet by delivering courses and resources and by tracking learning outcomes (Parsazadeh et al., 2013).

Learning management systems are an effective method of delivering large-scale learning opportunities to geographically disbursed individuals and are suitable for teaching all types of learners (Radwan et al., 2014). Benefits of online learning include a more efficient delivery of content, better access to information and resources, self-paced instruction, convenience, and an interactive learning environment (Bhuasiri et al., 2012). Learning management system technology has produced an avenue for revenue growth in a few industries and a method to manage change and growth in many others.

Expense and risk explored. The common element with all enterprise software systems is that they affect a wide variety of stakeholders in an organization. Enterprise systems purchases constitute a multibillion-dollar industry, and their purpose is to improve various aspects of an organization's performance (Herbst et al., 2014). Another element of enterprise systems is that they tend to be expensive and require special skills during implementation because of the wide variety of stakeholders involved with the system (Dahlberg et al., 2015). High failure rates were a direct result of systems spanning many operating units (Hanafizadeh et al., 2010). These complicated and expensive systems require planning, project management skills, and prior implementation experience, along with an intimate knowledge of the organization and probable effects of system implementation.

There is no clear indication of the cost of implementations in relationship to the software purchase, but there is evidence of underestimating resources. Resources required for successful enterprise application implementations span departments with independent budgets (Serra & Kunc, 2015). Without proper planning for each of the operating units,

projects fail because of the interdependent nature of enterprise systems (Serra & Kunc, 2015). Organizational leaders often integrate large information systems processes throughout an organization, including sales, operations, human resources, and, in many cases, the entire supply chain (Coombs, 2015). Although the underpinning technology is essential, it is only as valuable as the organization's proper implementation and use of the system (Sedighi & Zand, 2012). Organizational leaders will either have to find a software application that mirrors existing operations, adjust operations to accommodate the new system, or strike a balance.

Internal and external testing and evaluation usually inform the decision to purchase and install an enterprise system, regardless of what type. Best practices and prior documented successes are factors that may influence upper management in making a decision to purchase software without understanding the impact it may have on the enterprise (Shaul & Tauber, 2013). A complicated mix of operations, culture, knowledge, and training is necessary to ensure enterprise system success (Karami et al., 2015). The importance of technology and its proper deployment contributes to a successful outcome (Matayong & Mahmood, 2013). Organizational leaders identify CSFs in advance for many types of software installations, provided the scope is narrow and prior experience exists.

Defining Success

Understanding the CSFs of enterprise software implementations is dependent upon the definition of success. Researchers study implementations of complex systems such as ERP systems extensively to explore CSFs but many studies include only the

actual installation of the software, which is merely a project management issue (Shaul & Tauber, 2013). The extent to which implementations are successful is a source of considerable debate (Toloie-Eshlaghy & Akbari-Yusefvand, 2011), and authors often attempt to extend the definition of success to the contribution of the software implementation in accomplishing the mission of the organization. Direct links to software become more difficult as the definition of success expands (Azimi & Manesh, 2010). Organizations in which leaders successfully implement enterprise systems often experience a competitive advantage, so most authors include the implementation as an underlying contributor to success (Serra & Kunc, 2015). Where to stop the research in terms of CSFs for learning systems depends on the difference between successfully implementing the software and overall program success that requires many additional factors such as content development.

There are typically numerous stakeholders affected by enterprise software implementations, and LMSs are no exception. Enterprise systems can touch the entire supply chain, which includes customers, employees, vendors, management, and even shareholders (Pavlovna et al., 2015). Pinpointing critical stakeholders and determining what success means to them helps to decide which CSFs contribute to organization effectiveness (Al-Hinai et al., 2013). Sound research into CSFs should include the measurement of those factors most important to experts in the industry or organization under study (Hailu & Rahman, 2012; Yazdanpanah & Gazor, 2012). Any long-term organizational success derived from enterprise software is wholly dependent on the implementation of the software (Sorgenfrei et al., 2014). Understanding the CSFs of a

successful enterprise software implementation is a recommended first step for research and serves as a foundation for further study into more complex success factors.

Implementation success versus organizational success. Enterprise systems, if implemented and used properly, may ensure the ongoing success and growth of an organization. Literature indicates a successful complex software implementation may provide significant economic benefits, and organizational leaders expect gains in productivity from LMSs (C. Lin et al., 2011). Complex systems such as ERP systems and KM systems carry the expectation that they will contribute to the success of an organization (Serra & Kunc, 2015). Customer relationship management (CRM) systems are valuable investments in terms of long-term revenue gains because they are capable of managing relationships across an enterprise (Yazdanpanah & Gazor, 2012). Evaluations of the quality of CSFs differ because there are various measures of success for different types of systems and in disparate industries.

Enterprise systems contribute to success in a variety of ways. Most complex systems contribute superior information gathering and sharing across an organization (Bhuasiri et al., 2012). Almost every type of enterprise system provided superior information to management that had positive effects on planning and making decisions (Sangar & Iahad, 2013). The most important information generated by enterprise systems concerned customer satisfaction, product or service growth potential, and related financial information (Kumar, Singh, & Shankar, 2015). The benefits to gain from purchasing and installing enterprise software applications are significant, and a successful implementation is critical for achieving expected business benefits.

A gray area of research exists concerning where implementation stops and use begins. A successful implementation has a significant impact on the long-term benefits of the software, and CSFs are a useful tool for improving the chances of a successful IS/IT software implementation, but may fall short when linked to organizational performance (Coombs, 2015). Upgrading technology does nothing to improve performance, but proper use of the system does create value (Hailu & Rahman, 2012). An implementation is successful when the project comes in on time and under budget, although benefits of a software investment are more subjective and difficult to gauge (Serra & Kunc, 2015). For these reasons, researchers look for CSFs to improve software implementations.

Role of implementation in success. Exploring CSFs that may have a positive impact on enterprise software implementations aids in improving business outcomes from complex systems because every long-term benefit is dependent on an implementation. There are several implementation cycles in complex IT/IS software projects, including pre- and postimplementation, along with the actual implementation during which time software installation occurs (Shehzad, Khan, & Naeem, 2013). Each phase may have different CSFs, and a sound software purchase and implementation plan will indicate the definition of success at each phase of the implementation with a positive economic outcome as a long-term goal (Shehzad et al., 2013). Critical success factors are a management tool to aid in decisions concerning the allocation of resources for the highest probability of success.

Variables that affect a successful outcome can be difficult to predict, especially with multiple phases involved. For example, the IT department, along with top

management, may have the most important impact on implementation, but after the software is in place, many other groups help ensure the success of the system (Sangar & Iahad, 2013). Internal and external factors all have an impact on success, including communication, experience, project management skills, end-user training, and a host of other factors (Sabri, 2014). The simple definition of project success, which is on time and under budget, is not sufficient with large-scale software systems (Badewi, 2015). Using CSFs does not show a direct correlation to actual implementation success, because only the properly-implemented CSFs underpin a successful project (Azimi & Manesh, 2010). Successful implementation is mandatory in all software implementations, and although other factors may be indicators of success in certain projects, CSFs often vary after implementation.

Failure Factors

Researchers report high failure rates despite using CSFs discovered using appropriate methodology. Complex systems deployments often fail, despite large investments in these systems (Marnewick, 2016; Sangar & Iahad, 2013). Cost and time overruns may or may not accompany failure (Azimi & Manesh, 2012). Partial failures are common, and organizational leaders will add resources in an attempt to manage projects to a successful conclusion (Dwivedi et al., 2015). Failures can be catastrophic for organizations and can lead to breakdowns in essential systems that eventually cause damage up to and including bankruptcy (Keramati et al., 2012). Some researchers include, or focus on avoiding, common failure factors in their studies.

Prior research of CSFs commonly includes failure factors, or barriers to success, as well as success factors. Researchers discover failure factors in advance through research methods similar to uncovering CSFs, but variables often hamper these efforts (Keramati et al., 2012). Results differ significantly from one organization to the next and failure factors may only emerge after an implementation fails (Sedighi & Zand, 2012). Projects fail even after allocating significant resources (Ram & Corkindale, 2014). Elaborate research and planning to identify critical success and failure factors may give organizational leaders a sense of false security that leads to implementation failures.

Researchers have identified some common failure factors in the literature concerning system implementations. One of the most commonly cited reasons for failure is poor decisions and incorrect resource allocations during implementation, which are avoidable to some extent by identifying CSFs in advance (Arif & Shalhoub, 2014). Environmental factors outside a company's control and reliance on outside vendors are common failure factors (Sedighi & Zand, 2012; Shaul & Tauber, 2013). Understanding factors that are outside an organization's control can serve to mitigate potential damages.

Environmental factors are often outside the control of the organization and can act as benefits or drawbacks to complex system implementation. A common failure factor is leaving decisions in the hands of upper-management personnel who may have little understanding of the underpinning requirements of individual departments (Pavlovna et al., 2015). Poor communication within the organization and with outside vendors or consultants often contributed to failure (Aziz et al., 2012). Organizational leaders should

identify these general failure factors, like success factors, in advance after reviewing prior projects.

Human resources as a failure factor. A reoccurring theme in implementation failure research is inattention to human factors. The nature of enterprise systems is that they tend to affect a large number of stakeholders, including employees, customers, and suppliers, and the use and acceptance of the new system are critical for success (Pavlovna et al., 2015). Top management often does not anticipate these factors, and if management is aware of the importance of retraining and educating stakeholders, then the cost is often significant, which leads to shortfalls in resources for end-user education (Bansal, 2013). Communicating ineffectively with end users is also a major failure factor, as buy-in is essential but often overlooked in the implementation planning process (Beheshti et al., 2014). Ensuring the effective use of the system is critical for both the implementation and the success of the system.

Several common failure factors relate to various groups of stakeholders. Lack of involvement of employees, customers, and vendors at the outset of the project often leaves ownership to a few people who may not use the system, and this leads to low morale and resistance to change (Samad et al., 2014). Large-scale system implementations can affect many aspects of day-to-day work for employees, and failure to anticipate this is often catastrophic (Dabestani et al., 2014). Changes in procedures, tools to do the job, and skills required to be successful may shift in an enterprise IT/IS implementation, leaving employees unable or unwilling to perform job functions (Kehr et

al., 2013). In addition to specific human factors, such as job and task training, overarching human resources issues may prevent a successful implementation.

Communication and teamwork are two commonly cited elements of human resources that need addressing to prevent failures. Dabestani et al. (2014) cited teamwork as critical for the successful implementation of large software systems. Other less concrete factors, such as culture and the ability to change, may have a bearing and be ignored or overlooked in the planning and implementation process (Keramati et al., 2012). Knowledge among stakeholders of frequent system failures often compounds resistance to change (Ahmad & Cuenca, 2013). Just the anticipation of a catastrophic change such as enterprise system installation can cause employees to leave an organization and lead to failure of the initiative, loss of revenue, and even bankruptcy (Aziz et al., 2012). Anticipating and overcoming obstacles concerning end users is often the most important factor in preventing failures.

Methods for Discovering Critical Success Factors

Discovering CSFs typically involves two steps: reviewing literature for information on prior implementations and following up with an empirical study to verify results. Several tested research methods and models are available to discover CSFs (Ahlan et al., 2015; Schniederjans & Yadav, 2013). Denolf et al. (2015) advocated using reliable methods demonstrated in prior studies for good results. For example, Denolf et al. noted that most CSF research incorporates literature analysis, and focusing on prior empirical studies of similar software implementations may help narrow CSFs to those

most important. Following up a literature analysis with either a qualitative or a quantitative study can improve the outcome of the research.

When conducting research to discover a set of CSFs to use in an upcoming enterprise software implementation, researchers use a model shown to be effective. Researchers look for both a good method and CSFs (Denolf et al., 2015) when conducting the initial literature review. The methods found in a review of the literature then inform the subsequent analysis and study (Schniederjans & Yadav, 2013). The model used to identify CSFs is limited to the availability of suitable prior studies and a similar implementation to test the validity of CSFs discovered in the literature (Schniederjans & Yadav, 2013). Depending on resources, surveys or interviews follow a systematic literature analysis to validate findings (Chih & Zwikael, 2015). Huang and Lai (2012) advocated conducting an empirical study and indicated that approximately half of the follow-up studies were quantitative with surveys and the remainder involved qualitative techniques. The basis for the decision on which method to use is the availability of and access to study participants.

Categorizing and prioritizing CSFs is useful in allocating resources for implementations. Literature often includes organizing CSFs discovered in some manner, and this research may serve as a guide for organizing CSFs in terms of areas of responsibility, budget control, or department (Lindner & Wald, 2011). Collecting and analyzing CSFs to inform an expensive, high-risk implementation requires sound processes because inaccurate CSFs can lead to catastrophic failures.

The methodology of CSF research may include reviews of prior similar software implementations, and other types of enterprise systems in similar industries or within companies of similar size. In addition to the initial desk research, field studies should include industry experts, managers, technicians, and contractors with deep knowledge of past implementations (Ahlan et al., 2015). Researchers should survey experts after the literature review and before the field study to triangulate the research as thoroughly as possible (Farzin et al., 2014). The results of this effort serve as a basis for survey or interview questions and serve to keep the study bracketed and focused.

The literature concerning CSFs also indicated that a mixed method study is preferable to either a qualitative or a quantitative study when resources exist. Researchers analyze interview transcripts from a qualitative study to create survey questions to distribute to a wider group (Karami et al., 2015). Analysis of qualitative data might reveal CSFs not discovered in a literature review, and researchers who limit survey questions to CSFs discovered in a review might miss important CSFs (Farzin et al., 2014). Researchers triangulate data to discover and present to management the most important CSFs.

During empirical studies, researchers consider participants' stakeholder status within an organization. A top-down research approach includes uniformity (Ahlan et al., 2015). A bottom-up study provides insight on end-user and change management issues that may not be obvious at a higher management level, and whenever possible, a field study should include both approaches (Kumar et al., 2015). Akhavan and Zahedi (2014) recommended separating CSFs in implementation phases and indicated that CSFs may

change radically from one phase to another. Follow-up studies of implementations in different industries and countries, and over a prolonged time, help to validate CSFs (Keramati et al., 2012). Resources may limit the method or model employed for a two- or three-part research effort, but a preliminary literature review was suitable for forming a foundation for the study that verifies CSFs discovered in the literature of prior implementations.

A review of literature concerning CSFs must contain articles on prior implementations that are similar to the implementation under study. Herbst et al. (2014) suggested identifying implementations of similar software because CSFs may be common in similar software implementations. Hesselmann and Kunal (2014) cautioned against limiting the review to similar software and recommended extending the search to organizations that have experience with complex systems implementation. Researchers recommend reviewing a variety of literature, including desk research, qualitative, quantitative, and a mixture of these (Ab Talib & Hamid, 2014). Software implementations affecting similar stakeholders should undergo evaluation, even though the software might have different purposes (Huang & Lai, 2012). Enterprise systems are similar in the breadth and depth to which they affect stakeholders throughout the value chain, so looking for CSFs in implementations in similar industries is a common practice.

Too many and inaccurate CSFs tend to have adverse effects on implementations, so it is important to reduce them to a manageable collection of actionable items. As a starting point for a literature review, Ram and Corkindale (2014) suggested reviewing literature on all similar software implementations in peer-reviewed journals dating back a

decade and then culling those that were not specific to identifying CSFs. In contrast, limiting research to recent implementations makes more sense because technology is continuously evolving (Hanafizadeh et al., 2010). Researchers should include books, theses, and recent popular magazine articles in their research whenever possible (Aziz et al., 2012). Case studies are also a valuable source of information concerning successful implementations (Akhavan & Zahedi, 2014; Beheshti et al., 2014). Hesselmann and Kunal (2014) advocated using prior studies as a guide for information inclusion in a similar manner as looking for an appropriate study method. No matter the starting point, analyzing, evaluating, and prioritizing CSFs will be necessary.

Only articles with CSF research closely relating to the problem under study are suitable for an in-depth analysis of probable CSFs that may inform the implementation under study. A practical number of articles to include in a determination of CSFs for further testing in an empirical study was between 20 and 40 (Ahlan et al., 2015; Matayong & Mahmood, 2013; Tarhini et al., 2015). Sangar and Iahad (2013) suggested choosing articles after a careful analysis of all relevant factors to provide the best possible CSFs. Researchers choose a classification protocol from the literature, along with a process for selecting and including CSFs (Sorgenfrei et al., 2014). Researchers organize classifications according to groups of stakeholders affected by the implementation (Sedighi & Zand, 2012). After grouping CSFs, researchers compare and contrast them to the literature to ensure they are accurate, complete, and significant.

Researchers have various recommendations on the number of final categories included in a review. Twenty factors categorized into four or five categories form a

manageable group of CSFs (Bitzer et al., 2013). One category should identify failure factors as well (Keramati et al., 2012). Organizational leaders should organize CSFs so that parties responsible for attending to them have a set on which to focus that is manageable and practical (Aziz et al., 2012). The leaders then verify the CSFs in a field study that involves using the categories to identify study participant groups.

A quality research study to identify CSFs involves validating findings from the literature analysis in a qualitative or quantitative study. In a quantitative study, a researcher converts CSFs to a survey instrument and distributes it to stakeholders with implementation experience similar to the problem under study. In a qualitative study, a researcher uses the CSFs as a basis for open-ended interview questions (Huang & Lai, 2012). A qualitative study is ideal for enriching the material discovered in a literature review (Huang & Lai, 2012). Qualitative researchers identify nuances, processes, and concepts that might have a bearing on the importance of CSFs (Huang & Lai, 2012). The significant aspect of managing a qualitative study to inform CSFs is to use the information in the literature review to guide the interview questions.

The purpose of the qualitative phase of this study was to explore a set of CSFs verified by the literature review and recommended by others in similar situations. Beheshti et al. (2014) suggested using participants similar to those in the organization that will use the CSFs and who have undergone complex implementations. Researchers should ask specific questions of each qualified participant in an open-ended format to encourage further exploration (Block & Erskine, 2012). Researchers need to extract

detailed accounts of LMS implementation experiences from participants to discover challenges and ways to overcome them.

Critical Success Factors of Enterprise System Implementations

A review of the literature concerning CSFs led to the discovery of a number of CSFs supporting enterprise software implementations, which I critically evaluated from a high-level perspective. Researchers easily quantify and monitor some CSFs, such as processes or procedures, end-user training, and system integration, but others are not so well defined (Karami et al., 2015). These include organizational culture, ability to change, communication, and strategic thinking (Dabestani et al., 2014). Management support, vision, and teamwork are among the most important categories of CSFs, along with user-friendly technology and good project management (Arif & Shalhoub, 2014). Beheshti et al. (2014) added vendor support to the list of top CSFs. Critical success factor categories must reflect responsibilities of various groups of stakeholders (Al-Hinai et al., 2013). The literature analysis resulted in categories of CSFs that spanned numerous types of enterprise software.

Upper management. Management support is a common CSF. When a software implementation spans the entire organization, top management must communicate the importance of the new system to all stakeholders (Beheshti et al., 2014). Several CSFs that might be in the upper management category are vision, strategy, commitment to change, and overall allocation of resources (Alhomod & Shafi, 2013). Upper management is responsible for communicating the importance of the software for organizational growth (Kumar et al., 2015) and for providing direction for the future of

the organization (Ahlan et al., 2015). Although most articles included management support as a CSF, the level of management involved varied according to software type, with ERP requiring support from the very highest levels of management because of the expense and risk.

Management responsibilities varied from one type of implementation to another. Upper management is responsible for navigating environmental factors that might be difficult to manage (Schniederjans & Yadav, 2013). Organizational leaders allocate resources for large-scale implementations at the very highest levels (Aziz et al., 2012; Keramati et al., 2012). Organizational leaders define and enforce some policies and procedures at very high levels, and this CSF becomes important when the organization must change to fit the software (Badewi, 2015). Some complex software implementations require partnership-like relationships with vendors that only upper management might approve (Pavlovna et al., 2015). A clear strategy for the direction of the firm is critical, as is a strategy for a successful implementation.

Strategy goals and mission. A number of researchers stressed the importance of a sound implementation strategy. Ram et al. (2013) explained that a vision for operations postimplementation might be an upper management responsibility, but the strategy for managing the process usually falls on the group best qualified. Precise implementation planning requires skill and experience (Hailu & Rahman, 2012). In addition to experience, an analysis of internal and external factors sets the stage for planning and strategy, and strategy formulation must include qualified individuals with organizational knowledge (Karami et al., 2015). Enterprise software implementation strategy goes far

beyond software installation and integration and involves planning for adaptation and acceptance among all stakeholders, including employees, customers, and others in the supply chain (Mehregan et al., 2012). The consensus among researchers was that allocating resources to planning and strategy development is a sound practice.

In addition to forming a strategy, researchers highly rated supporting and enforcing it through the process. In the study conducted by Beheshti et al. (2014), all implementations adapted a formal strategy for acquisition and implementation except for one, and it was less successful as a result. Knowledge of CSFs in other successful projects is typically suitable to inform the strategy (Aziz et al., 2012). Communication and change management strategies are important elements in the formal implementation plan (Tarhini et al., 2015). A strategy for training end users on using the new system is also critical for success (Karami et al., 2015). Different types of systems require different implementation strategies, and LMSs are particularly complex depending on their use, because LMSs are suitable for knowledge transfer among end users (C. Lin et al., 2011). Learning management systems also serve as a strategic resource for other system implementations because they can provide end-user training on the use of the new system (C. Lin et al., 2011). An important consideration of a strategy is to make a formal commitment and to establish measurable benchmarks (Schniederjans & Yadav, 2013). One of the strategies commonly employed is a formal plan for managing a project.

Project management. According to the research in the literature review, managing implementations using established project management practices increases the likelihood of success, so researchers usually include it as a CSF. Proper planning,

controlling, and reporting on progress is a key factor in complex implementation success (Schniederjans & Yadav, 2013). Project management practices exist at various levels of an organization, with responsibilities changing during the process (Beheshti et al., 2014). In complex implementations, teams of project managers often work together across the enterprise to coordinate and control various activities (Pavlovna et al., 2015). For instance, there may be a project plan for training and employee development, managing stakeholders, and orienting suppliers, and these smaller projects are interdependent on one another and managed at a higher level (Almajed & Mayhew, 2013). Managing, controlling, and reporting against milestones are particularly important and are all components of project management.

The manner in which project managers coordinate and control numerous aspects of implementations varied in the literature. A formal project manager should maintain control of the implementation from start to finish (Denolf et al., 2015; Keramati et al., 2012). Hiring a project manager from outside the organization with deep implementation experience is necessary for complex implementations (Ram et al., 2013). Beheshti et al. (2014) disagreed with the fact that a single person should be responsible for an implementation and noted that project management teams are necessary for complex implementations. No matter who manages which aspects of a project, it is important that leaders apply standard project management principles (Akhavan & Zahedi, 2014). The basic tasks of project management are quantifiable, and researchers can report against them and provide evidence of success or failure at milestones during the project.

