

Creation of a Support Tool for the Needs Assessment Process:
A Design and Development Study

Carmalita Trotman

Dissertation submitted to the faculty of
the Virginia Polytechnic Institute and State University
In partial fulfillment of the requirements for the degree of
Doctor of Philosophy
in
Curriculum and Instruction

March 23, 2020

Barbara B. Lockee, Chair

Kenneth Potter

Mark Bond

Alicia Johnson

Key words: instructional design process, needs assessment, training outcomes, adult training

Creation of a Support Tool for the Needs Assessment Process:

A Design and Development Study

Carmalita Trotman

ABSTRACT

Organizations in the private and public sector provide employee training for different reasons and cover a variety of subject and skill areas. In some cases, training is provided without implementing the complete instructional design process, omitting the needs assessment and analysis step, which can result in less than desired training outcomes. Research details challenges that private and public sector organizations encounter related to needs assessments, along with the benefits of assessing needs prior to the design of a training program. This development study and research supports these details. As a part of this research, a needs assessment tool was designed to assist instructional designers and training managers gather key information to better determine if training is needed and to identify the best means for moving through the instructional design process. An expert review of the needs assessment tool validated the tool and provided feedback for further development of the tool. This study presents the challenges and benefits of assessing needs, describes the development of a needs assessment tool, analyzes and summarizes the expert review and feedback, and suggests potential revisions to the tool.

Creation of a Support Tool for the Needs Assessment Process:
A Design and Development Study

Carmalita Trotman

GENERAL AUDIENCE ABSTRACT

Organizations in the private and public sector provide employee training for different reasons and cover a variety of subject and skill areas. In some cases, training is provided without implementing the complete instructional design process. The complete instructional design process involves conducting a needs assessment, analyzing the needs assessment, designing a learning plan, developing the instruction based on the learning plan, implementing the instruction, and evaluating the instructional outcomes. When the first step, conducting the needs assessment is omitted, in some cases this may result in less than desired training outcomes. Research details challenges that private and public sector organizations encounter related to needs assessments, along with the benefits of assessing needs prior to the design of a training program. This development study and research supports these details. As a part of this research, a needs assessment tool was designed to assist training developers, instructional designers, and training managers gather key information to better determine if training is needed and to identify the best means for moving through the instructional design process. A group of individuals who work in the training and instructional design field, also referred to as expert reviewers, reviewed and validated the needs assessment tool and provided feedback for further development of the tool. This study presents the challenges and benefits of assessing needs, describes the

development of a needs assessment tool, analyzes and summarizes the expert review and feedback, and suggests potential revisions to the tool.

Dedication

I dedicate this document to Anderson and Alexis, who have motivated me daily to be better and work harder. I love you both.

Acknowledgements

I am thankful to many people for supporting me through this journey. First, I'd like to thank my advisor, Dr. Barbara Lockee, sparked my initial interest in this journey and encouraged and supported me all the way to the finish line. Thank you to my committee members, Dr. Ken Potter, Dr. Aaron Bond, and Dr. Alicia Johnson. Your support and guidance provided invaluable insight and focus. I am grateful for the time and patience each member of my committee dedicated to helping me achieve my goal.

Thank you to my expert reviewers, Mr. Carl Lee, Mrs. Kim Amin, Mrs. Kelly Tinsley, and Mr. Jesse Highsmith for taking time to review the tool and provide feedback. Without your willingness to set aside time to review and discuss the tool this study could not have been completed.

I would like to thank my Virginia Tech family who supported me in the most amazing ways. To Dr. Glenda Scales, thank you for your mentorship and guidance. The opportunity to work alongside you, to shadow you in meetings, and to talk through various aspects of distance learning across the globe has shaped me in ways that will forever impact my career. Thank you to Dr. Anita Franklin for continued encouragement, love, support, and prayers. You helped me to get through some of my hardest days while studying away from my children and family.

Finally, to my children, Anderson and Alexis, to Eddie Keith, the love of my life, and to my village of family and friends, thank you for seeing me through this. I could not have done it without your love and support.

Table of Contents

ABSTRACT.....	ii
GENERAL AUDIENCE ABSTRACT.....	iii
Dedication	v
Acknowledgements.....	vi
List of Tables	ix
CHAPTER 1	
INTRODUCTION AND NEED FOR THE STUDY	1
Introduction.....	1
Need for the Study	2
Purpose of the Study	2
Research Questions	3
Benefits of the Study.....	3
Organization of the Proposed Study	4
CHAPTER 2	
REVIEW OF LITERATURE.....	6
Introduction.....	6
The Instructional Design Process.....	8
The Needs Assessment	9
Benefits of the Needs Assessment	11
Challenges for Public and Private Sector Training Environments	13
Training Within the Organization.....	16
Strategies for Implementing the Needs Assessment.....	17
CHAPTER 3	
METHODOLOGY	22
Introduction.....	22
Research Questions	23
Design and Development Research	23
Design and Development Research Challenges	25
Tool Description	26
Participants.....	27
Procedures.....	28
Summary of Data Collection Procedures.....	28