Culture and the ability to change. One of the top CSFs in enterprise system implementations is an organization's ability to change. Large-scale software implementations tend to go well if the organization has a culture that accepts change (Schniederjans & Yadav, 2013). A thorough understanding of change management practices is essential for a system implementation that involves large numbers of stakeholders (Aziz et al., 2012). Poor change management is a common failure factor as well (Aziz et al., 2012). Common cultural aspects contributing to success are a culture of knowledge sharing, teamwork, and learning (Karami et al., 2015: Sedighi & Zand, 2012). Identifying an organizational culture that embraces change and leverages it to help ensure success is much easier than managing change in an organization that has a history of resistance to change.

One of the most important elements in managing large-scale change is to communicate with stakeholders well in advance of the implementation. Preparing for change includes communication concerning goals and expectations from management at all levels of the organization, especially from the top (Beheshti et al., 2014). Communications to facilitate change become part of the strategic plan like other aspects of the implementation (Schniederjans & Yadav, 2013). Whenever possible, organizational leaders should identify positive organizational traits and exploit them to help manage change.

Organizations have strengths and weaknesses, and identifying groups that contribute or detract from the implementation is important. A competitive spirit, for instance, may contribute to organizational change (Ram et al., 2013), as will a motivated

workforce (Aziz et al., 2012). Knowledge sharing, teamwork, and open communications are also hallmarks of a change-centric organization (Beheshti et al., 2014). Identifying these soft organizational attributes and leveraging them helps manage the change required to implement an enterprise software system.

Technology. Technology and vendor selection, system integration, and support all play a critical role in the success of a complex software implementation. Software must fit the organization or undergo customization because the more organizational leaders must change core processes to fit the software, the higher the probability of failure (Almajed & Mayhew, 2013). System users should be able to adapt to the new software and processes (Karami et al., 2015). The system should also have a user-friendly interface (Parsazadeh et al., 2013). The usability of the system is important in implementing LMSs (C. Lin et al., 2011). Organizational fit and end-user acceptance are failure factors often overlooked in favor of system installation and integration.

The vendor, software quality, and competency of the organization's IT team are also CSFs in the technology sector. In many cases, new enterprise software installation, integration, use, and support are beyond the experience and skill of existing staff, and Schniederjans and Yadav (2013) recommended hiring outside experts to augment organizational competencies. Quality of the software and its ability to manage organizational processes and integrate with other systems is a CSF that should have top priority (Radwan et al., 2014). Learning management systems require a stable operating environment from the point of course delivery and on the part of end users who are often

geographically disbursed (Radwan et al., 2014). Another advance activity is mapping the software to current operating processes.

Selecting the right software is a CSF, as is selecting a good vendor. Every organization has unique business processes that need analyzing to decide if the software is a good fit. In many cases, software affects stakeholders outside the organization, such as customers, suppliers, and distributors, and organizational leaders should make an effort to decide what effect the software will have on their operations (Denolf et al., 2015). Stakeholders outside the organization are of particular importance in LMS implementations because they facilitate knowledge transfer, which is a unique end-user experience (Parsazadeh et al., 2013). Understanding how software will affect the operations of the organization and the workflow of its people is critical for success.

In addition to installation, software requires upgrading, maintaining, and integrating with other systems. Reliability and system maintenance are critical (Radwan et al., 2014). Organizational leaders must anticipate end-user support in advance and manage it during the implementation (Aziz et al., 2012). Support must come from the vendor as well as from the internal IT staff, and organizing support to provide a comfortable and predictable end-user experience is critical for system success (Parsazadeh et al., 2013). The technology has no use until humans use it, so the human element is a CSF category that is important but often overlooked during the implementation phase in favor of technology.

Human resources. Researchers tend to agree that human resources are an essential CSF and can be a failure factor as well. People are the crucial element in an

organization and have a significant impact on the outcome of a system implementation (Aziz et al., 2012). A number of CSFs fall under the human resources category, including system training, compensation, knowledge sharing, and recruiting to acquire new skills when required (Karami et al., 2015). Subjective human resources factors are difficult to manage, including motivation, resistance or unwillingness to change, teamwork, communication, and morale that can have a direct effect on employee turnover during an implementation (Pavlovna et al., 2015). Turnover during a large-scale implementation can cause a catastrophic failure (Pavlovna et al., 2015). Some organizational leaders manage and tightly control human resources CSFs but only monitor others to avoid a failure.

Human resources CSFs that are controllable often require significant resources in terms of time and money. As important as human resources CSFs are, many managers choose to ignore them when allocating resources because the outcomes of investments are often subjective are not trackable, specifically to the project (Sedighi & Zand, 2012). As with other CSFs, the human element becomes more critical with large and expensive implementations (Beheshti et al., 2014), but managers are likely to put available resources into technology and other quantifiable assets rather than invest in human interventions. One human resource investment that researchers agree is critical for implementation success is end-user training.

End-user training on use of a new system often ends up in the postimplementation phase rather than the implementation phase, which can contribute to project failure (Aziz et al., 2012). Training is essential for users to manage their new workflows properly, and

failure to train appropriately usually leads to project failure (Aziz et al., 2012). Alhomod and Shafi (2013) conducted a study and showed end-user training was the most important factor in LMS implementations. Training is one of the most important factors in ERP systems because using a new system disrupts routines, and new knowledge must replace old workflows properly or the organization will become inefficient quickly (Ram et al., 2013). Training is among the most important CSFs for enterprise system implementations (Bitzer et al., 2013; Schniederjans & Yadav, 2013). Lack of training is instrumental to implementation failure.

Gap in the Literature

Current research concerning CSFs in LMS implementations largely applies to academic institutions and generally includes all aspects of e-learning programs, of which LMS technology is only a part. Learning management systems are a critical component of any e-learning program because they provide a delivery platform for course content and associated resources (Salmeron, 2009). Within the technology category of e-learning program success factors, a number of CSFs are only applicable to academic organizations such as integration with class scheduling systems, technical training for faculty, and adequate help-desk support for students (C. Lin et al., 2011). System integration, for example, is necessary in all enterprise systems installations, but learner and faculty support are unique technical elements of LMS implementations researched primarily from an academic standpoint (Aziz et al., 2012). Learning management system implementations require new skill sets that might not be available from within the institution, as is the case with most enterprise system implementations (Bhuasiri et al.,

2012). Such implementations in academic institutions constitute an alteration to the delivery of a core service, which is not the case in most enterprise systems deployments, so technology expertise inside the institution is necessary (Alhomod & Shafi, 2013). Understanding LMS implementation CSFs requires knowledge acquired from sources outside an academic environment.

Critical success factors in the management category are applicable to most enterprise software implementations, but some are specific to LMS deployments. A number of CSFs are important, but not specific, to LMS technology, such as management support in terms of funding, vision, and long-term strategy (Alhomod & Shafi, 2013). Management in academic institutions had unique responsibilities concerning the deployment and adaptation of LMS technologies because they fundamentally change core competencies (Aziz et al., 2012). Management CSFs of LMS technologies outside an academic setting remain unexplored, and this study helped bridge this gap.

User adaptation is a CSF in all enterprise system implementations, but end users of LMSs are different from one industry to another. Successful LMS implementations are dependent upon learner use and, in academic institutions, faculty adaptation (Bitzer et al., 2013). Learning management system implementations have a number of CSFs not required in other industries, such as establishing new learning methods and providing training on using an LMS for those outside an organization (Parsazadeh et al., 2013). The unique LMS implementation CSFs may or may not be crucial to LMS implementations outside academia. One common CSF in enterprise systems implementation is a streamlined and attractive user interface, and in the case of LMS implementations, users

can be outside the organization and may only be occasional users (Radwan et al., 2014). Delivering learning programs in an easy-to-use format is critical for the success of an e-learning initiative and is dependent on LMS and course-authoring technology (C. Lin et al., 2011). These CSFs do not appear in other types of software implementations, and they might vary significantly between academic institutions and other industries.

Information concerning CSFs of LMS implementations is disparate compared to the body of research available for implementations of other enterprise systems such as ERP systems, KM systems, and CRM systems. The information available on CSFs of LMS implementations largely refers to academic institutions, which left LMS implementations outside academia to explore (C. Lin et al., 2011). This study involved addressing this gap by investigating CSFs of LMS implementations within membership associations, which is an industry segment that includes LMS technology but remains underrepresented in current research concerning CSFs of LMS implementations.

Summary and Conclusion

Learning management systems are similar to other complex software systems, as they often extend to the entire enterprise. Learning management systems technologies have unique CSFs, including learner motivation, content, learning activities inside or integrated with the system, and complex technical support (C. Lin et al., 2011). The focus of the majority of the studies concerning LMS implementations is on e-learning programs, of which LMSs are an underlying technology (Radwan et al., 2014). The majority of these studies took place in institutions of higher education, which left LMS implementations outside academia unexplored.

The objective of this study was to close the gap in the literature concerning CSFs of LMS implementations by duplicating the methods used in prior research to design a study of CSFs of LMS implementations outside academia. This phenomenological study included instruments constructed from an in-depth analysis, conducted in NVivo, of the literature herein to cull probable CSFs. The study involved using these instruments to gain an understanding of CSFs in LMS implementations among program managers in membership associations who have direct experience implementing LMSs.

Chapter 3 includes the design and rationale for the study to identify CSFs of LMS implementations in membership associations. Topics in Chapter 3 include my role as the researcher and the principles of hermeneutic phenomenology, as well as the methods of conducting a phenomenological study to discover CSFs. The chapter also includes specific information concerning the participants, who were learning program managers of membership organizations with firsthand knowledge of successful LMS implementations, the process of selecting and interviewing them, and the basis on which I formed and tested interview questions. Chapter 3 also includes a detailed explanation of the phenomenological method of data analysis and details of the analysis that yielded a set of CSFs that inform future LMS implementations. Finally, the chapter includes a discussion on the issues of validity, reliability, trustworthiness, dependability, and transferability, as well as strategies I used to ensure my study adhered to these principles.

Chapter 3: Research Method

The purpose of this qualitative phenomenological study was to gain an understanding of the CSFs underpinning effective LMS implementations through exploring the lived experiences of program managers within membership associations who have managed successful LMS implementations. Enterprise IT/IS projects are complex, require considerable investments, and may yield benefits leading to a sustainable competitive advantage (Almajed & Mayhew, 2013). The large number of failures of enterprise systems makes research concerning CSFs essential (Almajed & Mayhew, 2013). Researchers study CSFs extensively for ERP systems, KM systems, CRM systems, and other complex software systems, but research concerning LMS includes only institutions of higher education, thereby leaving CSFs for LMS implementations in other industries unexplored (Almajed & Mayhew, 2013). This study took place within the membership association industry because LMS technology facilitates learning programs for certifications and continuing professional education in many of these associations.

Chapter 3 includes information concerning how I conducted this study to discover CSFs that will inform successful LMS implementations. This chapter includes a detailed presentation of the study, including information about the research design and methodology. The chapter also includes a discussion on my role as the researcher, along with approaches that helped ensure the study was valid, trustworthy, and transferable for future research. The chapter includes details on the participants, the ways I recruited them, and the instruments I used in the study.

Research Design and Rationale

A qualitative phenomenological research method was appropriate for this study, because the problem was complex, as is the case with most social science projects. A qualitative study includes the necessary framework to create a complex but flexible account of the nature of the experience under study (Vaismoradi, Turunen, & Bondas, 2013). A phenomenological study was more preferable than a quantitative, or mixed method study, because I needed to purposefully identify individuals who had similar LMS implementation experiences (Al-Hinai et al., 2013). To discover CSFs through the experiences of program managers who had direct LMS implementation experience, participants provided information on success factors, obstacles faced, and strategies used to overcome them (Beheshti et al., 2014). The research question for the study was as follows:

Q1: What are the lived experiences of program managers within membership associations with LMS implementation experience, and what are the perceived CSFs of LMS implementations?

A phenomenological study was ideal for exploring this research question, because the purpose of phenomenological inquiry is to explore the universal essence of the lived experience of a common phenomenon, which in this case was the implementation of a complex enterprise IT/IS system. An important element in my phenomenological study was to explore the experience through every possible lens, as long as the data dictated it, and not to speculate or draw conclusions from preconceived notions (Davidsen, 2013; Hauser, 2013). The purpose of phenomenology is to convey the essential meaning of an

experience that allows others to understand it or grasp its true nature (Cilesiz, 2011). This phenomenological study transformed experiences into written expressions so readers will understand the experience in a meaningful way (Van Manen, 2014). The phenomenological study should accurately reflect as many nuances as possible and provide an animated account to which the reader can relate.

Phenomenology differs from other designs because it does not do what other qualitative studies do. Researchers conducting phenomenological studies do not explain the social or historical significance, but do include the underpinnings of these nuances (Van Manen, 2014). Researchers of phenomenological studies also do not attempt to understand the psychology behind the experiences described by the participants and do not delve into personal life histories, as might occur in a biography (Roberts, 2014). Phenomenological research is suitable for describing a common experience in detail.

Other qualitative research strategies would not have been appropriate for this study. A qualitative study was suitable because quantitative research involves numerical data and testing hypotheses, which was inappropriate because the study involved unknown CSFs that needed exploration. Several qualitative approaches were also not appropriate. Ethnography was not suitable because researchers use it to explore a group of individuals with a common culture by participating in the lives of those under study (Sangasubana, 2011), which would not have rendered the specific nature of CSFs sufficiently. Ethnography involves exploring meaning to a culture of people, which was not appropriate for a study of enterprise system implementations. Case study research, although previously used for studying CSFs, is not duplicable unless cases are similar

(Thomas, 2011), and while membership associations may have similar organizational structures, LMS uses vary, and a larger population of cases is necessary to generalize CSFs for an industry segment. Grounded theory requires in-depth interviews, numerous iterations of analysis, and fact checking (Flint & Woodruff, 2015) and was inappropriate given the complexity and variety of LMS technology. Narrative inquiry provides an understanding of a lived experience through the lens of intimate familial relationships within the context of social structures, which was not of value in a study on the concept of CSFs (Frost & Ouellette, 2011). In phenomenology, researchers explore bounded events without preconceived ideas concerning what they may discover, which means phenomenology was suitable for exploring CSFs from a variety of angles.

Role of the Researcher

Researchers play a critical role in determining potential multiple realities. The act of exploring the experience of something provides the opportunity for further exploration, including self-examination (Fram, 2013). As the goal of phenomenological inquiry is to enlarge the understanding of an experience, researchers examine both the concrete and the abstract, so that a rich, thick understanding replaces the empirical concept (Davidsen, 2013). Sound social science research involves an interpreter who is keenly aware of the evolution of the findings as they unfold and who documents these discoveries as they inform new directions during the research (Cilesiz, 2011). Phenomenology is congruent with a larger, more detailed account of a lived experience.

In this phenomenological study, I brought a significant amount of experience to the study, which I accounted for in the research process. I bracketed my background and

excluded it from the study. I did not allow prior knowledge, or knowledge gained during the study, to affect the outcome of the study. While experience helps, as in any field, researchers must bracket out any preconceived thoughts or ideas and allow the evidence to guide the study (Davidsen, 2013). Researchers follow the evidence wherever it leads, and the process of discovering the important aspects of the data is as important as the outcome (Fram, 2013). Cilesiz (2011) explained that the process of analyzing data is a sequence of actions, interactions, and emotions that change in response to circumstances, events, or situations. I purposefully excluded judgments that had no strict foundation in the data; I considered them and recorded them appropriately. The outcome of a project always rests on variables that the researcher brings to bear, and I accounted for these using a system of memos (Elo et al., 2014). I took all appropriate steps to ensure prior knowledge did not influence the course of the investigation, which included refraining from asking questions that were not part of the initial interview questions as vetted by the Institutional Review Board (IRB) and subject matter experts. The exception to this rule was when I discovered a reoccurring theme from the initial interviews and incorporated questions to enhance the understanding of a shared success factor. For instance, several participants mentioned the role vendors play in the implementation. I documented the inclusion of questions concerning vendors through the system of memos and included details on how and why I expanded the original instruments in Chapter 4. I purposefully did not add questions or ask clarifying questions that could have come from my prior knowledge. The memo system in NVivo also acted as documentation for the rationale on coding and other decisions made in the analysis.

Hermeneutics is the interpretation of data through the lens of the researcher, and in all qualitative studies, it is essential that researchers are aware of their possible biases and personal interpretations. Researchers are capable of understanding and interpreting findings, and the quality and substance of those interpretations must result in an accurate report (Finlay, 2012). During phenomenological investigations, researchers make certain interpretations, and these hermeneutic situations should be free from prejudice (Davidsen, 2013). Interpretation creates an additional layer of complexity to the research, which I accounted for in this qualitative study.

Hermeneutics affects the research at various points in a qualitative research project. In an interview, a researcher's experiences may guide the line of questioning (Dowling & Cooney, 2012). In this study, however, I developed and vetted the semistructured interview questions in advance, and the participants received the questions in advance. At the outset of each interview, I explained that I had LMS implementation experience and that I would be using the interview questions exclusively. In several cases, I summarized a group of disparate phrases during the interview to confirm a concept. I transcribed these instances verbatim. Skilled hermeneutic researchers understand the need to keep the discussion focused and oriented to an unbiased result (Tan et al., 2009). During analysis, I attempted not to use prior knowledge to filter and make new meanings, and I used appropriate documentation when I coded (Van Manen, 2014). Being aware of, and controlling, the role of the researcher is sound hermeneutics (Davidsen, 2013). The objective of my study was to create an understanding of the lived experience of the participants only, with no regard to what I knew.

There must be intimate contextual knowledge and an interplay between and among the subjective variables in a study and accounted for in the analysis (Davidsen, 2013). Although I have experience in LMS implementations, I had no personal or professional relationships with any person or organization participating in the study. I had no position of power that may have influenced the outcome of the study, and I did not detect any bias on the part of the participants. I assured each participant that his or her identity would remain confidential in all respects. There was no incentive to participate aside from obtaining the final report.

Methodology

The purpose of phenomenological research is to discover the essence of a common bounded experience and to explain it in terms that are applicable to other similar situations. Phenomenological inquiry encompasses identifying and recruiting, interviewing, analyzing, coding, and reporting (Van Manen, 2014). The goal of choosing sound methodology is to provide a framework for a study that will be rigorous, valid, replicable, and transferable (Elo et al., 2014). This section includes a description of the methods used to conduct these activities.

Participant Selection Logic

The target participants were education directors, IT managers, or program managers within membership associations who played a key role in the successful implementation of an LMS that subsequently helped achieve organizational objectives. The American Society of Association Executives has a publicly available list of associations with certification programs (Solebello, Tschirhart, & Leiter, 2015). I

checked each association's website to determine if an online program existed, and if so, moved through the website to identify the name, phone number, and e-mail address of the person likely responsible for the implementation. My initial look at 100 websites yielded only a few qualified participants, and I realized I needed a method to organize my recruitment activities. I purchased a subscription for a SalesForce CRM system and uploaded the list of associations into the database to speed up progress and maintain accurate records on my activities. Each record contained a link to the association's website and I was able to click back and forth quickly to decide if the association had an online learning program and to identify a possible participant.

I recorded the name, number, and e-mail address of potential participants and called or left a message explaining the study and asking them to look over an e-mail with the inclusion criteria (see Appendix A), which I sent immediately along with the consent form (see Appendix B) and the interview questions (see Appendix C). In some cases, an online program consisted only of live and recorded webinars, and I eliminated these organizations because an LMS is not necessary to stream webinar recordings (Solebello et al., 2015). Program managers from these associations were not eligible to participate. Table 1 shown below shows the number of associations canvassed during the course of recruiting participants.

Table 1

Number of Associations Evaluated for Inclusion Criteria

Date	No. of records
2/14/2016	50
2/18/2016	55
2/19/2016	21
2/20/2016	86
2/23/2016	20
2/24/2016	1
3/4/2016	24
3/7/2016	41
3/8/2016	16
3/15/2016	50
3/17/2016	10
Total	374

I created categories in the CRM for association managers who responded to my e-mail indicating that they were not qualified to participate in the study because they did not consider their LMS a success. These individuals indicated their interest in the final report and asked to receive a copy when it became available. Of the respondents that had implemented an LMS, more indicated that they did not consider their LMS a success than those who did.

If an organization's website showed evidence of online learning programs, I contacted educational directors, IT directors, or program managers in charge of the online education programs and asked them to participate. In the event I was unable to identify an ideal participant from the website, I called and sent the inclusion criteria to an individual who might have knowledge of an eligible participant. In some cases, websites included the name and contact information of the educational director of the association, and in many cases they did not. I contacted publicly identifiable individuals first and coded

associations that were qualified with no contact information publicly available so I could go back and conduct further research to identify enough participants to finish the study.

Identifying qualified participants was more difficult than I anticipated, and I used several tools to streamline the process. I placed information about the study on the front page of my personal website and used Twitter and LinkedIn to attract participants with limited results because of the specialized nature of the study. In conjunction with the study posted on my website, I purchased a calendaring system (TimeTrade) and provided a link in the introductory e-mail. This proved to be an invaluable tool because prospects were able to select the time they wanted to speak with me. The first page of the calendar feature explained the study in brief and clearly stated the inclusion criteria (see Figure 1).

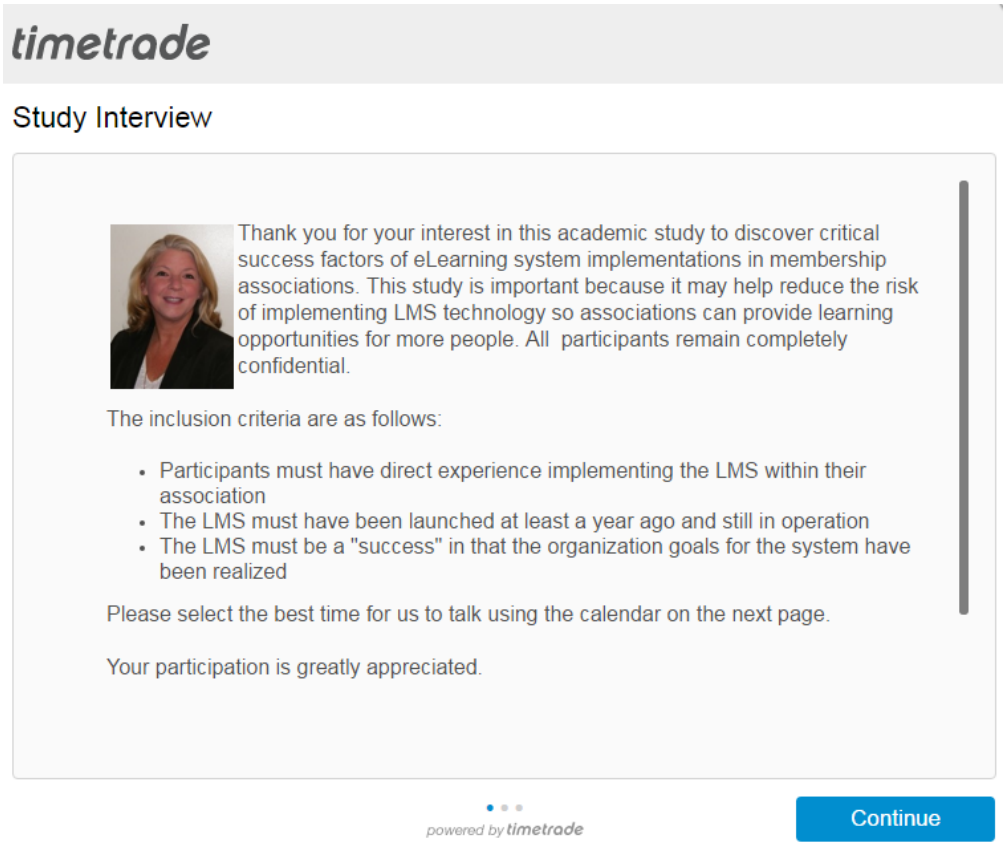

Figure 1. Calendar introduction to the study with inclusion criteria.

After selecting the best time for an interview, the participant provided information requested (see Figure 2) and consented to participate in the study. I also verified consent at the outset of each interview. The TimeTrade system automatically forwarded an e-mail to me that provided all the information concerning the interview along with verification of consent to participate (see Appendix D).

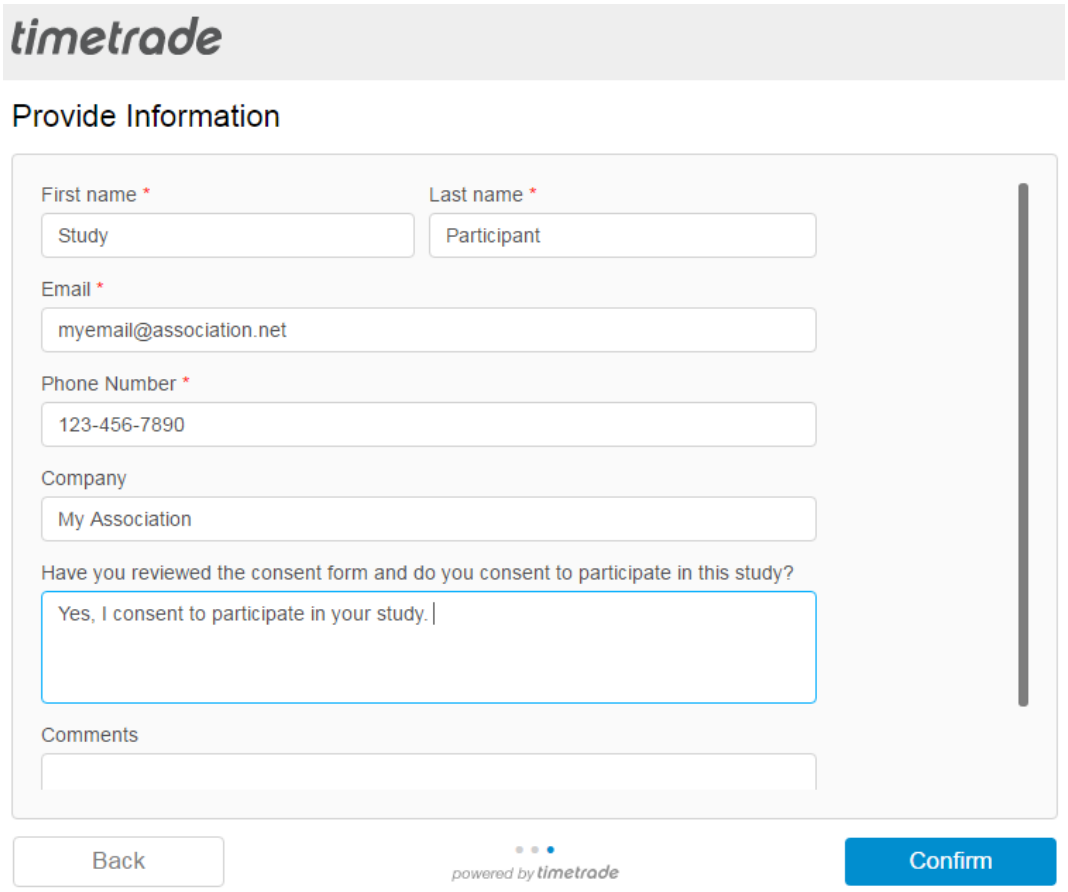

Figure 2. Calendar—Participant consent collection point.

The IRB recommended adding inclusion criteria in every correspondence to streamline the process, and this produced beneficial results. Participants were able to self-select based on the inclusion criteria, and this method resulted in a group of well-qualified participants. As the method of sampling is critical for the validity and reliability

of the study, I attempted to duplicate sampling processes outlined in studies included in the literature review (Elo et al., 2014). Chih and Zwikael (2015) and Al-Hinai et al. (2013) recommended purposeful sampling for a qualitative study of IT/IS success factors because researchers are able to engage highly qualified participants who have similar experiences to participate in the study. Purposeful sampling provides the best participant pool when researchers need individuals who have direct and ample knowledge of the phenomenon under study (Elo et al., 2014). An appropriate number of participants is between three and 10 because of the in-depth nature of the information collected from each participant (Cilesiz, 2011). However, knowing when data saturation occurs is often difficult (Fusch & Ness, 2015), so I continued to canvass, recruit, interview, and analyze data until the data presented no new insights into the phenomenon. I also compared the data with CSFs discovered and categorized during the literature analysis so I could explore whether data saturation had occurred. The study showed similarities in the data beginning with the fifth interview, but I continued to recruit participants and gained saturation after the eighth interview. There were two discrepant cases, and the remaining data yielded a closely clustered set of CSFs. At the outset, many of the organizations had almost a decade of e-learning and LMS experience, and the CSFs were similar. However, as I moved through my database, I realized that the experiences of organizations new to e-learning differed from those with experience. Most of those who responded to my invitation and inclusion criteria, and declined to participate, indicated that they had an unsuccessful LMS implementation.

Finding participants who had firsthand knowledge of various aspects of the LMS implementation was critical to the success of the study because only those with experience were in a position to share CSFs. Participants were chosen based on the criteria of best qualified to participate, not geographic location, and each interview took place over the phone and was transcribed.

Instrumentation

Discovering CSFs typically involves two steps: analyzing literature for information on prior implementations and following up with an empirical study to verify or expand the results of the literature review. I applied this methodology because researchers used it successfully in research projects and regarded it as the most effective method to research CSFs (Schniederjans & Yadav, 2013). Using tested methods provides good results, and most studies of CSFs incorporate the results of a literature analysis as a foundation for semistructured interview questions and surveys (Denolf et al., 2015). Literature analysis on empirical studies of similar implementations helped narrow CSFs to the most important ones (Denolf et al., 2015). I followed up my literature review with a qualitative study to improve the outcome of my CSF research.

The first step in CSF research is to conduct a literature analysis on past projects that are similar to the problem under study. Herbst et al. (2014) recommended starting with implementations of similar software because CSFs may have similar software implementations. Hesselmann and Kunal (2014) cautioned against limiting the review to similar software and recommended extending the search to organizations that have experience with complex systems implementation. Reviewing a variety of literature,

including desk research, qualitative, quantitative, and a mixture of these, is the most effective for CFS research (Ab Talib & Hamid, 2014). Software implementations affecting similar stakeholders should undergo evaluation, even though the software might have different purposes (Huang & Lai, 2012). Enterprise systems are similar in breadth and depth to the extent that they affect stakeholders throughout the value chain, so looking for CSFs of implementations in similar industries is a common practice.

I initially included articles that were important to the literature review and then culled the collection for the best sources to include in a detailed analysis. Researchers recommend selecting between 20 and 40 articles for a deep analysis to identify probable CSFs (Ahlan et al., 2015; Matayong & Mahmood, 2013; Tarhini et al., 2015). Sangar and Iahad (2013) discussed selecting as many appropriate articles as necessary, analyzing them carefully, and noting CSFs discovered in the literature. Researchers choose a classification protocol from the literature, along with a process for selecting and including CSFs (Sorgenfrei et al., 2014). Researchers typically look for classifications and organizing techniques within recent CSF studies and attempt to categorize CSFs by stakeholder groups within organizations.

As previously discussed, a quality research study to identify CSFs includes validating findings from the literature analysis in a subsequent qualitative or quantitative study. In my study, I converted the CSFs discovered in the literature into a set of interview questions and then distributed it to experts with LMS experience (Al-Hinai et al., 2013). The CSFs found in the literature served as a starting point for semistructured and open-ended interview questions. The literature I reviewed for Chapter 2 indicated

that neither a qualitative or a quantitate study is more preferable, so I chose to focus on the qualitative aspects of CSF verification because the selected method was a phenomenological study with a focus on the experiences of individuals who had implemented LMSs. A qualitative study is ideal for enriching the material discovered in a literature analysis (Huang & Lai, 2012). Researchers have used qualitative studies to identify nuances, processes, and concepts that might have a bearing on the importance of CSFs (Chih & Zwikael, 2015). As the researcher, I was the data collection instrument. I conducted interviews using questions grounded in the literature analysis of CSFs of similar implementations then vetted by industry experts.

I selected 37 articles to include in an in-depth analysis to identify probable CSFs. In studying enterprise implementations, researchers discover and rank common CSFs in order of importance (Al-Hinai et al., 2013). Critical success factors are often dependent upon one another, as revealed in the initial literature analysis (Al-Hinai et al., 2013). Researchers can easily quantify and monitor some CSFs, such as processes or procedures, end-user training, and system integration, along with others that may not be so well defined (Karami et al., 2015), such as organizational culture, ability to change, communication, and strategic thinking (Dabestani et al., 2014). Management support, vision, and teamwork are among the most important categories of CSFs, along with user-friendly technology and good implementation project management (Arif & Shalhoub, 2014). Beheshti et al. (2014) added vendor support to the list of top CSFs. Literature analysis indicated that many of the categories spanned various types of enterprise software.

Forming the semistructured interview questions involved analyzing and distilling CSFs of similar enterprise technology implementations in keeping with CSF research methodology. A panel of three experts who had experience implementing LMS technologies vetted the questions drafted from the literature analysis for clarity and validity, as recommended by Subiyakto et al. (2015). I received constructive feedback from one expert and the other two added no improvements. All three had direct LMS implementation experience, including two from the academic sector and one from the association management arena who acted as a consultant on LMS implementations. I made the changes recommended by the expert and made additional changes to the instruments recommended by the IRB, which significantly streamlined the data collection and analysis process. I conducted semistructured interviews by phone and recorded them because participants were in various locations and travel was not feasible. During the actual interview process, I asked questions approved by the IRB and continued to interview until I reached consensus concerning the CSFs and data saturation occurred. Analysis of the literature and expert validation of the semistructured interview questions served to enhance and protect content validity (Moustakas, 1994). Content validity increased by obtaining further information on subjects discovered during the interview process but not anticipated in the initial instrument formulation.

There are advantages and disadvantages to developing instruments based on prior research analysis. Instruments developed using prior research may not adequately address CSFs of future implementations because organization leaders use LMSs differently (Selim, 2007). Experts' confirmation of the quality of interview questions helped increase

the content validity of the instruments (Parsazadeh et al., 2013). Although participants agreed on a set of CSFs early in the interview process, I refined the instrument by adding two questions concerning vendor capabilities and the use of consultants. Both of these categories emerged in the first several interviews, and subsequent interviews expanded on these concepts. The semistructured interviews began with open-ended questions, and each participant received encouragement to explain, in detail, the process of selecting and deploying the LMS. The semistructured interviews lasted on average 30 minutes, and the longest was 45 minutes. All semistructured interviews took place over the phone and I transcribed the interviews, analyzed and coded them, and then sent coding reports for member checking. These documents and the results of the analysis will remain secure and in my possession for 5 years.

Procedures for Recruitment, Participation, and Data Collection

I designed this phenomenological study to explore CSFs through an examination into the common lived experiences of program directors who managed successful LMS implementations. The population included professionals employed by membership associations whose leaders purchased and deployed LMS technology and who had intimate knowledge of the implementation process undertaken within their association. Van Manen (2014) explained that the total number of participants to recruit for a phenomenological study is difficult to determine in advance, and variables include the depth of interviews, type of experiences under investigation, and tools involved in the research. Data saturation occurs when a researcher does not discover any new themes in the data and further exploration is unwarranted (Fusch & Ness, 2015). I asked each

interview question of every participant, and data collection was the same for each participant, as indicated below. I bracketed my experience by refraining from asking probing questions in favor of clarifying or summary questions.

Recruitment. I located eligible participants using a purposeful sampling technique that included allowing the prospective participant to self-determine qualifications based on specific inclusion criteria. Recruiting participants involved using a list furnished to the public by the American Society of Association Executives that identified membership associations with online professional development and certification training programs. The list included website addresses through which I decided which associations provided online programs. Terms commonly associated with online learning programs incorporating an LMS include online courses, on-demand education, and e-learning programs (Radwan et al., 2014). The names of education directors, program managers, information directors, and other personnel who may have direct experience with the LMS implementation often appear on an association's website, and I contacted them directly on the phone and via e-mail with specific inclusion criteria. In addition to locating participants through Internet research, I identified two qualified participants through the recommendations of industry experts.

Participation. Participants received information regarding their responsibilities when they received the e-mail containing the study description with specific inclusion criteria. The e-mail included a statement that encouraged potential participants to contact me to ask questions concerning the study. The consent form included language that informed the potential participants that they could withdraw from the study at any time.

Each participant agreed to participate in one phone interview of approximately 30 minutes for the initial interview, to evaluate my initial coding of the participants' individual CSFs, and to evaluate the aggregate of all participants CSFs.

The first member-checking activity included verifying my understanding of each participant's experience by asking participants to review the summary of their textural-structural description of the experience. The summary also included CSFs discovered during the interview. The second member-checking activity was a review of my understanding of the experience in the form of a draft that synthesized all participants' textural-structural descriptions and included the aggregated and weighted CSFs discovered in the process. I asked participants to respond as soon as possible. Participants also received a copy of the final report including a synthesis of all summary reports that involved taking member checking into account and incorporating feedback from participants on the accuracy of the coding summaries.

Data collection. I collected data by personally recording phone interviews using a digital voice recorder. I exclusively used semistructured interview questions, approved by the IRB and vetted by industry experts, except in the case in which I discovered trends in the interviews that merited further exploration. I personally transcribed the interviews into written accounts using Dragon Naturally Speaking, which is a voice recognition program. I listened to the recording and narrated the interview into a Microsoft Word document. I enhanced the credibility of the study by checking for errors twice to ensure a quality transcript. I checked for accuracy during the transcriptions process and compared the final transcript to the actual recording.

Additional data included memos kept inside NVivo software that described my decisions concerning coding, and data collected from journal articles reporting on CSFs in similar past implementations. I also analyzed data by member checking the results to verify my assumptions and decisions concerning the lived experiences of participants.

Data Analysis Plan

The analysis included three types of data. I analyzed data collected from journal articles reporting on CSFs in similar past implementations and used the results to form a foundation for semistructured interview questions (Chih & Zwikael, 2015). I analyzed analyze data resulting from semistructured interviews to form CSFs from the lived experiences of the participants. I also coded and analyzed memos recorded within the NVivo software. I documented each step of the process in a reflective journal that I did not code in the analysis because it did not have a bearing on the data itself. Approaches to analyzing phenomenological data include disciplines that incorporate descriptive or interpretive analysis or a combination of both (Moustakas, 1994). I used Moustakas' (1994) method of data analysis to identify invariant constituents properly, which in this case was the CSFs discovered in the analysis of the semistructured interviews, and then categorized and thematized the invariant constituents to provide a meaningful and actionable set of CSFs based on the data. This was important for the study because I also culled categories and suggested CSFs from the literature analysis to inform both the instruments in the study and the initial coding structure. Moustakas' method of analysis served as a scientific methodology for comparing and contrasting the CSFs discovered in the study against those found in the literature.

Moustakas (1994) modified both the Van Kaam and the Stevick-Colaizzi-Keen methods, and I blended both of the modified methods to create a unique analysis methodology designed to discover and report on CSFs in the most thorough manner possible. The first portion of the analysis process followed Moustakas' modified Van Kaam method, and after I identified, clustered, thematized, and verified the invariant constituents against the transcripts, I concluded the analysis using Moustakas' modified Stevick-Colaizzi-Keen method. The final steps in the process included producing one textural-structural description for each semistructured interview that I sent back to participants as a member-checking activity. I then combined all the accounts and synthesized them into one report that I again sent to participants to verify my understanding of the collective experience. A final step in the analysis process was to compare and contrast invariant constituents, themes, and categories of CSFs discovered during the course of the study with those found in the literature analysis.

The first step of the analysis plan was to conduct and transcribe semistructured interviews. The second step involved isolating and coding each expression that directly related to the research question and objective of the study. This process of horizontalization resulted in a list of phrases for each participant. I reduced the data and discarded phrases not directly related to the phenomenon. Further study included the invariant constituents. I coded, thematized, categorized, and organized the invariant constituents into clusters of data, which resulted in themes that defined the experience under study. I sent a textural-structural description of the individual experience back to each participant for validation. After I aggregated all the CSFs from all participants, I

sent the results back to each participant for evaluation and comments. The last step was to compare the CSFs I discovered in the study to those found in the literature analysis.

The analysis process was a holistic activity that involved careful consideration of context and meanings. I bracketed my prior experience for a clear and objective study by remaining focused on the interview questions and limiting my comments and questions to requests for clarification and summarization. I presented the aggregate CSFs to the participants so they could add to, subtract from, or comment on the outcome of the study. During the reporting process, it was essential that the account be faithful to the participants' views. In addition to the final report concerning CSFs and the accounting of the experiences, I reported on the exact method of study I used to discover CSFs from the group of participants. The process included documenting when and how I made coding decisions, how prior decisions affected the process, and how themes emerged. The overlap of CSFs upon one another created a need to organize the themes on a continual basis to gain the most cohesive reporting structure, as CSFs are generally groups that stakeholders indicate will influence the implementation process. After the common instances emerged, the second round of coding and analysis took place and focused on organizing and categorizing CSFs appropriately. In addition, I created key word searches for themes discovered to ensure I captured all phrases for a given category. Organizing and reorganizing these themes was the most difficult process, and I kept memos concerning the decisions I made in reassigning CSFs to new categories. Some CSFs overlapped because some stakeholders had responsibilities in some organizations that were dissimilar to other organizations. After this process, I produced the final report in

which I recounted the entire analysis to ensure I did not discard or alter any material in favor of any bias or prior knowledge of mine. I underpinned the account of the process using the memos in NVivo.

Coding in NVivo. In qualitative analysis, the researcher makes sense of tremendous amounts of semi- and unstructured data collected from numerous resources over a significant amount of time. The basics of organizing data include looking for significant phrases, looking for meanings and clustering them together, creating themes, and then presenting this information clearly and concisely (Chenail, 2012). There are a number of factors involved in coding, clustering, and thematizing. The process involves discovering and coding a core phenomenon, along with conditions that contributed to or caused the experience. There are actions and reactions to the experience, and all of these result in codes (S. Chien, Wu, & Hsu, 2014). Participants usually engaged in strategies while reacting to an experience, so I coded information concerning their obstacles and solutions. Situational factors also play a part in the experience, and I explored and coded the what, why, how, and when. All these factors contributed to discovering CSFs, and to understand the relationship and interdependencies between CSFs, I moved through several phases of coding to help explain peripheral items surrounding the core CSFs. All of this culminated in a ranked list of CSFs that participants verified through a member-checking activity.

Open coding was the first step used to analyze the data. Open coding involves reading through the transcripts, memos, and feedback from participants and then analyzing the unstructured data to look for phrases that relate directly to the core

phenomenon (Fram, 2013). This study included open coding to remove the possibility that CSFs discovered in the literature analysis overshadowed or excluded CSFs that were unique to the LMS implementations under study. After a thorough examination of potential meanings and the context of each, I began to place labels on data and looked for overlapping themes with categories discovered in the literature analysis. I also used open coding to organize data by large sets of information (Fram, 2013). Other terms used for coding include unitizing and classifying, which involve grouping like information to discover central themes (Ram & Corkindale, 2014). I continued to code, thematize, and organize until I found a uniform set of core CSFs experienced by nearly all participants, and I left the outliers as valuable information on portions of implementations not common in the collective experience.

Whether categorizing, coding, distilling, unitizing, or clustering the data, the objective remains the same: discovering a set of CSFs to inform decisions required for a successful LMS implementation. Fram (2013) explained that a researcher deploys a constant comparative method and that the iteration of analysis builds on past information. During the constant comparative process, researchers continue to question and analyze until no new information emerges that might shed light on the outcome of the study (Fram, 2013). Finlay (2012) confirmed the iterative nature of qualitative research and advocated a constant comparison of every piece of new data with the data that preceded it. The constant comparative method of data analysis contributes to discovering similarities and differences between various aspects of the data (Fram, 2013). The

outcome of the constant comparison of all data is saturation, and the central theme should emerge (Fram, 2013). The resulting central concept was the primary focus of the study.

In this study, I used NVivo 11 software to facilitate the analysis and coding of the data and supplemented the standard phenomenological method described above with categories and clusters concerning the CSFs discovered in the literature analysis. The term used to refer to codes in NVivo is nodes, and I gave each phrase a node at the outset of coding. I added to these nodes as new participants revealed similar experiences, and I added new nodes as new experiences emerged. The second round of coding involved organizing the CSFs into categories the managers used in an implementation.

NVivo supports creating memos to record thought processes and decisions made during the study. I loaded the transcripts of the semistructured interviews, the memos, and any feedback received from the participants into NVivo. Together with the transcripts, memos, and feedback, I analyzed selected journal articles concerning prior CSF studies. I created codes or nodes in NVivo for each CSF discovered in the literature analysis, and the nodes included material specific to these topics for later comparison to CSFs discovered in the analysis of the semistructured interviews, memos, and participant feedback. I classified information discovered from the literature analysis into categories in the second and third rounds of coding. This thematic coding involved creating themes and categories (Vaismoradi et al., 2013). In the second and third rounds of coding, I organized, merged, and purged categories to create a uniform set of ranked CSFs in order of importance, as discovered in the analysis.

Issues of Trustworthiness

Trustworthiness indicates that a researcher conducts a study with integrity and objectivity. Elo et al. (2014) explained that researchers who remain objective during interviews, data collection, and analysis usually have the most valid outcomes. Detached observation by the researcher is the preferred method of qualitative research, and the researcher measures the merits of the study by the integrity and objectivity of this process (Van Manen, 2014). Qualitative research always involves a human element accounted for in terms of interpretations, reflection, and analysis, and a researcher must track and account for these in the final report (Moustakas 1994). The extent to which a researcher follows and reports against these tenets adds to the trustworthiness of a study.

Researchers embed trustworthiness in the study at each phase. Any defective portion of the process such as faulty data collection, invalid instruments, absence of bracketing by the researcher, and other flaws may lead to a lack of credibility (Elo et al., 2014). To enhance the credibility, transferability, dependability, and confirmability of the study, I developed a process to ensure I adhered to practices that added to the trustworthiness of the research. This process included milestones at each phase of the research, including preparation, data collection, analysis, and reporting.

Credibility

Credibility, also known as external validity, indicates the extent to which readers will judge a study as having merit. A credible study includes accurately reported and correctly interpreted interviews and, according to the participants, is appropriate in methodology and underpinned by suitable theories (Bala & Venkatesh, 2013). Cilesiz

(2011) said that several activities contribute to credibility, such as bracketing by the researcher, member checking, documenting the process, and ensuring data saturation. This study included all these strategies, in addition to journaling the process and seeking opinions from subject matter experts on the accuracy of interview questions.

Credibility involves showing that the participants' account is accurate from their perspective and that the study included a validation of the initial coding of each participant's interview. Each participant also reviewed the aggregated and ranked CSFs from all accounts of CSFs. I enhanced the credibility of my study through member checking, which involves reaching out to participants who confirm a researcher's understanding of the outcome of analysis (Fram, 2013). I improved credibility by consistently using methods described in the CSF literature and by having participants corroborate my judgments and coding activities (Elo et al., 2014). Comparing literature research with data gathered in an imperial study is particularly important in CSF research, because insight from several data sources may provide better CSFs (Ab Talib & Hamid, 2014). Comparing and contrasting CSFs is important because researchers use the results of the literature review to validate empirical research and vice versa (Ab Talib & Hamid, 2014). I incorporated data analysis when I combined the CSFs discovered in the study with those discovered in the literature analysis.

In addition to verifying the results of the study, I produced an auditable report as a portion of this chapter on the process I used to conduct the study. I used methods established from prior qualitative studies on CSF research as reported in Chapter 2 and I documented these processes so a researcher can undertake a similar study using my

methods. Cilesiz (2011) noted that researchers also document the purpose of varying from proven procedures and that, during qualitative inquiry wherein a researcher uses an emergent design, it is impossible to create conventional internal validity. There is never a one-to-one outcome or a single reality when conducting qualitative research (Cilesiz, 2011). Because of the transferable nature of phenomenological research, strict credibility is difficult (Elo et al., 2014). I documented the directions I took during the analysis based on the emergent nature of phenomenological research.

Transferability

Transferability, which researchers often consider a sign of internal validity, indicates that the findings are transferable to others with similar experiences. Elo et al. (2014) explained that scientists wishing to use prior studies to underpin future research look for many attributes, including validity, reliability, trustworthiness, and dependability. The methods employed in the study must yield similar results in a similar setting if duplicated under comparable circumstances (Elo et al., 2014). Although researchers can do a lot to foster transferability in research, the reader ultimately makes the decision regarding the transferability of the study results (Cilesiz, 2011). I ensured transferability by creating memos to record details, such as explaining the sample in specific terms, how I approached and interviewed the participants, the tools used, and specific methods of analysis.

Dependability

My study was an iterative process that included checks and balances throughout so that no single stage resulted in an outcome. The study depended upon a solid research

methodology (Elo et al., 2014). Judging the quality of research without guidelines is difficult, so I created a clear statement of the effort made to establish dependability with documentation at every stage of the study and measured these procedures against the methods planned to provide validity (Zunker & Ivankova, 2011). Researchers establish dependability by documenting methods at every turn, and by documenting how they make decisions and why, which refers to both conducting the study and studying the study simultaneously (Chenail, 2012). Researchers must provide evidence that will support both the method and the study findings (Elo et al., 2014). The credibility lies in the quality of the units of analysis and the documentation that supports the decisions concerning what is important to the findings and why (Cilesiz, 2011). The process of member checking, which involves presenting the researcher's findings to participants and asking them to confirm the understanding of the lived experience analysis, also enhances dependability (Fram, 2013). In this study, I documented my decisions using memos throughout the process and engaged in two member-checking activities.

Transparency prevents researchers from inserting assumptions and biases that will flaw a study. Saturation of the data helps ensure dependability by ensuring the researcher categorizes and codes all relevant data (Elo et al., 2014). If the saturation of data is not complete, gaps will prevent data from linking together properly during the coding process (Elo et al., 2014). I began coding after the first group of interviews and quickly achieved saturation, which I believe was due to the similarities in the size of the associations and their similar experiences using an LMS. Chapter 4 covers this in further detail, but to further the value of the study, I continued to interview using purposeful sampling to find

smaller and less experienced associations. I included an iterative coding and analysis pattern rather than waiting until I collected all data (Karami, et al., 2015). My strategy for ensuring dependability was to produce an account, included in this chapter that included every step of the process by using the memo system within NVivo, which included accounts of when data saturation occurred. I also triangulated the data by comparing the CSFs discovered in the interviews with the data from the literature analysis.

Confirmability

Researchers establish confirmability by bracketing their influence and confirming results with participants. They may establish it by listening attentively to participants, faithfully transcribing interviews, and maintaining detailed notes that may shed light on any decisions or judgments on the meanings of data that researchers make (Bala & Venkatesh, 2013). Chan, Fung, and Chien (2013) explained that if a researcher properly brackets prior knowledge, an independent audit confirms that the researcher appropriately evaluated and interpreted the data in the hermeneutic tradition. To aid in confirmability, I established a system of keeping memos that tracked my thinking in determining categories and coding CSFs. The process of member checking involves asking participants to confirm the researcher's interpretation of the outcome of analysis (Fram, 2013). The process of reflexivity refers to the continuous reflection upon decisions made in the analysis process and recording these reflections (Finlay, 2012). I recorded this self-awareness in the form of memos within NVivo, along with the processes followed, and the resulting report helped increase confirmability.

Ethical Procedures

This study took place according to the guidelines established by the Walden University IRB. I did not need to collect demographic information from the participants because such information did not add value to the study. The study had minimal risk, in that it did not contain confidential information such as education or medical records. There was no stress associated with participation, and personal information was not necessary. There was no intrusion of privacy, chance for economic loss, or risk of adverse health resulting from participating in the study. Participants had the opportunity to quit at any time. I work for an academic institution, and there was no expectation of a relationship resulting from the study; there were no conflict of interest or power differentials. I offered no incentives except for a copy of the final report.

Gaining informed consent and presenting the study. I identified prospective participants by looking at publicly available information on the organizations' website to decide if an online learning program was in place in the association. Upon identifying individuals, through the website, who may have been qualified to participate, I placed an initial phone call, and usually left a voicemail, asking them to receive and review the introduction e-mail that stated the inclusion criteria. If they determined they were qualified, the e-mail included instructions on how to click on a calendar link in the e-mail and select a time slot for the interview. The calendar also featured a question the individuals had to answer to continue that asked explicitly if they had read the consent form and consented to participate. In each instance, the participant affirmed consent (see Appendix D). The consent form and the statement described the study and included

participant responsibilities and time commitment. The form also indicated that participants could withdraw from the study at any time without penalty. No participants withdrew from the study. The consent form appears in Appendix B.

Confidentiality. Participants' identities remained confidential throughout the course of the study by assigning them a number, so that the first participant interviewed was Participant 01 (P01). A hard drive housed all data, both raw and analyzed. The hard drive will remain in a secure location protected by password and accessible only by me. Archiving the data will take place following the study, and the data will remain in a

having the hard drive physically destroyed.

Summary

Chapter 3 included a discussion of the research method and rationale for choosing a phenomenological research study to discover the CSFs of LMS implementations. The objectives of the study were twofold, as the study involved clarifying or modifying CSFs found in the analysis of literature concerning prior complex systems and LMS implementations, as well as an attempt to bring to light CSFs of LMS implementations as experienced by professionals who have participated in LMS implementations. I also discussed ethical considerations and the way I conducted the study to provide reliability, validity, and transferability. The chapter also included a discussion of the method of analysis and coding, which involved following Moustakas' (1994) phenomenological analysis methods, along with hermeneutics and bracketing during analysis.

Chapter 4 will include a detailed account of the study, including procedures for obtaining participants, instruments used to conduct the semistructured interviews, a

description of how I conducted the interviews, and other details on data collection. I will also discuss the specific methods followed to ensure the integrity of the study, including bracketing and reporting on researcher hermeneutics and member-checking data at periodic intervals. I will also explain and present the data analysis steps used in NVivo. Chapter 5 includes a discussion of the results and recommendations for further study, along with implications for social change.

Chapter 4: Analysis and Results

The purpose of this qualitative phenomenological study was to discover CSFs underpinning effective LMS implementations by exploring the lived experiences of program managers within membership associations who had direct experience managing successful implementations. The specific problem I addressed in this study was that learning program managers outside the academic industry had limited CSF research from which to base decisions concerning resource allocation during LMS implementations (Radwan et al., 2014). Parsazadeh et al. (2013) said that LMS implementations require considerable resources and carry significant risks, but can lead to a competitive advantage if properly implemented. Identifying CSFs reduces the risk of failure of many types of enterprise systems, including LMSs (Ab Talib & Hamid, 2014; Subiyakto & bin Ahlan, 2013). The general problem was the disparity of CSF research concerning LMSs and other enterprise software systems (C. Lin et al., 2011). I designed this study to reduce this gap by exploring CSFs of LMS implementations within membership associations. I addressed one central research question to fill the gap in knowledge of CSFs of LMS implementations as follows:

Q1: What are the lived experiences of program managers within membership associations with LMS implementation experience, and what are the perceived CSFs of LMS implementations?

Researching CSFs requires a solid research methodology, because managers use study results as a basis upon which to allocate significant resources for future implementations. Research methodology is also a by-product of CSF literature analysis

(Dahlberg et al., 2015; Shaul & Tauber, 2013), and I designed this study after a thorough review of the relevant literature concerning CSF research. In addition to methodology, literature on prior implementations informs the research questions and, in the case of qualitative studies, the interview instruments (Huang & Lai, 2012). In addition to using a literature analysis to inform research methods and questions, Farzin et al. (2014) advocated using outside experts to verify instruments to improve the credibility and rigor of the research. This study included both a literature analysis and a field test of the resulting interview questions.

This chapter includes the results of the literature analysis, the field test of instruments, participant selection and recruitment, interview protocol, data management and analysis, and the process for member-checking results at various points in the study. This chapter also includes the results of the analysis and the ways the data addressed the research question. I conclude the chapter with a summary that shows the major CSFs thematized and organized into categories.

Field Test

I used the information I discovered in the literature as the basis for the central research question and semistructured interview questions. When I analyzed the studies, I also discovered a set of probable CSFs that I compared to the CSFs discovered in the study. Before starting the study, I sent the research question and interview questions to industry experts, each of whom had experienced LMS implementations from a project management perspective. Of the five experts, four had direct experience with LMS implementations in an academic setting and one had experience consulting with

associations concerning learning initiatives that encompassed LMS implementations. Only one of the experts, a department manager in a major university with experience launching three LMS implementations, had a recommendation for a change in the interview questions. The expert noted that the subject of integration was missing and recommended that I add or revise a question to seek further information on integration issues.

Research Setting

Most membership associations have learning programs, and many of them lead to industry certifications. Associations also have continuing professional education, and these learning programs are a profit center. This study involved finding participants who had direct experience implementing a successful LMS within their organizations.

I have experience implementing LMSs, and it was important that I separated my background from the study. I employed several strategies for bracketing my experience. I explained at the outset of each interview that I would not be asking questions except for those stated on the questionnaire, and I limited my probing questions to clarification or questions that may have arisen from previous interviews. During the analysis phase, I used Moustakas' approach to isolate invariant constituents and coded every piece of the interview that related in any way to the research question or purpose of the study. I made no judgments on what I should and should not include in the coding process. I also remained objective in my coding and analysis and inserted memos when I created a new node, clustered nodes, or moved nodes into themes. Research on CSFs is unique in that success factors should be limited in number and ranked by importance for management to

allocate sufficient resources to the proper areas. I organized, categorized, and ranked the CSFs according to the interviews and not according to the results of the literature review or my prior knowledge of LMS implementations.

I used prior experience to decide which associations might have employees qualified to participate. I used a publicly available list from the American Society of Association Executives and scanned each organization's website to determine if the organization had online learning programs requiring an LMS. From prior experience, I knew that e-learning, online learning, and on-demand learning were not necessarily an indication that an LMS was in use. I knew from the literature and from experience that organization leaders deploy LMSs to supply on-demand courses, record learning outcomes, and track user progress. There is no requirement that LMSs must house and launch recordings of past webinars that some associations consider e-learning or on-demand learning activities. I scanned each website and looked at the course offerings, their descriptions, and an overview of the type of learning activities available to members to decide if an LMS was in use. During the study, I surveyed over 370 websites, beginning with larger associations. My reason for choosing larger associations was to keep the list in order of staff size so I could move through the process efficiently.

I could not determine from the organization's website details concerning the extent of the e-learning program, type of system, number of learners, or years of experience. I gathered these data at the outset of each interview and after participants self-selected based on the inclusion criteria. The qualification process was lengthy and required contacting some participants several times to gain an interview. An unforeseen

obstacle was the fact that, although many websites indicated an e-learning program was in place, many potential participants declined to participate citing the fact that they did not meet the third criterion, which required their LMS to be a success and achieve organizational goals.

Demographics

I collected no personal demographic information from participants, but I did request information on the organization that formed a basis for determining how and why saturation of the data occurred. I included the general background questions in the proposal as a separate instrument designed to help select a set of participants that had similar LMS implementation experience. The objective of CSF research is to provide a set of success factors that will be applicable in upcoming implementations similar to those studied. Collecting disparate CSFs could do more harm than good (Arif & Shalhoub, 2014). I needed to collect data from a set of organizations that had clear similarities; therefore, the background questions were critical. The IRB suggested that I eliminate the extra step of qualifying organizations in advance in favor of asking the background questions at the outset of the interview. While streamlining the participant recruitment process, it could have led to interviews with organizations that had little in common and that resulted in disparate CSFs that would be of value to few, if any, organizations seeking CSFs for upcoming LMS implementations.

Data saturation occurred after the first five interviews because the organizations had very similar e-learning and LMS implementation experience. After analyzing the tight cluster of CSFs and looking at the organizational demographic information, I

discovered that each of my early interviews was with participants in organizations that had significant LMS implementation experience. All the organizations were in their second or third system. The saturation was most evident in the disparate nature of the goals of the system between experienced LMS users and participants deploying an LMS for the first time. The history of e-learning within participants' organizations varied. P01 stated, "In current system since 2010." P02 responded, "Current system installed in 2006 and past LMS was installed in 2001." P03 replied, "Started in our first LMS 13 years ago." P04 stated, "Had been in the old system for a while when I started in 2011." P05 responded, "This is actually our third LMS." P06 replied, "We developed our system over the last 10 years." P08 indicated, "The system before this one had been in place for approximately 8 years."

An appropriate number of participants in a phenomenological study is between three and 10 because of the in-depth nature of the information collected from each participant (Cilesiz, 2011). I was prepared to interview up to 20 participants, but after the interview with P08 turned up no new information, data saturation had occurred. The exception to the group of very experienced organizations and project managers was P07, and the data collected did not conform to the other CSFs in some areas. I evaluated the amount of time it would take to gain new participants from smaller organizations who might not have the requisite experience to add value to the CSF data against the known pool of larger associations, all of whom I contacted, and I concluded the study. The demographic nature of the LMS experience in the participating associations also showed

the type of organizations whose leaders should use these CSFs to inform the next LMS implementation.

Although full study results appear later in this chapter, it is worth noting that these organizations likely had similar experiences because they were larger organizations, and the only reason I contacted large organizations first was that the list I obtained from the American Society of Association Executives was in order of staff size. Had I conducted the study without the benefit of IRB intervention, it is probable that I would have spent more time qualifying a group of organizations with similar experiences and still not been able to generalize a set of useful CSFs. The set of CSFs generated from my study may be valuable to any organization whose leaders are launching an LMS, but I discovered the CSFs from a group of participants that had a tremendous amount of experience relative to the remainder of the population as a whole.

Data Collection

I interviewed nine individuals for the study and used eight for coding purposes. One participant referred an individual in the organization better suited to add value to the study, and that interview replaced the first interview from the organization. Five of the first six participants provided data that became saturated. The seventh participant was from a very small organization with limited LMS experience, and the interview did not yield information that contributed to the CSF data collected from the core group of participants. The eighth participant verified that data saturation had occurred, and I concluded the data collection process. As mentioned in the previous section, I canvassed over 370 organizations to find associations that had LMS experience, so obtaining a

partner organization such as the American Society of Association Executives may have increased the number of qualified participants.

After identifying organizations that probably had LMS systems, I searched for contact information on the websites. Early in the 8-week process, I realized that tracking all the activities necessary to bring in participants was going to be impossible without a database system, so I purchased and configured a SalesForce CRM system so I could send out template e-mails and log all my activities. In addition to the initial e-mail that explained the study, I set up e-mail templates for the preliminary member-checking activity (see Appendix E) and one describing the final report (see Appendix F). I auto-recorded these e-mails into the history of the participant in SalesForce which enabled me to track my efforts. I used social media outlets that by directing potentially qualified parties to the front page of my website (http://www.valerie-whitcomb.com), where I posted the introduction to the study with the consent form and semistructured interview questions. To reduce barriers to participation and streamline the process, I set up a calendar so each participant could select a convenient time for the 30-minute interview. This calendar application (http://www.timetrade.com) also had an added feature that allowed me to ask a direct question and have the participants answer prior to scheduling an interview. I used this feature to ask the participants if they had reviewed the consent form and if they consented to participate in the study. Each participant answered in the affirmative in writing, and I gained consent again at the outset of each interview (see Appendix D). I tracked information concerning where participants learned of my study using http://www.bitly.com, because of the difficulty I was having obtaining qualified

participants. The bitly data associated with the links to my website and calendar indicated that the majority of my participants came from direct calls and e-mails sent by me.

At the outset of each interview, I explained that I was going to follow the interview questions and ask only clarifying questions. I also explained that interviewees would receive a distillation of the interview in the form of a coding report for review, and they could add or subtract any information in the coding report. After the third and fourth interviews, I added questions concerning the role of the vendor and general recommendations for associations struggling to get into online learning, respectively. After the fifth interview, I added a node for consultants and went back through the data to gain insight from past interviews, but I did not elect to recontact participants to expand upon the role a consultant may have played in the implementation process. The primary reason for not expanding the questions to include additional information concerning consultants was each association that used a consultant did so for the vendor selection process.

I was the data collection instrument, and I recorded each interview, which lasted about 30 minutes each. I transcribed the interviews using the Dragon Naturally Speaking voice recognition software. During this process, I simply listened to the interview on my headset and said aloud exactly what was in the recording. I reviewed the transcript again to verify that all information was accurate and to correct any errors made by the software during the voice-recognition process. Transcripts varied in length from five to nine pages. I did not send transcripts back to participants because the university research reviewer did not consider transcript review a member-checking activity, the IRB recommended

eliminating it from the process to reduce unnecessary stress on participants' time, and verifying transcript accuracy is the responsibility of the researcher.

Data Analysis

Discovering CSFs is an iterative and cyclical process that involves finding CSFs in the literature first, using them as a basis for an empirical study, and then cross-referencing study results against the CSFs discovered in the literature analysis. Researchers have documented the concept of CSFs and associated research, and adhering to methods proven successful in prior CSF research yields the most accurate results (Schniederjans & Yadav, 2013). I conducted an analysis of past projects that were similar to the problem under study (Denolf et al., 2015), which included literature on empirical studies of similar implementations to help narrow CSFs to those most important. I followed up my literature review with a phenomenological qualitative study to improve the outcome of my CSF research.

I coded the data using Moustakas' (1994) method of data analysis by first identifying the invariant constituents properly, which in this case were the CSFs discovered in the analysis of the semistructured interviews. I moved through each interview and discarded any material not directly related to the research question or CSFs of the LMS implementations. For instance, the information "We have a Skillsoft library that offers about another 400 courses" is interesting information but does not have a direct bearing on the LMS implementation. Invariant constituents are phrases that relate to the research question. There was only one research question, which was as follows: What are the lived experiences of program managers within membership associations

with LMS implementation experience, and what are the perceived CSFs of LMS implementations? I coded only phrases that related directly to this question, and I coded all phrases that had a bearing on the research question. Below is a figure showing the steps involved in conducting CSF research.

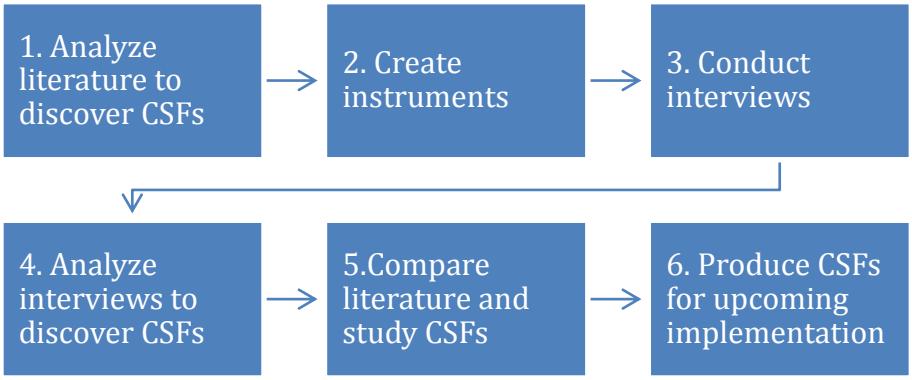

Figure 3. CSF discovery process.

Initially, I created nodes based on the literature analysis but added nodes as they manifested in the transcripts. In keeping with Moussakas' methodology, I distilled each transcript into a coding report that I sent back to each participant for a member-check review to be sure I correctly interpreted the interview transcripts concerning CSFs. Four participants made minor changes, which I incorporated in the coding documentation. At the end of the distillation process for each transcript, I had added numerous nodes to the project, as shown in Table 2.

Table 2

Original Nodes and Nodes After Initial Coding

Original nodes	Nodes created in first round of coding
End-user experience	Consultant
Integration – information technology	Communication
Major stakeholders	Content and programs
Mission and goals	Interface
PM	Training
Recommendations	History of e-learning in organization
T&S	PM obstacles
T&S type of software	PM lead title and role
T&S user interface	PM tasks and responsibilities
Upper management	PM timeline
Vendor	PM years of experience
	Revenue
	T&S compliancy
	T&S enterprise system
	T&S flexibility
	T&S implementation process
	T&S number of users
	T&S testing
	Vendor – attributes
	Vendor – challenges with vendor
	Vendor – configuration
	Vendor – selection process

Note. PM = project management. T&S = technology and software.

With each new node, I performed a keyword search throughout the entire transcript population to discover whether additional coding was necessary. Following Moustakas' method, I coded every possible invariant constituent to some node, so in some cases, I recoded information to reflect a more accurate accounting of the CSFs or I coded factors into more than one category as appropriate.

I provided each participant with a coding summary of the CSFs discovered during his or her interview, and four participants sent back minor changes. As indicated in Table 2, the process of thematizing began during the initial phase of coding (see Table 3).

Table 3

Preliminary Coding Report

	Summary after transcript distillation			
	# of sources	# of coding references	# of words coded	# of paragraphs coded
Consultant	1	3	19	3
End User Experience	1	1	4	1
End User Experience\Communication	4	14	164	14
End User Experience\Content and Programs	9	59	725	59
End User Experience\Interface	9	30	470	30
End User Experience\Training	5	25	315	25
History of eLearning in Organization	5	12	250	12
Integration – IT	8	34	579	34
Major Stakeholders	9	36	614	36
Mission and Goals	9	85	1,185	85
Project Management	5	11	158	12
Project Management\Obstacles	8	35	779	35
Project Management\Project Lead Title and Role	8	17	167	17
Project Management\Tasks and Responsibilities	7	40	548	40
Project Management\Timeline	6	21	302	22
Project Management\Years of Experience	5	8	143	8
Recommendations	7	31	709	32
Revenue	1	1	7	1
Technology and Software	1	1	3	1
Technology and Software\Compliancy	1	1	3	1
Technology and Software\Enterprise System	3	11	200	11
Technology and Software\Flexibility	7	34	667	34
Technology and Software\Implementation Process	6	21	367	21
Technology and Software\Number of Users	7	13	136	13
Technology and Software\Testing	4	11	184	11
Technology and Software\Type of Software	6	18	195	18
Technology and Software\User Interface	2	4	68	4
Upper Management	8	35	746	36
Vendor	6	11	106	11
Vendor\Attributes	7	39	531	40
Vendor\Challenges with Vendor	5	21	391	21
Vendor\Configuration	2	2	20	2
Vendor\Selection Process	7	49	891	49

The nodes Consultant, Recommendations, and History of E-learning in the Organization were new nodes developed later in the coding process. To investigate all possible CSFs represented in all interviews, I systematically searched each CSF by keyword and reread all transcripts to ensure I had allocated all invariant constituents properly. This organization and recoding process also resulted in a refinement of the themes discovered in the initial round of coding.

Organizing CSFs is a critical part of the coding process, and several steps are necessary to identify and produce the most valuable CSFs to use in an upcoming implementation (Keramati et al., 2012). After identifying CSFs during the initial coding process, I thematized and categorized them in keeping with traditional CSF research methodology and following Moustakas' methods. I grouped them in terms of stakeholders who will bear the responsibility for attending to the CSFs as discussed by Mas-Machuca and Martínez Costa (2012), with the end goal of producing a finite set of high-value CSFs. Thematizing CSFs also allowed me to show an interaction between CSFs (Schniederjans & Yadav, 2013). My goal was to create a narrow set of measurable and controllable CSFs that would maximize the use of a finite set of resources (Mehregan et al., 2012). I culled and organized the CSFs into categories that would likely provide the most value for resources expended. In Table 4 below, I list the final coding outcome, organized by CSFs and thematized into categories appropriate to CSF distribution within an implementation team.

Table 4

Final Coding Report

	# of sources	# of coding references	# of words coded	# of paragraphs coded
End User Experience				
End User Experience\Communication and Training	5	29	371	29
End User Experience\Content and Programs	8	55	677	55
End User Experience\Integration – IT	8	34	579	34
End User Experience\User Interface	8	33	516	33
Technology and Software				
Technology and Software\Flexibility	7	34	667	34
Technology and Software\Implementation Process	5	20	352	20
Technology and Software\Testing	4	11	184	11
Technology and Software\Type of Software	6	18	195	18
Vendor				
Vendor\Attributes	7	40	537	41
Vendor\Challenges with Vendor	5	21	391	21
Vendor\Configuration	2	2	20	2
Vendor\Selection Process	7	49	891	49
Vendor\Vendor Importance	6	11	106	11
Organizational Commitment	0	0		
Organizational Commitment\Major Stakeholders	8	33	594	33
Organizational Commitment\Mission and Goals	8	74	1,087	74
Organizational Commitment\Upper Management	8	35	746	36
Project Management	5	11	158	12
Project Management\Obstacles	8	35	779	35
Project Management\Project Lead Title and Role	8	17	167	17
Project Management\Tasks and Responsibilities	7	40	548	40
Project Management\Timeline	6	21	302	22
Project Management\Years of Experience	5	8	143	8
Consultant	4	8	136	8
History of eLearning in Organization	7	18	341	18
History of eLearning in Organization\Enterprise System	3	11	200	11
History of eLearning in Organization\Number of Users	7	13	136	13
Recommendations	7	31	709	32

Moustakas (1994) modified both the Van Kaam and the Stevick-Colaizzi-Keen methods, and I blended both of the modified methods to create a unique analysis methodology to discover and report on CSFs in the most thorough manner possible. The first portion of the analysis process followed Moustakas' modified Van Kaam method, and after I had identified, clustered, thematized, and verified the invariant constituents against the transcripts, I concluded the analysis using Moustakas' modified Stevick-Colaizzi-Keen method, which involved combining the CSFs from all participants and sending the report to each participant for review.

I interviewed one discrepant participant that helped illustrate data saturation and demonstrated the need for a tightly clustered group of CSFs that have value to a future implementation. Huang and Lai (2012) pointed out that an important element of CSF research is using a method to discover CSFs that fits the situation for which I conducted the study. The concern in producing a set of CSFs was to provide a framework that would be applicable in similar implementations (Farzin et al., 2014). The mission, goals, and motives of management are an important CSF in most enterprise implementations, and they are different when upgrading an LMS rather than deploying one for the first time. The disparate participant indicated that the mission of the organization was to "reach more members with educational programs" while the majority of the participants had tightly clustered CSFs surrounding a "better user interface," "more flexibility for the user," and "streamlined administration," among other objectives related to an improved user experience. The oversight of upper management was also different between mature e-learning programs and new launches. At the end of the analysis, I eliminated the

portions of coding from P07 that did not cluster tightly to the saturated data and left them at the end of the report along with the use of a consultant and general recommendations.

Evidence of Trustworthiness

Credibility

To ensure the credibility of my study, I built in several mechanisms, including accurate, word-for-word transcription and coding of key concepts that I sent back to participants for feedback as one of two member-checking activities. I conducted the second member-check activity conclusion of the analysis when I sent a copy of my interpretation back to each participant for review. No participants recommended changes. I ensured that my study was appropriate in methodology to studies conducted on CSFs of enterprise applications and ensured I underpinned the study with relevant theories (Bala & Venkatesh, 2013). Following Cilesiz's (2011) recommendations, I carefully bracketed my background and documented the process, including the point of data saturation. I submitted the interview questions to experts with LMS implementation experience. I also journaled the decisions I made in the form of memos that I included in the final report. To ensure the participants' account was accurate from their perspective, each participant received a coding summary with the entire substance of their interviews organized into preliminary codes. I also improved the credibility of my study by providing a final report of all aggregated CSFs to each participant to confirm the outcome of analysis (Fram, 2013). The results of my study include an analysis of the CSFs developed from the interviews compared to the literature review (Ab Talib & Hamid, 2014). There were no deviations between the anticipated credibility and the final credibility of the study.

Transferability

Internal validity, also known as transferability, indicated that my findings apply to others who have implemented successful LMS systems. The methods I employed are applicable to those wishing to upgrade or implement an LMS. My methods appear in this chapter in sufficient detail that a researcher may undertake a study using my methods to discover CSFs in a variety of settings, including explaining the sample in specific terms, how I approached and interviewed the participants, the tools used, and specific methods of analysis.

Dependability

Research to discover CSFs for complex system implementations involves several iterations of coding and analysis, and my study includes checks and balances, including three rounds of review and thematizing, and two member-checking activities. The first member-checking activity was to send each coding summary back to the participant for review to ensure that I captured the meaning of what was said. The second was to send the aggregated set of CSFs back to all participants. I measured my progress against procedures developed at the outset of the study to help provide validity (Zunker & Ivankova, 2011). To establish dependability, I documented my methods by using memos frequently. The memo system was kept open at all times when in NVivo and my voice recognition software made it easy to record my thoughts and actions immediately while working on the project. In this manner, I was able to both conduct the study and study the study simultaneously (Chenail, 2012). The credibility of my research also lies in the

quality of the units of analysis and following Moustakas' methods of isolating and coding all invariant constituents.

Data saturation was evident after the first six interviews. Critical success factors among five participants were uniform due to the similar implementation experiences of early participants. Five of the first six interviews yielded analogous interview responses and a set of tightly integrated CSFs. There were two disparate cases and each of these participants had implemented only one LMS, while all other participants had experienced two or three LMS implementations. The CSFs between those with more experience and the two with less were distinctly different. The seventh interview was disparate, and when the eighth interview yielded the same CSFs as the larger group of more experiences participants the data was saturated.

Confirmability

I established confirmability by bracketing my background during my interviews and by confirming results with participants. I explained at the outset of each interview that I had LMS experience and that I would not be asserting any information not provided by the participants. I only provided feedback during interviews concerning clarification of information mentioned in the interview. I also maintained detailed notes that helped explain my decisions and judgments concerning the CSFs that I discovered through my interviews.

Another confirmability strategy I employed was to engage in two member-checking activities. After I transcribed and coded each interview, I sent the coding report back to the participant for review. Three participants recommended minor changes that I

incorporated in the study. The second member check occurred after the analysis was complete. I aggregated, thematized and categorized the full set of CSFs from the collective experience of all participants and produced a report that I sent back to each participant for feedback.

Study Results

The purpose of my study was to discover CSFs of successful LMS implementations by exploring the lived experiences of managers within membership associations who experienced successful implementations. Research concerning the concept of using CSFs to improve LMS implementation outcomes is limited largely to the academic industry (Radwan et al., 2014). As enterprise systems, LMSs require significant resources and carry associated risks (Parsazadeh et al., 2013). I designed my study to provide a set of CSFs to apply to future LMS implementations. A review of the literature revealed that CSF research concerning other types of enterprise software systems is available and well developed, but a gap exists in research concerning LMS implementations (C. Lin et al., 2011). The results of this study help reduce this gap. I addressed one research question to fill the gap in knowledge of CSFs of LMS implementations as follows:

Q1: What are the lived experiences of program managers within membership associations with LMS implementation experience, and what are the perceived CSFs of LMS implementations?

This study included both a literature analysis, the results of which are in Chapter 2, and an empirical phenomenological study. Participants provided data that led to a clear

understanding of the CSFs associated with LMS implementations. After discovering CSFs, I organized them in terms of stakeholders who will assume responsibility for attending to each CSF. I assigned each invariant constituent to a CSF category. I then related each theme back to the existing literature and the conceptual framework for this study and discussed them together in Chapter 5.

Emergent Theme One: End-User Experience

Each participant worked for an association that had significant experience with online learning programs. The organization leaders were seeking to improve the learning experience and attempting to get members excited about learning online. A "really great, user-friendly platform" is a large part of a successful program. For example, P03 stated, "We wanted a hosted solution that was contemporary and had an interface that would make learners want to use it." P06 explained, "People can get an education in a variety of ways and from other sources. We are only one option, and we want to make the experience as engaging as possible."

Without exception, all participants were looking for a better user experience in their LMS. They were looking for accessibility of online programs using a variety of devices, and they indicated that their learners were using computers, tablets, and even phones to access content. P05 indicated, "We have people trying to take training on their iPads and our new system is proving to work great so far, and that is becoming more important." In attempting to gain more online learners, organizations are looking to remove barriers to online learning programs by offering more material in a variety of formats and easy-to-access information presented in a logical fashion.

Organization leaders who are sensitive to the needs of their online learning community are starting to focus on a seamless and integrated experience from the moment they log onto the association website. The integration between the member sign-on and the LMS sign-on is important for the user experience. The leaders of some associations are looking for sophisticated interactivity between the LMS and their management system, and two participants said that they wanted members to be able to search for and purchase courses from inside the LMS itself and then to transfer the course registration and completion records to the management system. A seamless login experience is critical for a membership online learning program; therefore, identifying all the necessary components in advance and building them into the project plan is essential. P03 said,

> We identified all the major rules and crunched all that in advance. We made sure everything was working from the e-commerce side. We had to be sure all the course codes were accurate and that things would work properly when members selected learning programs.

A pleasant and stimulating user experience is not limited to the software interface. The content also has to be interesting and engaging, and participants indicated that organizations allocate significant resources to ensure a quality learning experience. Courses are becoming more interactive and engaging and include videos and forward-facing learning technologies that P01 described as "really interactive courses."

Completing the course material should be intuitive, and certificates should be instantly available by the LMS, according to P04, who also added, "Our certificate

programs are packaged and integrated together inside the LMS so learners know where they stand in their certificate process. They can manage their own learning activities from within the system." Association leaders are carefully developing course material to meet the needs of their membership, and systems tie interactive courses to other elements in the system that adds value for the members. For instance, one association is loading journal articles and reference material into the LMS for use by members. P06 said, "The LMS gives our members more content quickly. It has an index of relevant information, so if you are interested in a topic, additional content immediately becomes available."

The bottom line with study participants was to make interaction with the system easy. Implementations managers must anticipate and remove anything deterring from the end-user experience in advance of learner interaction. Most participants stated that they deployed member communication and learner training to help remove obstacles. Some of the ideas included a video orientation and a robust FAQ section. The management team from one association developed a browser test to be sure the system would work optimally with each member's computer system. However, end-user training on the system would not overcome an awkward or clunky interface. As P08 explained, "If you have to rely on end-user training, you will not be successful." The end-user experience is heavily dependent on the software itself and these two CSFs interrelate in many respects. Although the end-user experience is dependent upon excellent content, sound integration, and training interventions, nothing works properly without a solid piece of software.

All participants indicated that the end-user experience was critical for success. Of these, a streamlined and easy-to-navigate interface, seamless integration with the

association management system, and interesting and engaging content were the most significant. Table 5 below explains the results of the end-user experience category. Communicating on the use of the system and training end users were also important, but the need for end-user training is dependent upon the ease of system use.

Table 5

End-User Experience

	# of sources	# of coding references	# of words coded	# of paragraphs coded
End User Experience\Communication and Training	5	29	371	29
End User Experience\Content and Programs	8	55	677	55
End User Experience\Integration-IT	8	34	579	34
End User Experience\User Interface	8	33	516	33

Emergent Theme Two: Technology and Software

Participants are demanding features in the LMS that will work for the organization rather than having the organization change processes to fit the software. One primary concern is the flexibility of the system to manage all types of learning activities. In all cases, the associations had educational programs offered in a traditional setting, such as workshops and conferences. These meetings also provided continuing education credits to members, and the LMSs selected by participants needed to manage these learning activities as well as regular online, on-demand content. Some members expect a blended learning experience, and the software should accommodate this experience by offering a combination of downloadable material, online materials, and even classroom

hours in one program. To accomplish this flexibility, participants recommend finding a software vendor that specializes in associations. P04 indicated,

> The vendor has to be very targeted towards serving our type of learner and organization, and that was critical for us. We looked for vendors that have many of the capabilities that we needed out-of-the-box with a focus on continuing education.

No matter how intuitive the software is, some stakeholders must ultimately change some processes to accommodate the new software. This change in workflow can cause some stress, as people need to modify the way they work. The participants overwhelmingly indicated that they are proactive in pushing their vendors to meet the needs of the organization, and these requirements tend to change. So staying abreast of updates and new features is as important as selecting a good software provider. Keeping up with LMS upgrades reduces support time, according to P04, and it pays to keep vendors moving forward on upgrades that will have a positive effect on operations.

The duration of the implementation process is heavily dependent on the software, its out-of-the-box functionality, and its ability to integrate with the management system. Vendor selection, discussed later in this section, often takes more time than the implementation. The average time to configure a system, load content, test, and launch is about 1 year, with the actual LMS launch lasting about 4 months. The most formidable challenge according to all participants is integration and the role played by the IT group in managing the interconnectivity of the LMS and management system. Except for one participant who was the information director of the organization, the project manager

relied heavily on IT to manage the integration, and several participants indicated that IT resources caused delays. One participant hired an outside consultant to handle the integration when internal resources became scarce, and another simply managed the vendors of both the management system and LMS, told them each what was necessary and expected results. Several participants indicated that buy-in from upper management was key in maintaining IT resources during the implementation.

Adequate testing is also a CSF according to all participants, both during initial implementation and with each upgrade. Participants had members and key stakeholders test prospective systems for ease of use. Three participants used the LMS as an enterprise system so member companies could use the LMS for their own organization's learning activities. P02 had experience deploying such an enterprise system and said,

> We got the new system and we had to test it thoroughly. We had to beta test it with our largest organization members and get feedback from them. We got a list of recommended customizations from some of our largest users.

Association members are using hardware, browsers, and software that cannot be identified in advance; therefore, testing in all environments is also critical. Anticipating problems and testing the system to ensure everything works in the widest possible settings is a sound practice according to all participants. P03 said, "Everybody was involved in testing." The consensus is that testing "keeps the help desk quiet and when the help desk is quiet, learners are happy."

The final CSF concerning software and technology was to seek cutting-edge technology and a vendor that is forward thinking. Advanced technology is important

because LMS functionality has to keep up with the changing needs of learners and with different course activities. The end-user interface relies heavily on the software, and the vendor is most often the software manufacturer, so all three of these CSFs interrelate and are highly dependent upon one another.

The attributes of the software are critical, and this category overlaps significantly with the end-user experience. The software must be flexible and usable on a variety of devices, easy to adapt to the changing needs of the organization, and able to be tested for reliability. Table 6 shows the coding results of the technology and software category. Choosing the right software is critical and overlaps with the vendor selection process.

Table 6

Technology and Software

	# of sources	# of coding references	# of words coded	# of paragraphs coded
Technology and Software\Flexibility	7	34	667	34
Technology and Software\Implementation Process	5	20	352	20
Technology and Software\Testing	4	11	184	11
Technology and Software\Type of Software	6	18	195	18

Emergent Theme Three: Vendor

All participants expressed how important the vendor was in managing a successful implementation, although some vendor attributes were more important than others were. Participants made comments such as, “The vendor is absolutely critical to success,” “Vendor involvement is extremely important,” and “The vendor is a huge success factor.” Participants were also unanimous in stating that a less-than-competent

account manager for the vendor could create significant problems. P03 said, “We had to be diligent in checking with the vendor and keeping track of required activities. We had to continually make sure they were following through.” Maintaining continuity is also critical and changes in personnel for the vendor can create excess work and delays.

Participants shared the attributes that good vendors should possess. A good vendor is innovative and forward thinking. Vendors need to be up to date on the next step in technology and be able to move out in front of the competition. Vendors need vision concerning the market and the future direction of online learning. They should have experienced personnel who understand the capabilities of the software. They need successful and verifiable configuration and implementation experience.

All participants cited proper vendor selection as critical to a successful LMS implementation and e-learning program. Even the participant who had the same vendor for almost a decade indicated that the organization put out a request for proposals (RFP) every 3 years to ensure they were getting the best technology and service for a competitive price. The process was similar in all organizations, but three participants used a consultant to help develop the RFP. The first step was to focus on the organization’s unique needs and to build a RFP that clearly indicates software requirements. P08 said, “We did a good due diligence and we did not rush that process. We identified a number of vendors and we looked at all our requirements then matched them up against what they could provide.”

Participants also stressed researching vendors to determine true size, capabilities, and experience. P07 warned, “So many vendors say they can do things. Their websites

say they can do things that perhaps they cannot, so it is important to check them out." P03 concurred and said, "It is hard to know in advance, even when you do your due diligence and check references. You never know how capable a vendor is until you really dig in."

Purchasing decisions based on available LMS functionality rather than learner requirements often leads to wasted resources, and a good requirements document helps prevent this from occurring. A solid RFP will help the decision team navigate the LMS industry, which has a variety of systems. Plenty of features are available that may not fit the unique requirements of the association's membership. Participants explained that the process involved looking at systems from an overall perspective and checking on basic system costs. Participants narrowed down the field of prospective vendors to a handful and invited two or three finalists in for demonstrations. Several participants suggested asking key stakeholders, including upper management, to participate in demonstrations, and software testing before purchase.

One reoccurring recommendation was to research the LMS industry and to be intentional about learning what was available. P04 reported feeling they "got lucky" in selecting a great system, and after the fact realized that there was much they did not know about LMSs and online learning technology, even though they had experience in e-learning. Listening to vendors was one tactic recommended for becoming educated on learning system capabilities, along with visiting vendor booths at trade shows.

Another unanimous CSF was the role played by the project manager on the vendor side during implementation. The vendor should have broad experience that is

verifiable by references. The vendor's client services manager also needs to remain organized during the implementation and provide personnel who understand the technology or how to get answers concerning the software's capabilities. Personnel within the vendor organization assigned to the LMS implementation phase also must have implementation experience, which requires a different skill set from account management. In two cases, the participants had no idea how small the vendor was until implementation, when it became apparent that vendor resources were lacking. The best vendors had a proven implementation plan and references to verify the plan was sound. The best vendors also had personnel who either knew the system's capabilities or could find answers quickly. Just as several CSF categories are overlapping and dependent upon one another, solid project management skills on both the vendor side and from within the organization add to the success of an LMS implementation.

All participants indicated that the overall experience of the vendor, quality of the software products, and project management skills are critical components to a successful implementation. In most cases, the vendor drove the implementation process, so in addition to providing a well-built software product, configuring and implementing the system extremely important. I show the vendor category results in Table 7 below. Due to the depth of experience of the participants, many had insights on how vendors could create obstacles and barriers.

Table 7

Vendor

	# of sources	# of coding references	# of words coded	# of paragraphs coded
Vendor\Attributes	7	40	537	41
Vendor\Challenges with Vendor	5	21	391	21
Vendor\Configuration	2	2	20	2
Vendor\Selection Process	7	49	891	49
Vendor\Vendor Importance	6	11	106	11

Emergent Theme Four: Project Management

Experience is critical in LMS implementations as is solid project management skills. All participants stated that project management teams included vendors and stakeholders inside the organization. Managing the details to a successful conclusion requires both an intimate knowledge of the software and attention to details. Interviews indicated that solid project management might have avoided many challenges faced during implementations.

Participants playing a lead role in LMS implementations were generally at the director or department manager level and had significant responsibility and resources. Participants included department directors, a vice president, and a chief information technology officer. All were deeply involved in learning programs in their respective organizations. One participant described herself as a multimedia designer and had intimate knowledge of the entire process, including LMS implementation, administration, and course development. All participants had a broad knowledge of their organization and acted as the champion of the LMS implementation. Participants managed a team of individuals responsible for various aspects of the implementation. Learning departments

varied in size because of the need to develop content as well as administer the LMS. The largest department had 35 individuals, most of whom were responsible for various aspects of producing learning programs, of which a portion was online courses. The smallest department was one person, with 10 years of experience, who managed the entire process and repurposed all content for the new system. Without exception, the implementation team included integration specialists and a project manager from the vendor organization.

All participants explained that the LMS vendor had an implementation plan that provided a starting point for planning the project. P03 said that a good advance plan was critical: "The fundamental plan for the LMS implementation was like any other project plan. In our case, the vendor came with a sense of how they typically implement and we adjusted the plan to meet our needs."

A realistic implementation plan was important, and several participants ran into trouble by increasing the scope from the original plan. P05 explained,

> We had to make trade-offs along the way. We realized that we would not be able to do some of the things we really wanted to be able to do. We had to put some items on hold and just focus on getting all the data that we had migrated and all our learning activities up and running.

In several cases, the implementation plan was imperfect when it came to upgrades and system customizations. P02 recommended conducting an analysis of organizational requirements and creating a gap analysis to help plan for implementation. The consensus

was that the further out-of-the-box the system had to be to launch successfully, the more variables there were to manage.

P08 explained systematically how their vendor's implementation manager handled the project:

> The vendor had a checklist and conducted their entire discovery up front before we settled on a cost. They gathered all the requirements and documented everything. They configured the system to meet our needs based on the requirements and actually implemented the system for us. They developed a project plan with a timeline and quite honestly, we were very close.

Most of the participants acted as the liaison between the vendor and the integration personnel. Several participants indicated that integration and content were not within the vendor's area of responsibility, and these two critical elements were the responsibility of the participants within their respective organizations.

Aside from integration and IT resource issues reported by participants, poor project management on the vendor side contributed to significant problems during implementations. The consensus among participants was that "a great vendor PM made the implementation easy, but a bad manager was a significant problem." Although all participants incurred minor setbacks, most of which they overcame easily, the major problems occurred due to the vendor's lack of project management talent. One participant explained the he was always in contact with the vendor project manager to ensure the project was moving along smoothly. Two participants had significant vendor personnel issues that required replacing the project manager midway during the implementation

process, and one vendor had internal personnel changes that disrupted the process. P03 experienced the most out-of-scope implementation along with a disruption in vendor personnel but explained how the organization pulled through:

> Circumstances created a delay and there was stress on the organization, but ultimately everyone in the organization really pulled together to successfully get the job done. Passion, excitement, and commitment over the new LMS helped us get through the difficult times. It was so complicated with so many wrenches thrown in during the implementation that having broad buy-in and enthusiasm was essential. In the end we were, and still are, thrilled with the outcome.

Aside from flaws in project management, the primary concern was system integration and IT requirements. Several participants indicated that the support of upper management was critical when additional resources were necessary to push the implementation past obstacles to a satisfactory conclusion.

Participants unanimously agreed that a good project manager on the vendor side was critical for a successful implementation. A well-organized project manager on the supplier team kept the implementation on track by keeping to the project plan, understanding how to overcome obstacles related to software capabilities, and maintaining constant communication. Table 8 contains information concerning the project management theme discovered in the study. One organization hired a consultant to act as project manager for the implementation effort.

Table 8

Project Management

	# of sources	# of coding references	# of words coded	# of paragraphs coded
Project Management	5	11	158	12
Project Management\Obstacles	8	35	779	35
Project Management\Project Lead Title and Role	8	17	167	17
Project Management\Tasks and Responsibilities	7	40	548	40
Project Management\Timeline	6	21	302	22
Project Management\Years of Experience	5	8	143	8

Emergent Theme Five: Organizational Commitment

All participants, except for one, indicated that upgrading the LMS was a decision that involved upper management and major stakeholders. In each organization, however, e-learning as a member service had already received funding, so the mission and goal was to upgrade the member's educational experience. Unlike enterprise systems and LMSs deployed for employees, members outside the association use the LMS, so the experience can affect membership revenue. In many cases, the LMS also generates revenue and is a fundamental component of the organization's mission.

The information technology group, including the help desk, was involved in every implementation because of the integration requirements, but other stakeholder groups played a role in some, but not all, of the implementations. Several participants mentioned that the marketing and communications departments were significant to the success of the LMS launch. While not involved in the software deployment aspects, they communicated

with members, helped collect requirements and desired features, and helped launch the new system successfully. The marketing department in one organization used the new system to launch a successful membership drive. Most participants agreed that the new LMS was a high-profile initiative within the organization and stakeholders became involved and enthusiastic as the project moved forward. P05 said that they made an effort to get stakeholders involved from all over the organization, while P04 showed colleagues how the LMS would make their jobs easier. P03 said that almost all departments including human resources, continuing education, publications, and the office of multicultural affairs expressed an interest: "Everybody was involved. Everybody was communicating. Everybody was excited and enthusiastic. Everybody knew where the project stood all the time, so there was transparency, and that allowed us to get through and tackle the challenges." Several participants mentioned the benefit of having a variety of stakeholders, including upper management, involved in the final decision on which system to purchase. It was important that the LMS would address needs in the organization outside the basic requirement of launching e-learning content.

The significant departure from the literature review and the disparate participant interview was the stated goals and mission of most of the participants' organizations concerning the LMS launch. All the organizations had existing e-learning programs; therefore, the LMS implementations in my study were improvements rather than an initial investment. I asked participants about the difference between the initial funding to launch e-learning and the commitment for a new system, and participants indicated that they were distinctly different types of decisions.

One participant reported that the decision to change vendors was a result of dissatisfaction with the current system, its features, and its structure. Examples of the strategic goals associated with the move to a new LMS were "more flexibility," "better service," "an LMS that fit better with our business model," "give the program more life," and "continue growth in our online offerings." P03 explained that the LMS was an integral part of the strategy of the organization:

> We want to offer innovative education strategies, solve problems for our members, and produce programs that will add non-dues revenue. We wanted to take education to the next level and provide the resources our customer will need in the future. You do not just launch an LMS for the sake of doing it. You really need a long-term vision, a 10-year plan that shows where you are going with your educational programs and how the LMS is going to help make the vision a reality.

Several participants mentioned the interactive online elements that LMS functionality could provide and indicated their organizations were interested in this direction. Several organizations had to upgrade technology to be able to offer programs in a variety of formats, including tablets and phones, and one that would run on a variety of browsers and disparate systems. P06 explained the motives of his management team that seemed to be pervasive in the move to better LMS technology:

> The board and president essentially were adamant that there were better ways of doing online learning. We wanted to do more advanced kinds of learning activities because, in the end analysis, many organizations produce learning opportunities and we wanted to distinguish ourselves as one of the best in the

business. In this, we are meeting our goals, and the new system is a huge revenue producer for us.

Each of the participants indicated that their organization had a deep commitment to membership learning and offering online programs was essential to "doing it right." Most stated that the original goal in getting into online learning included the primary benefits: flexibility, lower per unit cost, reduced travel, and more convenience for members. In upgrading to a better LMS, the participant organizations were taking online programs to the next level. After management made the original e-learning funding commitment, upgrading the learning system did not have a significant financial impact on the budget. Most participants purchased the new system for the same or less than the previous system. Thus, a larger budget was available for course development, which was outside the scope of my study.

Organizational commitment is more critical when funding an initial e-learning initiative, than upgrading the LMS, but participants generally agreed that the more management was involved, the better. Table 9 contains the coding references to organizational commitment CSFs. Upper management and key stakeholders all have a role in choosing, funding, and implementing a successful LMS.

Table 9

Organizational Commitment

	# of sources	# of coding references	# of words coded	# of paragraphs coded
Organizational Commitment\Major Stakeholders	8	33	594	33
Organizational Commitment\Mission and Goals	8	74	1,087	74
Organizational Commitment\Upper Management	8	35	746	36

Minor Theme: Use of a Consultant

While not a major theme among all participants, several mentioned hiring a consultant to supplement experience or talent needed for a successful implementation. Experience is critical in LMS implementations, and if that experience is not available within the organization, several participants recommended hiring outside help. Participants hired consultants to help with the vendor selection process and were instrumental in identifying suppliers that might be a good fit for the organization. One participant also hired a consultant to manage the implementation project entirely.

Three participants hired consultants to help with the RFP and vendor selection process. P06 indicated that the consultant was invaluable in bringing new ideas to the organization. The largest value to P04's organization was the consultant's knowledge concerning the technology and a wide variety of vendor options. P03 explained, "We had a full roster of things to do on a regular basis like we do every year, so we brought in a consultant to help." One participant explained that there was no substitution for experience in launching an e-learning program and that experience must come from somewhere if the organization is going to be successful. In the case of our participants, most had significant e-learning and LMS experience and still encountered obstacles. Hiring a consultant to help was a recommendation that several participants supported.

Recommendations

I asked each participant to provide recommendations to the many associations struggling to bring e-learning to members. During the study, I received responses from

numerous prospective participants indicating that their initial LMS was not a success. The rich data collected because of this question provided insight into the intricacies of LMS procurement and implementation.

Stay away from niche technology. Look for the most advanced technology and something that will grow with your organization. Be sure you have a flexible platform that allows for use of different devices or you will have to upgrade right away. Be sure the platform is user-friendly.

Start on a smaller scale and build the bells and whistles later. Make sure the end-user has a solid experience in terms of taking the course and getting a certificate right away. Start with core functionality and get it right.

Have a clear sense of your member and their needs. You will live with the system a long time so it had better fit your needs. Use the system to interact with your members to build value into your memberships.

Involve as many stakeholders as possible, especially upper management and even your board if possible. This buy-in and enthusiasm for the project goes a long way in making it a success. Even in highly segmented organizations, the LMS will be a strategic element to the organizations success and will affect many aspects of the association.

Give your requirements a lot of thought. Hire a consultant if you need to. Your requirements will help you purchase the system you need at a price you can comfortably afford.

Focus on your learning experience in terms of content and let the technology fit into the program rather than the other way around. Many organizations rush into

purchasing a LMS without thinking about the ancillary requirements. These are content, marketing, support and other elements required to be sure that the LMS itself is a success.

A reoccurring theme in the recommendations was experience. Learning management systems implementation is a new and unique experience with every new software, integration, vendor, and interface. An organization will never have all the experience it needs to launch a new initiative such as a complex software system, so the best option is to have a plan in place and follow sound project management practices.

Summary

Implementations of LMSs are complex and require skills and experience. One participant stated, "I have no idea what we would have done had my boss not hired me." The consensus among participants is that there is no substitute for experience managing successful implementations, but identifying, ranking and managing CSFs helps the process. Conducting a study in advance helps identify potential pitfalls and provides supplemental guidelines that may help reduce risk and increase the likelihood of a successful implementation.

Association learners are outside a controlled environment; therefore, LMSs deployed by membership associations must be easy to use, intuitive, and flexible. Unlike LMSs used in a forced-learning environment, such as corporation leaders providing employee training or university leaders using technology to deploy course content, the learners often do not have an opportunity to learn the new technology in addition to the content. Leaders of associations face a set of complex requirements that leaders of organizations in other industry segments do not encounter in LMS implementations.

Complex requirements coupled with the relatively small percentage of successful LMS implementations within membership associations makes a set of CSFs to help inform the process valuable. Although this study had limitations that further research may address, the overarching value of the research method and resulting CSFs should provide a starting point for associations interested in taking the next step in their online learning journey. In Chapter 5, I address the implications of the study, the limitations and opportunities for further research, and the contribution of this study to social change.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this qualitative phenomenological study was to explore the lived experiences of association program managers with successful LMS implementation experience to discover a set of actionable CSFs that add value in reducing the risk of future LMS implementations. I studied implementations within the membership association industry because current CSF research of LMS implementations includes only the academic industry, which leaves a gap in the knowledge that I explored in this study.

Phenomenology is a qualitative research design used to explore the manifestation of a bounded event in participants' minds. Qualitative research was suitable because the results included CSFs of LMS implementations from the perspective of those involved in the implementation process. This study included a literature analysis and an empirical phenomenological study. Participants provided data that resulted in a clear understanding of the CSFs associated with LMS implementations.

Interpretation of Findings

The purpose of this qualitative phenomenological study was to explore the lived experiences of program managers within membership associations with LMS implementation experience to gain a further understanding of CFSs of LMS implementations. Analysis of the lived experiences provided a rich set of actionable CSFs upon which managers may use to allocate resources in future implementations.

Discovering CSFs typically involves two steps: analyzing prior research for information on prior implementations and following up with a qualitative study to verify or expand the results of the literature review. I applied this methodology because it is a

proven, tested, and efficient method to research CSFs (Schniederjans & Yadav, 2013). The focus of my literature analysis was on empirical studies of implementations of complex software systems, including ERP systems, CRM systems, supply chain management systems, and LMSs. The literature on LMS implementations included only the academic industry. During the literature review, I found similarities because LMSs used by employees constitutes a forced learning experience. This is also true in academia, where students and faculty must use the LMS. Membership associations conversely serve learners outside the organization and support learning activities that are optional for most members. One other significant difference is that the leaders of many membership associations use their LMS to deliver revenue-producing learning activities.

The literature review was exhaustive concerning enterprise systems and led to a gap in the literature concerning LMS implementations. However, a number of the CSFs I discovered in the literature review had little bearing on the LMS implementations within membership associations. In Table 10, I show the CSF categories found in the literature review and those discovered in the study. In the following section, I compare and contrast the overall CSFs from both sources.

Table 10

Comparison of Literature and Study Critical Success Factors

Literature critical success factors	Study critical success factors
Upper management	End-user experience
Strategy goals and mission	Technology and software
Project management	Vendor
Culture and the ability to change	Project management
Technology	Organizational commitment
Human resources	

A review of the literature concerning CSFs led to my discovery of many CSFs supporting enterprise software implementations, which I critically evaluated from a high-level perspective. The CSFs included organizational culture, ability to change, communication, and strategic thinking (Dabestani et al., 2014), which I did not find supported in the study. Management support, vision, and teamwork are among the most important categories of CSFs found in both the literature and the study, along with user-friendly technology and good implementation project management (Arif & Shalhoub, 2014). Beheshti et al. (2014) added vendor support to the list of top CSFs, which overlaps significantly with the study CSFs. The literature analysis resulted in categories of CSFs that spanned numerous types of enterprise software, and some of these are not applicable to CSFs of LMS implementations within membership associations.

Organizational Culture and Human Resources

Culture and the ability to change, along with human resources from an internal organization perspective, were inapplicable to the study CSFs. Sociotechnical systems theory applies to CSFs found in both the literature from an internal human resources perspective, and study participants considered the CSFs concerning end-user experience the most critical elements. Culture and the ability to adapt to new software is also an STS concern but has almost no bearing on LMS implementations within membership associations.

Culture and the ability to change. One of the top CSFs in enterprise system implementations, as found in the literature, is an organization's ability to change. Large-scale software implementations tend to go well if an organization has a culture that

accepts change (Schniederjans & Yadav, 2013). In a membership association, the LMS creates a change in the method of learning, but this is not a forced learning experience. The CSF discovered in the study concerning a sound user interface helps overcome the member's ability to adapt to the new online learning environment. Whereas an understanding of change management practices is essential for many large-scale system implementations (Aziz et al., 2012), this is not the case when leaders of membership associations deploy LMSs. Implementing complex systems within an organization requires common cultural aspects that contribute to success such as knowledge sharing, teamwork, and learning (Karami et al., 2015: Sedighi & Zand, 2012). Although no study participants identified culture specifically, several explained that broad stakeholder support was critical for success.

I was able to ascertain from the literature that communication in advance is an important element, primarily to employees and other stakeholders directly affected by the new system. In the study, communication to members concerning the new system also aided in promoting the use of the system, but I did not find that a communication plan was a significant CSF. Participants said they provided documentation to users, along with a help desk list of frequently asked questions.

Human resources. In the traditional sense, human resources have a tremendous impact on a successful enterprise system implementation, including LMSs, for internal employee use. However, not one participant in the study indicated that human resources were a critical element except for IT personnel who were essential for the integration aspects of projects. Critical success factors from the literature include including system

training, which is largely overcome in membership associations by a user-friendly interface, compensation, knowledge sharing, and recruiting to acquire new skills when required (Karami et al., 2015). None of these factors is significant in LMS implementations in associations, with the exception of new experience required concerning e-learning in general and LMS implementation experience specifically. Several participants indicated that hiring a consultant was an attractive option, especially given the specialized skills required to launch an LMS.

End-user training was a human resource CSF in the literature but a user interface CSF in the study. In a complex system implementation, such as an ERP system that may affect employees in many departments, training is essential to manage new workflows, and failure to train properly almost always leads to project failure (Aziz et al., 2012). Although Alhomod and Shafi (2013) showed that end-user training was the most important factor in LMS implementations, study participants indicated that if the user interface is not intuitive and easy to navigate immediately, members are reluctant to use the system. A user-friendly experience reduces the need for end-user training for members, although most participants did produce end-user tutorials during the implementation process as a precaution.

Organizational Commitment and Upper Management

The CSFs discovered in the study are different from those I identified in the literature analysis, but several CSFs overlapped. The research revealed two distinct CSFs attributable to upper management: budget and vision. One of the goals of the study was to produce CSFs categorized by stakeholder groups, so the CSF organizational commitment

includes subcategories found in the literature CSFs, including upper management and strategy, goals, and mission. These CSFs overlap considerably and would likely overlap more if the participants recently implemented an LMS for the first time. Participants in the study confirmed that upper management involvement, in addition to the goals and mission of the project, differed between when first launching an e-learning program and moving into a better LMS environment, as was the case with my study participants.

The CSFs from the literature and the study confirmed the importance of support at the top levels of an organization. Unlike enterprise systems and LMSs deployed for employees, members use association LMSs for continuing professional education so the experience can affect membership satisfaction. In many cases, the LMS also generates nondues revenue and is a key component to the organization's mission.

Upper management. Upper managers and key stakeholders have a role in choosing, funding, and implementing a successful LMS. In the case of complex implementations found in the literature, the system affects most stakeholders in an organization, and upper management must support these efforts (Beheshti et al., 2014). The CSFs found in the literature included upper management support, vision, strategy, and allocation of resources (Alhomod & Shafi, 2013), which is the case with LMS purchases in membership associations as well. Although the literature showed management support as a CSF, the level of management involved varied according to software type, with ERP requiring support from the very highest levels of management because of the expense and risk (Aziz et al., 2012; Keramati et al., 2012). In the study data, LMS implementations required the approval and support of top management

personnel, as in typical complex deployments. Leaders allocate resources for large-scale applications at the highest levels. Although the findings indicated that a budget existed for an LMS upgrade, it was a less important decision than that made to begin the process of moving toward e-learning. In some cases, the new LMS deployed by participants was less expensive than the legacy system. Participants indicated that investment in course development was a significant cost involving resources of various types. A clear strategy for the direction of the firm is critical, and LMSs in membership organizations may contribute to a strategic competitive advantage and fiscal prosperity.

Strategy, goals, and mission. In each participant's organization, the strategy, goals, and mission was to provide exceptional educational opportunities to members. E-learning as a member benefit received funding previously, so the mission and goal was to upgrade the member's educational experience. In the literature, several researchers stressed the importance of a sound implementation strategy, and upper management often approved the plan. Ram et al. (2013) explained that a vision for how the organization would operate after the software was in place was often the responsibility of upper management and the implementation was the responsibility of those best qualified. In the study, participants were in positions of senior leadership, if not upper management, and had the qualifications necessary to plan and oversee the implementations.

Precise implementation planning requires skill and experience (Hailu & Rahman, 2012), and a first-time LMS deployment requires different skills than upgrades. Researchers recommended planning and analysis (Karami et al., 2015), as did study participants. Literature CSFs included an implementation strategy that was larger in

scope than LMS implementations in the study because of the complexity of planning for adaptation and acceptance among employees, customers, and others in the supply chain (Mehregan et al., 2012). The consensus among researchers in the literature and participants in the study was that allocating resources to planning and strategy development is a sound practice. In the case of the study, many participants required the vendor to supply the plan. An element of implementation strategy is to institute benchmarks and measurable milestones (Schniederjans & Yadav, 2013), and study participants concurred. A CSF found in both the literature and the study was a sound implementation strategy.

Technology and Vendor Selection

Technology, vendor selection, system integration, and help desk support were tightly integrated CSF themes within the literature analysis. The study participants agreed with the interdependencies and suggested they all played a critical role in the success of an LMS implementation. The literature indicated that LMSs require a stable operating environment from the point of course delivery and on the part of end users who are often geographically disbursed (Radwan et al., 2014). Study participants agreed and considered software fit for the organization to be critical.

Software. Unique needs of membership associations require that LMSs manage a wide variety of learning programs, including on-demand courses, workshops, classroom training, conference programs, and a blend of these activities. I found that selecting the right software is a CSF in the literature and in the study, with an emphasis among participants on software that fit the association's future educational goals. The literature

indicated that software must fit the organization or undergo customization because a change in core processes contributed to failure rates (Almajed & Mayhew, 2013). Study participants looked for out-of-the-box functionality that fit the association's programs and goals because a correlation existed between system customizations and obstacles.

A software attribute considered critical by participants included flexibility of use because of disbursed members and because members are outside the organization. Study participants also indicated that the software must adapt to the changing needs of the organization, which was a CSF that I did not discover in the literature analysis. The vendor is usually the software developer; therefore, CSFs concerning vendor selection and attributes correlate tightly with technology and software.

Vendor. The literature and participants indicated that the competencies of vendors, including quality software and experienced personnel, contributed to the success of the implementation. Data collected during the study showed that vendors often drove the implementation process, so having a reliable project manager was an important element of vendor support. The literature also indicated that vendors often augmented skills that were not common inside the organization (Schniederjans & Yadav, 2013). Finding exceptional vendor attributes along with a strong and appropriate software product is a CSF. The literature analysis and study data confirmed that advance analysis is critical, as is converting that information into a well-developed RFP. Analyzing the needs of members outside the organization is important in LMS implementations, so selecting a vendor who has experience with your type of learners is also desirable (Parsazadeh et al., 2013).

Support must come from the vendor as well as from the internal IT staff, and organizing support to provide a comfortable and predictable end-user experience is critical for system success (Parsazadeh et al., 2013). Support includes upgrades, as well as testing and rolling out courses on the LMS. No system is of value until stakeholders use it, and membership associations are particularly sensitive to this issue, as use results in happy members and increased revenue.

Project Management

One category of CSFs that almost directly overlapped within both the literature and the study data was the need for solid project management. The literature analysis yielded the fact that managing implementations using established project management practices increases the likelihood of success, so researchers usually include it as a CSF. Proper planning, controlling, and reporting on progress is a critical factor in complex implementation success (Schniederjans & Yadav, 2013). Prior LMS experience is as important as solid project management skills, and neither is more or less important. Project management practices are critical on both the vendor side and within the organization, and responsibilities often change during the process (Beheshti et al., 2014). Project managers often work together to coordinate and control various activities (Pavlovna et al., 2015). In the case of several study participants, the vendor PM needed managing and constant supervision. It is important to stay on top of the vendor project planning and management activities to ensure the implementation proceeds smoothly. Managing, controlling, and reporting against milestones are of particular importance and are all components of project management.

All study participants stated that project management teams included vendors and stakeholders inside the organization. Managing the details to a successful conclusion requires both an intimate knowledge of the software and attention to details. The participants indicated that using solid project management skills could help to avoid obstacles. The manner in which project managers coordinate and control numerous aspects of implementations varied in the literature and among study participants. Several authors in the literature stated that a project manager should maintain control of an implementation from start to finish (Denolf et al., 2015; Keramati et al., 2012). However, two study participants explained the need for a vendor to replace personnel that are unqualified to manage the project. Hiring a project manager from outside an organization was a recommendation in the literature (Ram et al., 2013), and one study participant hired a consultant to act as implementation manager. Beheshti et al. (2014) disagreed with the fact that a single person should be responsible for an implementation and noted that project management teams are necessary for complex implementations, and the study findings supported this fact, as most implementations had a project manager within the organization as well as on the vendor side. The essential tasks of project management are quantifiable, are reportable, and provide evidence of success or failure at milestones during the project.

The End-User Experience

The end-user experience was the basis for the mission and strategy of the LMS implementation in the opinion of each participant. Participants had left an old LMS for a new and improved experience; therefore, this CSF carried more weight than others

discovered during the study. Researchers mentioned the importance of a user interface, but from a user adaptation view as employees had to switch to new processes (Karami et al., 2015). A user-friendly interface is a desirable attribute in any software system (Parsazadeh et al., 2013), but the fact that members outside associations from various backgrounds were using the system heightened this requirement. The literature illustrated a greater need for system usability than other enterprise systems (C. Lin et al., 2011), but study participants explained that members might have limited knowledge of how to use technology or have hardware or software that is nonconforming. Taking into account a variety of devices and software is a unique requirement of an association LMS implementation. A streamlined and easy-to-navigate interface, seamless integration with the association management system, and interesting and engaging content were the most important factors discovered in the study data. Communicating on the use of the system and training end users is also important, but the need for end-user training is dependent on the ease of system use.

Limitations of the Study

Limitations of this study included the disparity of LMS implementation experience within the membership association industry. I canvassed over 370 organizations and found relatively few that fit the inclusion criteria. More respondents than participated in the study indicated that they were not qualified because their LMS implementation was not a success. Complex software requirements among membership association LMSs may have contributed to limiting the number of qualified participants. A second limitation may have been the disparity of job titles of those managing

implementations. In several instances, I requested that a senior manager identify and recommend someone from within the organization to participate in the study. Many of my calls and emails were not returned and this may be because I was targeting the wrong person. Collaborating with an organization that has access to qualified participants may help overcome this limitation in future studies. Although program or project managers had an understanding of the CSFs of the LMS implementation, in some organizations others were better able to describe a part of the implementation for which they had control. For instance, a program manager identified system integration as a CSF, but the IT team had intimate knowledge of that specific portion of the implementation.

The study participants had significant LMS implementation experience and were upgrading from a legacy system. Several were on their third LMS. The similarity of experiences created saturated data early in the study and produced a tightly correlated group of CSFs. The study included CSFs from highly experienced participants, but does not contain information from those entering e-learning in the last year or two.

The method for determining CSFs, as described in the literature, generally encompasses reviewing studies that reveal CSFs among similar prior implementations and then verifying, adding, or clarifying CSFs through surveys or interviews with individuals who have an understanding of CSFs in the given industry or setting. The CSFs in the literature analysis were not a close match for those in the study because of the limited literature concerning LMS implementations. Similarities surrounded project management, vendor selection, and participation of upper management. This study is transferable to studies of other membership association LMS implementations, but it may

not apply to determining CSFs of LMS implementations in other industries, such as corporate training or higher education. The methods I employed in this study are duplicable and transferable for discovering CSFs in a variety of situations.

Recommendations

The literature concerning CSFs indicated that a mixed-method empirical study is preferable if resources permit. I chose a qualitative study because the data collected in the literature analysis provided CSFs from a variety of enterprise systems, of which LMSs were only one. While comparing and contrasting the CSFs in the literature analysis with those discovered in the study, it was apparent that they were divergent. A quantitative survey using only the CSFs identified in the literature analysis as a basis would not have been beneficial. Sound CSF research methodology indicates that researchers analyze interview transcripts from a qualitative study and then use the data to create survey questions to distribute to a wider group (Karami et al., 2015). An analysis of qualitative data might reveal CSFs not discovered in a literature review, and if researchers limit survey questions to CSFs discovered in a review, they might miss important CSFs (Farzin et al., 2014). Data collected in the study using qualitative methods yielded sufficient data from which to develop a quantitative tool that could verify and perhaps expand the findings. Data collected from the interviews during my study will provide a rich set of data from which to create a follow-up quantitative instrument. The first recommendation for further research is to expand my study with a quantitative component designed to provide further insight into LMS implementations.

Data saturation occurred quickly in this study because early participants had very similar experiences. Five of the first six interviews provided tightly integrated responses that yielded a uniform set of CSFs. The seventh interview involved a participant new to e-learning, and the CSFs were distinctly different. The eighth interview was with a participant who again had significant experience implementing several LMSs and the data mirrored those of the first five interviews. The second recommendation for further research is to locate and interview participants who had a successful LMS implementation the first time. There is a possibility this population does not exist in sufficient quantities to obtain a qualified sample because I received feedback from many prospective participants that indicated their first LMS implementation was unsuccessful. Although the CSFs discovered in the study are sound and of value to the leaders of any membership association interested in implementing an LMS, the study may be most beneficial to those attempting a second LMS implementation. This leaves organizations interested in moving into e-learning for the first time lacking information that may be pertinent to a first-time implementation.

Learning management systems are the technological foundation for online learning programs. During the study, participants mentioned the need for quality content and discussed the challenges associated with converting traditional classroom or webinar programs into on-demand courses. Course development was a significant portion of the e-learning program.

While the scope of this investigation included only the implementation of LMS technology, the consensus among participants was that a LMS is only as successful as the

program in its entirety. Focusing on the LMS, and not the material residing inside, could be detrimental to the program. Interviews further revealed that communication with members using the LMS for member engagement and promoting the value of e-learning contributed to the growth of educational programs in general. The actual software underpinning these efforts is a critical aspect, but works in conjunction with other elements to create a successful program.

The third recommendation for further research is to produce a study larger in scope that will include all elements of a successful e-learning program. It is impossible to understand from association participants the role an LMS played in a successful program without exploring all aspects of e-learning. By using general systems theory to underpin a study of this nature, the LMS would be one component interdependent on other areas of the program and used to interact with the outside world.

Implications

Significance to Social Change

By conducting this study, I was instrumental in identifying CSFs that may aid in successful LMS projects by enabling the expansion of learning opportunities for association members. Almajed and Mayhew (2013) explained that enterprise information technologies yield benefits that lead to a sustainable competitive advantage, and implementing a successful online education program might give rise to an association's growth and sustainability. Membership associations also have a positive impact on the industries in which they operate. Positive social change occurs when membership associations expand the reach of their educational programs and provide certification

opportunities using Internet technologies (C. Lin et al., 2011). The impact of positive social change on individual learners includes additional opportunities for career development, higher wages, and a better standard of living for association members (Radwan et al., 2014). Learning management system technology is the foundation for most online learning activities and therefore has the same impact on society as does e-learning.

Significance to Theory

Research of CSFs is a concept used to provide a range of benefits to organizational leaders deploying complex systems to maintain a competitive advantage. Research of CSFs clearly demonstrates the benefits of identifying, categorizing, and managing CSFs during the implementation of complex systems (Ram & Corkindale, 2014). Every advancement in the ongoing refinement to the concept of CSF research benefits organizations dependent on complex technology for growth and prosperity.

In addition to furthering the concept of CSFs, the study contributed to an understanding of general systems theory as it relates to complex software systems and expanded research on STS theory as it relates to users of software programs. General systems theory applies to all types of systems, including software, and is therefore applicable to LMSs as well (von Bertalanffy, 1972). LMSs are dependent on subsystems, and users interact with the software from outside the organization as well. Critical success factor research of complex implementations helps researchers understand the complexities of large, highly integrated software programs (von Bertalanffy, 1972). Learning management systems are complex, and knowledge transfer software may affect

numerous stakeholders in and outside an organization (C. Lin et al., 2011). The study of general systems theory, and how it relates to software systems, contributed to the body of knowledge regarding how to deploy these systems successfully.

Learning management systems facilitate knowledge transfer, and there is no more intimate interaction between the human and technology than in the learning environment. Sociotechnical systems theory concerns the interaction of humans with technology, and interaction with computer-delivered learning activities is a primary concern during LMS deployments. Lack of attention to sociotechnical aspects of implementations often contributes to failure (Sedighi & Zand, 2012). This CSF category is a critical factor, as indicated in the study by the unanimous need for a user-friendly interface.

Significance to Practice

Learning management system technology helps lower costs by reducing travel associated with training and development and increases revenue by attracting distance and busy adult learners (Radwan et al., 2014). Information technology and information systems are vital to the successful operation of organizations around the world, and well implemented IT/IS initiatives contribute to stakeholder value (Ahlan & Sukmana, 2014; Azimi & Manesh, 2010). They also form a basis for a strategic competitive advantage (Ab Talib & Hamid, 2014; Aziz et al., 2012). Learning management system technology is a mature but growing industry. Organization leaders increasingly rely on enterprise technology such as LMSs to improve operations, increase profits, and reduce costs (Radwan et al., 2014). Learning management systems are the technology underpinning online learning programs; leaders in government, education, nonprofit, and for-profit

organizations around the world use them for a variety of purposes (Berbary & Malinchak, 2011). Understanding CSFs of LMS implementations benefits organizational leaders who attempted to implement LMSs but were not successful and others who chose not to deploy because of the risks (Bhuasiri et al., 2012). Research on the subject of CSFs for LMS implementations is lacking compared to other enterprise systems; therefore, the LMS and e-learning industries may also benefit from this study.

Conclusions

Association learners are outside a controlled environment; therefore, LMSs deployed by membership associations must be easy to use, intuitive, and flexible. Unlike LMSs used in a forced-learning environment, such as corporations that provide employee training or universities that use technology to provide course content, association learners often do not have an opportunity to learn the new technology in addition to the content. This situation creates a complex set of requirements for associations that other industry segments do not encounter in LMS implementations. Identifying and attending to CSFs helps implementation managers successfully launch complex systems, including LMSs, which have a high failure rate among membership associations.

Although this study had limitations that researchers may overcome in further research, the overarching value of the research method and resulting CSFs should provide a starting point for leaders of associations interested in extending the reach of their education programs through online learning. Educational offerings are a source of non-dues revenue, and participants indicated that launching a successful e-learning program was instrumental in achieving long-term revenue goals. Another mission of most

associations is improving educational opportunities for members, many of whom rely on credentialing for their careers. LMSs are the foundation technology in e-learning programs, and expanding the reach of educational programs is dependent upon successful implementations of LMS technology. Using CSFs to reduce the risk of purchasing and implementing LMSs may help associations provide more learning opportunities to more members through online learning.

References

Ab Talib, M. S., & Abdul Hamid, A. B. (2014). Application of critical success factors in supply chain management. *International Journal of Supply Chain Management, 3*, 21-33. Retrieved from http://www.ojs.excelingtech.co.uk

Ahlan, A. R., Kartiwi, M., & Sukmana, H. T. (2015). Influences of the input factors towards success of an information system project. *TELKOMNIKA (Telecommunication Computing Electronics and Control), 13*, 686-693. Retrieved from http://www.journal.uad.ac.id/

Ahlan, A. R., & Sukmana, H. T. (2014). An alternative method for determining critical success factors of information system project. *TELKOMNIKA (Telecommunication Computing Electronics and Control), 12*, 665-674. Retrieved from http://www.journal.uad.ac.id/

Ahmad, M. M., & Cuenca, R. P. (2013). Critical success factors for ERP implementation in SMEs. *Computer-Integrated Manufacturing Robotics and Computer-Integrated Manufacturing, 29*(3), 104-111. doi:10.1016/j.rcim.2012.04.019

Akhavan, P., & Zahedi, M. R. (2014). Critical success factors in knowledge management among project-based organizations: A multi-case analysis. *IUP Journal of Knowledge Management, 12*, 20-38. Retrieved from http://www.iupindia.in/knowledge_management.asp

Al-Busaidi, K. A. (2012). Learners' perspective on critical factors to LMS success in blended learning: An empirical investigation. *Communications of the Association for Information Systems, 30*(2), 11-34. doi:10.1016/j.rcim.2012.04.019

Al-Hinai, H., Edwards, H. M., & Humphries, L. (2013). The relevance of specific CSFs for stakeholders during ERP implementation: An empirical study from Oman. *UK Academy for Information Systems Conference Proceedings,* Retrieved from http://aisel.aisnet.org/ukais2013

Alhomod, S., Alsadhan, A. O., & Shafi, M. M. (2014). The 3C's model: A framework for development of e-learning courses. *Computer and Information Science, 7,* 87-93. doi:10.5539/cis.v7n1p87

Alhomod, S., & Shafi, M. M. (2013). Success factors of e-learning projects: A technical perspective. *Turkish Online Journal of Educational Technology-TOJET, 12,* 247-253. Retrieved from http://www.tojet.net

Allen, I., & Seaman, J. (2015). *Grade level: Tracking online education in the United States*. Oakland, CA: Babson Survey Research Group.

Allen-Collinson, J. (2011). Feminist phenomenology and the woman in the running body. *Sport, Ethics and Philosophy, 5,* 297-313. doi:10.1080/17511321.2011.602584

Almajed, A., & Mayhew, P. (2013). An investigation of the critical success factors of IT projects in Saudi Arabian public organizations. *IBIMA Business Review, 2013,* 1-10. doi:10.5171/2013.260919

Almajed, A., & Mayhew, P. (2014). An empirical investigation of IT project success in developing countries. *Science and Information Conference (SAI),* 984-990. doi:10.1109/SAI.2014.6918305

Arif, M. J., & Shalhoub, M. H. B. (2014). Critical success factors with its effective role in knowledge management initiatives in public and private organizations in Saudi

Arabia: Experts perspectives. *Life Science Journal, 11*, 636-645. Retrieved from http://www.lifesciencesite.com/lsj

Azimi, A., & Manesh, F. S. (2010). A new model to identify and evaluate critical success factors in the IT projects; case study: Using RFID technology in "Iranian fuel distribution system." *International Journal of Information Science and Management, Special Issue 1,* 99-112. Retrieved from http://ijism.ricest.ac.ir/index.php/ijism

Aziz, N. M., Salleh, H., & Mustafa, N. K. F. (2012). People critical success factors (CSFs) in information technology/information system (IT/IS) implementation. *Journal of Design Built, 5*(1). Retrieved from http://spaj.ukm.my/jsb/index.php/jdb

Badewi, A. (2015). The impact of project management (PM) and benefits management (BM) practices on project success: Towards developing a project benefits governance framework. *International Journal of Project Management, 33*(9), 1-18. doi:10.1016/j.ijproman.2015.05.005

Bala, H., & Venkatesh, V. (2013). Changes in employees' job characteristics during an enterprise system implementation: A latent growth modeling perspective. *MIS Quarterly, 37*, 1113-1140. Retrieved from http://www.misq.org

Bansal, V. (2013). Identifying critical success factors for ERP in SMEs through a case study. *International Journal of Future Computer and Communication, 2*, 471-475. doi:10.7763/IJFCC.2013.V2.208

Baxter, G., & Sommerville, I. (2011). Socio-technical systems: From design methods to systems engineering. *Interacting With Computers, 23*, 4-17. doi:10.1016/j.intcom.2010.07.003

Beheshti, H., Blaylock, B., Henderson, D., & Lollar, J. (2014). Selection and critical success factors in successful ERP implementation. *Competitiveness Review, 24*, 357-375. doi:10.1108/CR-10-2013-0082

Berbary, D., & Malinchak, A. (2011). Connected and engaged: The value of government learning. *Public Manager, 40*(3), 55-59. Retrieved from https://www.td.org/Publications/Magazines/The-Public-Manager

Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J. J., & Ciganek, A. P. (2012). Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. *Computers & Education, 58*, 843-855. doi:10.1016/j.compedu.2011.10.010

Bitzer, P., Menschner, P., & Leimeister, J. M. (2013). *Success factors for technology mediated learning services-first results of a Delphi study*. Retrieved from http://pubs.wi-kassel.de

Block, E. S., & Erskine, L. (2012). Interviewing by telephone: Specific considerations, opportunities, and challenges. *International Journal of Qualitative Methods, 11*, 428-445. Retrieved from https://ejournals.library.ualberta.ca

Breese, R. (2012). Benefits realisation management: Panacea or false dawn? *International Journal of Project Management, 30*, 341-351. doi:10.1016/j.ijproman.2011.08.007

Breese, R., Jenner, S., Serra, C. E. M., & Thorp, J. (2015). Benefits management: Lost or found in translation. *International Journal of Project Management, 33*, 1438-1451. doi:10.1016/j.ijproman.2015.06.004

Chan, Z. C., Fung, Y., & Chien, W. (2013). Bracketing in phenomenology: Only undertaken in the data collection and analysis process. *The Qualitative Report, 18*(30), 1-9. Retrieved from http://tqr.nova.edu/

Chenail, R. J. (2012). Conducting qualitative data analysis: Qualitative data analysis as a metaphoric process. *The Qualitative Report, 17*, 248-253. Retrieved from http://tqr.nova.edu/

Chien, H. (2014). Identify the critical success factors of business management in Taiwanese veterans home. *Universal Journal of Management, 2*(2), 49-63. Retrieved from http://www.hrpub.org

Chien, S., Wu, H., & Hsu, Y. (2014). An investigation of teachers' beliefs and their use of technology-based assessments. *Computers in Human Behavior, 31*, 198-210. doi:10.1016/j.chb.2013.10.037

Chih, Y., & Zwikael, O. (2015). Project benefit management: A conceptual framework of target benefit formulation. *International Journal of Project Management, 33*, 352-362. doi:10.1016/j.ijproman.2014.06.002

Cilesiz, S. (2011). A phenomenological approach to experiences with technology: Current state, promise, and future directions for research. *Educational Technology Research and Development, 59*, 487-510. doi:10.1007/s11423-010-9173-2

Coombs, C. R. (2015). When planned IS/IT project benefits are not realized: A study of inhibitors and facilitators to benefits realization. *International Journal of Project Management, 33,* 363-379. doi:10.1016/j.ijproman.2014.06.012

Cox, J. B., & Radwan, S. S. (2015). *ASAE handbook of professional practices in association management.* San Francisco, CA: Jossey-Bass.

Cummings, T. G. (1978). Self-regulating work groups: A socio-technical synthesis. *Academy of Management Review, 3,* 625-634. doi:10.5465/amr.1978.4305900

Dabestani, R., Taghavi, A., & Saljoughian, M. (2014). The relationship between total quality management critical success factors and knowledge sharing in a service industry. *Management and Labour Studies, 39*, 81-101. doi:10.1177/0258042X14535160

Dahlberg, T., Kivijarvi, H., & Saarinen, T. (2015, January 5-8). *The role of IT investment consistency among the enablers behind the success of IT deployment*. Paper presented at the 2015 48th Hawaii International Conference on System Sciences (HICSS), Kauai, HI. doi:10.1109/HICSS.2015.674

Davidsen, A. S. (2013). Phenomenological approaches in psychology and health sciences. *Qualitative Research in Psychology, 10,* 318-339. doi:10.1080/14780887.2011.608466

Davis, M. C., Challenger, R., Jayewardene, D. N., & Clegg, C. W. (2014). Advancing socio-technical systems thinking: A call for bravery. *Applied Ergonomics, 45*, 171-180. doi:10.1016/j.apergo.2013.02.009

Denolf, J. M., Trienekens, J. H., Wognum, P. M., van der Vorst, J., & Omta, S. W. F. (2015). Towards a framework of critical success factors for implementing supply chain information systems. *Computers in Industry, 68,* 16-26. doi:10.1016/j.compind.2014.12.012

Doherty, N. F. (2014). The role of socio-technical principles in leveraging meaningful benefits from IT investments. *Applied Ergonomics, 45,* 181-187. doi:10.1016/j.apergo.2012.11.012

Dowling, M., & Cooney, A. (2012). Research approaches related to phenomenology: Negotiating a complex landscape. *Nurse Researcher, 20*(2), 21-27. doi:10.7748/nr2012.11.20.2.21.c9440

Duan, Y., Nie, W., & Coakes, E. (2010). Identifying key factors affecting transnational knowledge transfer. *Information & Management, 47,* 356-363. doi:10.1016/j.im.2010.08.003

Dwivedi, Y. K., Wastell, D., Laumer, S., Henriksen, H. Z., Myers, M. D., Bunker, D., Srivastava, S. C. (2015). Research on information systems failures and successes: Status update and future directions. *Information Systems Frontiers, 17,* 143-157. doi:10.1007/s10796-014-9500-y

Eason, K. (2014). Afterword: The past, present and future of sociotechnical systems theory. *Applied Ergonomics, 45,* 213-220. doi:10.1016/j.apergo.2013.09.017

Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative content analysis: A focus on trustworthiness. *SAGE Open, 4,* 1-10. doi:10.1177/2158244014522633

Fakieh, B., Blount, Y., & Busch, P. (2014, December 8-10). *Success in the digital economy: Cloud computing, SMEs and the impact to national productivity*. Paper presented at the 25th Australasian Conference on Information Systems, Auckland, New Zealand. Retrieved from http://hdl.handle.net/10292/8020

Farzin, M., Kahreh, M. Hesan, S., & Khalouei, A. (2014). A survey of critical success factors for strategic knowledge management implementation: Applications for service sector. *Social and Behavioral Sciences Procedia*, *109*, 595-599. doi:10.1016/j.sbspro.2013.12.512

Finlay, L. (2012). Unfolding the phenomenological research process: Iterative stages of "seeing afresh." *Journal of Humanistic Psychology*, *53*, 172-201. doi:10.1177/0022167812453877

Flint, D. J., & Woodruff, R. B. (2015). Issues in a grounded theory study of customer desired value change: Resolutions using phenomenology, ethnography and holistic transcript readings. *Proceedings of the 1997 Academy of Marketing Science (AMS) Annual Conference*, pp. 134-139. doi:10.1007/978-3-319-13141-2_56

Fram, S. M. (2013). The constant comparative analysis method outside of grounded theory. *The Qualitative Report, 18*, 1-25. Retrieved from http://www.nova.edu/ssss/QR/QR18/fram1

Frost, D. M., & Ouellette, S. C. (2011). A search for meaning: Recognizing the potential of narrative research in social policy-making efforts. *Sexuality Research and Social Policy, 8*(3), 151-161. doi:10.1007/s13178-011-0061-2

Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report, 20*, 1408-1416. Retrieved from http://tqr.nova.edu/3852

Garrison, G., Kim, S., & Wakefield, R. L. (2012). Success factors for deploying cloud computing. *Communications of the ACM, 55*(9), 62-68. doi:10.1145/2330667.2330685

Global Industry Analysts. (2014). *E-learning: A global strategic business report.* Retrieved from http://www.strategyr.com/eLEARNING_Market_Report.asp

Gomes, J., & Romão, M. (2013). How benefits management helps balanced scorecard to deal with business dynamic environments. *Tourism & Management Studies, 9*, 129-138. Retrieved from http://www.tmstudies.net/index.php/ectms

Greenwood, D., & Sommerville, I. (2013). Expectations and reality: Why an enterprise software system did not work as planned. In R. Pooley et al. (Ed.), *Information systems development: Reflections, challenges and new directions* (pp. 51-62). New York, NY: Springer Science + Business Media.

Hailu, A., & Rahman, S. (2012, June 24-29). *Evaluation of key success factors influencing ERP implementation success.* Paper presented at the 2012 IEEE Eighth World Congress on Services, Honolulu, HI. doi:10.1109/SERVICES.2012.74

Hanafizadeh, P., Gholami, R., Dadbin, S., & Standage, N. (2010). The core critical success factors in implementation of enterprise resource planning systems. In L. Johnston (Ed.), *Enterprise information systems and advancing business solutions* (pp. 82-111). Hershey, PA: IGI Global. doi:10.4018/978-1-4666-1761-2.ch006

Hauser, L. (2013). Qualitative research in distance education: An analysis of journal literature 2005–2012. *American Journal of Distance Education, 27*(3), 155-164. doi:10.1080/08923647.2013.805641

Herbst, A., Urbach, N., & Brocke, J. V. (2014, January 6-9). *Shedding light on the impact dimension of information systems success: A synthesis of the literature*. Paper presented at the 2014 47th Hawaii International Conference on System Sciences (HICSS), Waikoloa, Hawaii. doi:10.1109/HICSS.2014.452

Hesselmann, F., & Kunal, M. (2014, June 9-11). *Where are we headed with benefits management research? Current shortcomings and avenues for future research.* Paper presented at the 22nd European Conference on Information Systems, Tel Aviv. Retrieved from http://ecis2014.eu/

Huang, L., & Lai, C. (2012). An investigation on critical success factors for knowledge management using structural equation modeling. *Procedia-Social and Behavioral Sciences, 40*, 24-30. doi:10.1016/j.sbspro.2012.03.156

Ika, L. A., Diallo, A., & Thuillier, D. (2012). Critical success factors for World Bank projects: An empirical investigation. *International Journal of Project Management, 30*, 105-116. doi:10.1016/j.ijproman.2011.03.005

Kafle, N. P. (2013). Hermeneutic phenomenological research method simplified. *Bodhi: An Interdisciplinary Journal, 5*, 181-200. doi:10.3126/bodhi.v5i1.8053

Karami, M., Alvani, S., Zare, H., & Kheirandish, M. (2015). Determination of critical success factors for knowledge management implementation, using qualitative and quantitative tools (case study: Bahman automobile industry). *Iranian Journal of Management Studies, 8*, 181-201. Retrieved from https://ijms.ut.ac.ir/article_52588_7073.html

Kehr, F., Bauer, G. F., Jenny, G. J., Güntert, S. T., & Kowatsch, T. (2013). Towards a design model for job crafting information systems promoting individual health, productivity and organizational performance. *Proceedings of the Pre-ICIS 2013, SIG-Organizational Systems Research Association (OSRA) Workshop*, Milan, Italy. Retrieved from http://icis2013.aisnet.org/

Keramati, A., Samadi, H., Nazari-Shirkouhi, S., & Askari, N. (2012). Identifying and prioritising critical success factors for CRM implementation: A case study. *International Journal of Electronic Customer Relationship Management, 6*, 235-256. Retrieved from https://journals.ut.ac.ir/article_52588_8.html

Kim, Y. (2013, August 26-27). *Relative importance of critical success factors for ERP implementation: Practitioners' perspective.* Paper presented at the 4th Annual International Conference on Infocomm Technologies in Competitive Strategies (ICT), Singapore. doi:10.5176/2251-2136_ICT13.14

Kull, T. J., Ellis, S. C., & Narasimhan, R. (2013). Reducing behavioral constraints to supplier integration: A socio-technical systems perspective. *Journal of Supply Chain Management, 49*, 64-86. doi:10.1111/jscm.12002

Kumar, R., Singh, R. K., & Shankar, R. (2015). Critical success factors for implementation of supply chain management in Indian small and medium enterprises and their impact on performance. *IIMB Management Review, 27*(2), 78-92. doi:10.1016/j.iimb.2015.04.005

Kurapati, S., Kolfschoten, G., Verbraeck, A., Drachsler, H., Specht, M., & Brazier, F. (2012, September 18). *A theoretical framework for shared situational awareness in sociotechnical systems*. Paper presented at the 2nd Workshop on Awareness and Reflection in Technology-Enhanced Learning, Saarbrucken, Germany, *2*, 47-53. Retrieved from http://ceur-ws.org/Vol-931/

Lin, C., Ma, Z., & Lin, R. C. (2011). Re-examining the critical success factors of e-learning from the EU perspective. *International Journal of Management in Education, 5*, 44-62. doi:10.1504/IJMIE.2011.037754

Lin, G. T., Lin, C., Chou, C. J., & Lee, Y. (2014). Fuzzy modeling for information security management issues in cloud computing. *International Journal of Fuzzy Systems, 16*, 529-540. Retrieved from http://www.ijfs.org.tw/

Lindner, F., & Wald, A. (2011). Success factors of knowledge management in temporary organizations. *International Journal of Project Management, 29*, 877-888. doi:10.1016/j.ijproman.2010.09.003

Ling, C. T. N. (2011). Knowledge management acceptance: Success factors amongst small and medium-size enterprises. *American Journal of Economics and Business Administration, 3*, 73-80. doi:10.3844/ajebasp.2011.73.80

Maditinos, D., Chatzoudes, D., & Tsairidis, C. (2011). Factors affecting ERP system implementation effectiveness. *Journal of Enterprise Information Management, 25*, 60-78. doi:10.1108/17410391211192161

Markets and Markets. (2015). *Learning management systems (LMS) market by products: Global forecast to 2020*. Retrieved from http://www.marketsandmarkets.com /Market-Reports/learning-management-systems-market-1266.html

Marnewick, C. (2016). Benefits of information system projects: The tale of two countries. *International Journal of Project Management, 34*, 748-760. doi:10.1016/j.ijproman.2015.03.016

Mas-Machuca, M., & Martínez Costa, C. (2012). Exploring critical success factors of knowledge management projects in the consulting sector. *Total Quality Management & Business Excellence, 23*, 1297-1313. doi:10.1080/14783363.2011.637778

Matayong, S., & Mahmood, A. K. (2013). The review of approaches to knowledge management system studies. *Journal of Knowledge Management, 17*, 472-490. doi:10.1108/JKM-10-2012-0316

Mehregan, M. R., Jamporazmey, M., Hosseinzadeh, M., & Kazemi, A. (2012). An integrated approach of critical success factors (CSFs) and grey relational analysis

for ranking KM systems. *Procedia-Social and Behavioral Sciences, 41*, 402-409. doi:10.1016/j.sbspro.2012.04.048

Moustakas, C. (1994). *Phenomenological research methods.* Thousand Oaks, CA: Sage.

Mumford, E. (2006). The story of socio-technical design: Reflections on its successes, failures and potential. *Information Systems Journal, 16*, 317-342. doi:10.1111/j.1365-2575.2006.00221.x

Noordin, M. F., Othman, R., & Zakaria, N. A. (2013). Investigating key success factors in adopting knowledge management system. *World Applied Sciences Journal, 21*, 221-229. doi:10.5829/idosi.wasj.2013.21.2.2500

Odusanya, K., & Coombs, C. (2015). *Exploiting benefits from IS/IT investments: An IT culture perspective.* Paper presented at the European Conference on Information Systems (ECIS), Munster, Germany. Retrieved from https://dspace.lboro.ac.uk/2134/18354

Parsazadeh, N., Zainuddin, N. M. M., Ali, R., & Hematian, A. (2013, March 4-6). *A review on the success factors of e-learning.* Paper presented at the Second International Conference on e-Technologies and Networks for Development (ICeND2013), Kuala Lumpur, Malaysia. Retrieved from http://sdiwc.net/digital-library/a-review-on-the-success-factors-of-elearning.html

Pavlovna, P. E., Aleksandrovich, K. Y., Petrovich, Z. A., & Yuryevna, G. P. (2015). Key success factors analysis in the context of enterprise resources planning systems projects implementation. *Modern Applied Science, 9*(5), 133. doi:10.5539/mas.v9n5p133

Petty, N. J., Thomson, O. P., & Stew, G. (2012). Ready for a paradigm shift? Part 2: Introducing qualitative research methodologies and methods. *Manual Therapy, 17,* 378-384. doi:10.1016/j.math.2012.03.004

Radwan, N. M., Senousy, M. B., & Riad, A. E. D. M. (2014). Current trends and challenges of developing and evaluating learning management systems. *International Journal of e-Education, e-Business, e-Management and e-Learning, 4,* 361-375. doi:10.7763/ijeeee.2014.v4.351

Ram, J., & Corkindale, D. (2014). How "critical" are the critical success factors (CSFs)? Examining the role of CSFs for ERP. *Business Process Management Journal, 20,* 151-174. doi:10.1108/bpmj-11-2012-0127

Ram, J., Corkindale, D., & Wu, M. (2013). Implementation critical success factors (CSFs) for ERP: Do they contribute to implementation success and post-implementation performance? *International Journal of Production Economics, 144,* 157-174. doi:10.1016/j.ijpe.2013.01.032

Ram, J., Wu, M., & Tagg, R. (2014). Competitive advantage from ERP projects: Examining the role of key implementation drivers. *International Journal of Project Management, 32,* 663-675. doi:10.1016/j.ijproman.2013.08.004

Roberts, B. (2014). Biographical research: Past, present, future. In M. O'Neill, B. Roberts, & A. Sparkes (Eds.), *Advances in biographical methods: Creative applications* (pp. 11-29). London, England: Routledge.

Rockart, J. F. (1982, Fall). The changing role of the information systems executive: A critical success factors perspective. *Sloan Management Review, 24*(2), 3-13. doi:10.2307/248989

Sabri, A. (2014). Applying DeLone and McLean IS success model on socio-techno knowledge management system. *International Journal of Computer Science Issues, 11*(6), 160-166. Retrieved from http://www.ijcsi.org

Salmeron, J. L. (2009). Augmented fuzzy cognitive maps for modelling LMS critical success factors. *Knowledge-Based Systems, 22*, 275-278. doi:10.1016/j.knosys.2009.01.002

Samad, A., Kazi, A. K., & Raheem, M. (2014). Critical success factors of knowledge management systems implementation. *KASBIT Journal of Management & Social Science, 7*(2), 64-78. Retrieved from http://kasbit.edu.pk/research/research-journals

Sangar, A. B., & Iahad, N. B. A. (2013). Critical factors that affect the success of business intelligence systems (BIS) implementation in an organization. *International Journal of Scientific & Technology Research, 2*(2), 14-16. Retrieved from http://www.ijstr.org

Sangasubana, N. (2011). How to conduct ethnographic research. *The Qualitative Report, 16*, 567-573. Retrieved from http://www.nova.edu/ssss/QR/QR16-2/sangasubana

Schniederjans, D., & Yadav, S. (2013). Successful ERP implementation: An integrative model. *Business Process Management Journal, 19*, 364-398. doi:10.1108/14637151311308358

Šebjan, U., Bobek, S., & Tominc, P. (2014). Organizational factors influencing effective use of CRM solutions. *Procedia Technology, 16*, 459-470. doi:10.1016/j.protcy.2014.10.113

Sedighi, M., & Zand, F. (2012, November 21-23). *Knowledge management: Review of the critical success factors and development of a conceptual classification model*. Paper presented at the 10th International Conference on ICT and Knowledge Engineering, Bangkok, Thailand. doi:10.1109/ICTKE.2012.6408553

Selim, H. M. (2007). Critical success factors for e-learning acceptance: Confirmatory factor models. *Computers & Education, 49*, 396-413. doi:10.1016/j.compedu.2005.09.004

Serra, C. E. M., & Kunc, M. (2015). Benefits realisation management and its influence on project success and on the execution of business strategies. *International Journal of Project Management, 33*, 53-66. doi:10.1016/j.ijproman.2014.03.011

Shaul, L., & Tauber, D. (2013). Critical success factors in enterprise resource planning systems: Review of the last decade. *ACM Computing Surveys (CSUR), 45*(4), 55-78. doi:10.1145/2501654.2501669

Shehzad, R., Khan, M. N., & Naeem, M. (2013). Integrating knowledge management with business intelligence processes for enhanced organizational learning.

International Journal of Software Engineering and Its Applications, 7(2), 83-91. Retrieved from http://www.sersc.org/journals/IJSEIA/

Solebello, N., Tschirhart, M., & Leiter, J. (2015). The paradox of inclusion and exclusion in membership associations. *Human Relations, 68*(10), 1-22 doi:10.1177/0018726715590166

Sorgenfrei, C., Ebner, K., Smolnik, S., & Jennex, M. E. (2014, June 5-13). *From acceptance to outcome: Towards an integrative framework for information technology adoption.* Paper presented at the 22nd European Conference on Information Systems, Tel Aviv, Israel. Retrieved from http://ecis2014.eu/E-poster/files/0719-file1.pdf

Subiyakto, A., & bin Ahlan, A. (2013, November 27-28). *A coherent framework for understanding critical success factors of ICT project environment.* Paper presented at the 2013 International Conference on Research and Innovation in Information Systems, Selangor, Malaysia. doi:10.1109/icriis.2013.6716733

Tan, H., Wilson, A., & Olver, I. (2009). Ricoeur's theory of interpretation: An instrument for data interpretation in hermeneutic phenomenology. *International Journal of Qualitative Methods, 8*(4), 1-15.Retrieved from https://ejournals.library.ualberta.ca/index.php/IJQM

Tarhini, A., Ammar, H., & Tarhini, T. (2015). Analysis of the critical success factors for enterprise resource planning implementation from stakeholders' perspective: A systematic review. *International Business Research, 8*(4), 25-58. doi:10.5539/ibr.v8n4p25

Thomas, G. (2011). A typology for the case study in social science following a review of definition, discourse, and structure. *Qualitative Inquiry, 17*, 511-521. doi:10.1177/1077800411409884

Toloie-Eshlaghy, A., & Akbari-Yusefvand, A. (2011). Identifying and prioritizing critical success factors (CSFs) in practicing knowledge management in small and medium firms using decision making techniques. *European Journal of Economics, Finance and Administrative Sciences, 40*, 101-116. Retrieved from http://www.eurojournals.com/EJEFAS.htm

Trist, E., & Bamforth, K. (1951). Some social and psychological consequences of the longwall method. *Human Relations, 4*(3), 3-38. doi:10.1177/001872675100400101

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences, 15*, 398-405. doi:10.1111/nhs.12048

Van Manen, M. (2014). *Phenomenology of practice: Meaning-giving methods in phenomenological research and writing.* Walnut Creek, CA: Left Coast Press.

Venkatraman, S., Sundarraj, R. P., & Seethamraju, R. (2015, June 24-28). *Healthcare analytics adoption-decision model: A case study* (Paper 51). Paper presented at the Pacific Asia Conference on Information Systems (PACIS), Chengdu, China. Retrieved from http://aisel.aisnet.org/pacis2015

Von Bertalanffy, L. (1972). The history and status of general systems theory. *Academy of Management Journal, 15*, 407-426. doi:10.2307/255139

Yazdanpanah, A., & Gazor, H. (2012). Detecting success factors of electronic customer relationship management (e_CRM) system to establish an appropriate model in police call centre of Iran. *Management Science Letters, 2*, 339-350. doi:10.5267/j.msl.2011.08.003

Zheng, W., Yang, B., & McLean, G. N. (2010). Linking organizational culture, structure, strategy, and organizational effectiveness: Mediating role of knowledge management. *Journal of Business Research, 63*, 763-771. doi:10.1016/j.jbusres.2009.06.005

Zunker, C., & Ivankova, N. (2011). Applying grounded theory to weight management among women: Making a commitment to healthy eating. *The Qualitative Report, 16*, 860-880. Retrieved from http://nsuworks.nova.edu/tqr/vol16/iss3/13/

Appendix A: Overview of Study

EXPLORING CRITICAL SUCCESS FACTORS OF LEARNING MANAGEMENT SYSTEM IMPLEMENTATIONS IN MEMBERSHIP ASSOCIATIONS

Please participate in a research study that will be useful to associations wishing to extend their learning offerings. You can help by speaking with us for about 30 minutes about your experiences. The specific inclusion criteria are as follows:

- Participants must have been employed by a membership association and have direct experience implementing a learning system
- The system must have been launched at least a year ago and still be in operation
- The system must be a "success" in that the organizational goals for the system have been realized

If you would like to participate, please review the attached consent form then simply chose a time that is convenient from the interview calendar linked here:

http://bit.ly/1O23Wpl

The interview will be short (30 minutes on average), and the interview questions are attached. You will also need to review the preliminary, and final, results of the study and provide feedback. This should only take a few minutes of your time. Your participation will remain confidential in all respects.

This study is important because learning management systems are the foundation technology for online learning programs, which provide extended learning opportunities for millions of people in a variety of industries. Understanding critical success factors that reduce the risk of purchasing and implementing learning systems may help other associations provide learning opportunities to more members.

Thank you in advance for your time.

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Appendix B: Consent Form

EXPLORING CRITICAL SUCCESS FACTORS OF LEARNING MANAGEMENT SYSTEMS IMPLEMENTATIONS IN MEMBRSHIP ASSOCIATIONS

RESEARCH STUDY CONSENT FORM

You are invited to take part in a research study to discover critical success factors (CSFs) of learning management systems (LMS) implementations. You are qualified to participate because you have experienced implementing a successful LMS for your organization. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Valerie Whitcomb, who is an academic instructional designer, earning a PhD in Learning Management at Walden University.

Background Information:
The purpose of this study is to explore the lived experience of learning program managers within membership associations who have implemented successful LMSs. The specific inclusion criteria are as follows:

- Participants must have direct experience implementing the LMS
- The LMS must have been launched at least a year ago and still in operation
- The LMS must be a "success" in that the organizational goals for the system have been realized

Procedures:
If you agree to be in this study, you will be asked to:

- Participate in a semistructured interview over Skype of approximately 30 minutes that will be recorded and transcribed for research purposes.
- Validate or comment on the researcher's interpretation of your experience by reviewing a textural-structural description of your experience within 3 days of receipt or as soon as possible. This review should take no more than 20 minutes.
- Validate or comment on the findings of the analysis of the shared experience of all participants, as interpreted by the researcher, within 3 days of receipt or as soon as possible. This review should take no more than 20 minutes.

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.
Risks and Benefits of Being in the Study:

Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as spending time participating in a study, which might take away time from other endeavors.

This study will benefit membership association program managers because we will explore the critical success factors of implementing an LMS and this may be of value to those considering this undertaking. The paper resulting from the study will help prepare membership association program managers to incorporate online learning in their education offerings. The final report, which is expected to include best practices and critical success factors, will be disseminated to all who participate.

Payment:
There will be no payment for participation in this study.

Privacy:
Any information you provide will be kept confidential at all times. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by ensuring that narrations and transcriptions, along with all research is kept in a secure, password protected environment. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via email at Valerie.whitcomb@waldenu.edu or by phone at (703) 678-9279. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 612-312-1210. Walden University's approval number for this study is **01-28-16-0047907** and it expires on **January 27, 2017.**

Please indicate your consent by responding to this email with the words "I consent", and save this correspondence for your records. Thank you in advance for your participation

Valerie Whitcomb
3427 Ft. Lyon Dr.
Woodbridge, VA 22192

Appendix C: Interview Questions

EXPLORING CRITICAL SUCCESS FACTORS OF LEARNING MANAGEMENT SYSTEM IMPLEMENTATIONS IN MEMBERSHIP ASSOCIATIONS

SEMI-STRUCTURED INTERVIEW QUESTIONS

Researcher: Valerie J. Whitcomb, MBA

Research Question: What are the lived experiences of program managers within membership associations, with learning management system (LMS) implementation experience, and what are perceived critical success factors of LMS implementations?

General Background Questions:

- How long has the LMS been in use in your organization?
- What was your title at the time of the implementation, and what role did you play in the implementation of the LMS?
- What type of system is it?
- How many learners use the system?
- What programs are offered?
- How many courses are deployed through the system?
- What were the organization's goals for the system and are they being met?

Question 1: Please spend a few minutes telling me about yourself, your organization's decision to deploy an LMS and the role you played in the implementation.

Question 2: Which parties/departments participated in the implementation, and what areas of major responsibility did each manage? Vendors.

Question 3: Please recount in chronological order from planning to system deployment the major milestones, key employees or departments that participated, and your perceived success factors for each phase of the project.

Question 4: What obstacles did you encounter in the implementation and what strategies did you deploy to overcome them?

Question 5: If the participant fails to mention one of the stakeholder groups below (as found in the literature review), ask the participant if any of the following played a role in the success of the implementation.

- Upper Management
- Information Technology
- Human Resources

- Other groups or departments

Question 6: If the participant fails to mention one of the major critical success factors below (as found in the literature review) ask the participant if any of the following played a role in the success of the implementation:

- Project Management
- Stakeholder Communication
- Organizations/department ability to change
- End User Training
- System Integration

Appendix D: Email Verification of Interview

From: no-reply@timetrade.com
Date: March 1, at 12:29:48 PM EDT
To: Valerie Whitcomb <vjwhitcomb@globaltrainingfoundation.org>
Subject: Study Interview Appointment Confirmation
Reply-To: no-reply@timetrade.com

Appointment Confirmation

timetrade

Invitee:	Study Participant (myemail@association.net)
Phone:	123-456-7890
Company:	My Association
Activity:	Study Interview
Date:	Friday, March 4, 2016
Time:	2:00pm EDT (30 minutes)
Instructions:	Call Study at 123-456-7890
Confirmation #:	6355072

Question:
Have you reviewed the consent form and do you consent to participate in this study?

Response:
Yes I consent to participate in your study.

Appendix E: Member Check Activity #1 Email

Hi {!Contact.FirstName},

Thank you so much for participating in the study! It is turning out to be a very interesting and valuable endeavor and you provided wonderful insight. If you know of anyone that might be able to add value, please pass along my contact information. The study is also explained on my website (www.valerie-whitcomb.com) and the calendar link is there as well

I am attaching the "distillation" of your interview. This is a coding report that shows the main categories I found and how I placed bits of information in those categories. I am continuously revising as I go, so if you find a theme missing, or would like add any additional information, please do so in RED. For instance, I am planning to make a new category for "Consultants" because they are coming up frequently in both the vendor selection phase and the implementation process as well.

I want to assure you that no organization names will be in the study report and you and your participation will remain confidential. Please look this document over and return it to me as soon as you can. I will then synthesize all the coding reports into one set of "global" success factors and send the report back to you for a final review.

Thanks again!

Valerie Whitcomb, MBA
PhD Candidate - Learning Management
(703) 678-9279
vjwhitcomb@salisbury.edu (office)
vwhitcomb@waldenu.edu (school)
www.valerie-whitcomb.com

Appendix F: Member Check Activity #2 Email

Hi {!Contact.FirstName},

I am attaching the results of my study "Exploring Critical Success Factors of Learning Management System Implementations in Membership Associations".

The attachment is 20 pages and is only one section of the final dissertation that is almost 200 pages in length overall. Please keep in mind that nobody will know who you are or be able to identify your participation in any way. You are the only person who knows which participant number you are.

Please take a few minutes to read through the results and feel free to add, subtract or edit anything you feel is required and send comments to be by return email as soon as you can. I have not sent this to my professional editor as of yet, and will do so after I gain your feedback. So changes made by the editor along with those made by participants will be reflected in the final dissertation document.

Thank you again for your participation. I sincerely appreciate the effort. It was a tremendous study and I plan to further this research beginning in the summer.

Valerie J. Whitcomb, MBA
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valerie.whitcomb@waldenu.edu
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(703) 678-9279