RESEARCH

Data Collection	31
CHAPTER 4	
THE NEEDS ASSESSMENT TOOL.....	33
Tool Design.....	35
CHAPTER 5	
EXPERT REVIEW.....	45
Themes from Data Analysis.....	45
Summary of Expert Reviews	51
CHAPTER 6	
DISCUSSION.....	54
Implications.....	56
Study Limitations.....	59
Next Steps	60
REFERENCES.....	61
APPENDIX A	
METHODS FOR GATHERING DATA FOR A NEEDS ASSESSMENT TOOL.....	70
APPENDIX B	
TRAINING NEEDS ASSESSMENT TOOL.....	72
APPENDIX C	
NEEDS ASSESSMENT TOOL EXPERT REVIEW INSTRUMENT	75
APPENDIX D	
EXPERT REVIEWER PHONE INTERVIEW QUESTIONS.....	77
APPENDIX E	
RECRUITMENT EMAIL	78
APPENDIX F	
INFORMED CONSENT	79
APPENDIX G	
IRB APPROVAL LETTER.....	82
APPENDIX H	
NEEDS ASSESSMENT TOOL REVISED	83

List of Tables

Table 2. 1 AADDIE process description	9
Table 2. 2 Three indicators of a needs assessment and purposes	10
Table 2. 3 Needs assessment levels and framework	21
Table 3. 1 Varying outcomes of design and development research	24
Table 3. 2 Decisions to consider when conducting a needs assessment	29
Table 4. 1 Four design and development research paradigms	34
Table 4. 2 Three-phase plan for needs assessment	35
Table 4. 3 Six-step process for a needs assessment	36
Table 4. 4 Needs assessment tool formats	38
Table 4. 5 Step 1 – Organizational Goals	40
Table 4. 6 Step 2 – Current State	41
Table 4. 7 Step 3 – Gaps	42
Table 4. 8 Step 4 – Priorities	43

CHAPTER 1

INTRODUCTION AND NEED FOR THE STUDY

Introduction

Employee training is a large and profitable industry. The *2018 Training Industry Report* found that companies spent \$87.6 billion on training, including payroll and services (Freifeld, 2018). Most organizations, companies, and even small businesses provide some type of employee training. However, the effectiveness of training is sometimes called into question. More importantly, the need for training itself is even more questionable. In some cases, training decisions are made based on assumptions about the need or with misguided information about what an organization needs and the best way to get what they need. In other cases, “the choice of training as the best of the available alternatives is based on its cost effectiveness in achieving the desired result” (Warren, 1979, p. 3). Confusion comes when the “want” and the “need” are not clearly defined. Companies should consider what they want, or in training terms, the goals and desired outcomes, prior to initiating new training programs (Bartram & Gibson, 2000; Kaufman & Guerra-Lopez, 2013). Aligning goals and desired outcomes with the instructional design process allows companies to have more structured training programs and achieve outcomes that address organizational needs.

Training is typically used as a performance improvement mechanism which should be associated with a goal (Johnson, 1993). The first step of the systematic design of training is to clearly define goals or needs. “The basic rule of system design is that the system itself is defined by its mission” (Warren, 1979, p. 19). Defining the training outcome or goal is key to good training design. A component of defining goals is using clearly defined terms. Using clear language and defined terms is critical for effective communication focused on solving problems

(Kaufman, R., Oakley-Brown, H., Watkins, R., & Leigh, D., 2003). The first step organizations might consider in defining their training goals is to distinguishing wants from needs when setting goals, and then mapping out a plan to achieve desired outcomes. The instructional design process traditionally begins with the needs assessment, which provides the foundation for subsequent steps within the process and helps to ensure training outcomes are not derailed (Rothwell, Benscoter, King, & King, 1994).

Need for the Study

This study examines common practices and challenges organizations address when identifying training needs and achieving intended training outcomes. Language around what organizations need versus what they want can create obscure training goals and derail intended outcomes. Literature identifies the importance of organizations having clear training goals as a means of achieving their goals. This study is designed to develop a needs assessment training tool that can help organizations more easily facilitate the identification of needs, define goals more clearly, and specify desired outcomes so that needs can be better identified and, if training is needed, the resulting instruction can be better aligned to those needs. A training needs assessment tool could assist organizations and training designers in the development of training programs by ensuring time and resources are properly allocated to help organizations meet their goals.

Purpose of the Study

The purpose of this study is to examine the practices and challenges of private and public sector organizations when defining training needs and achieving the intended outcomes and goals of training. By attending to the first stage of the instructional design process — needs

assessment — agencies and organizations can more effectively produce learning and performance outcomes that provide benefit to the organization. The development of a training needs tool may allow training developers and organizations to have a more defined understanding of the organizations' goals and intended outcomes and allow organizations to make more informed decisions about what training is needed, what type of training might be more effective, or if training is a solution to the need. There are several types of employee training that can be explored, including onboarding, technical skills, soft skills, and mandatory (Elmokadem, 2018). As it relates to public and private sector organizations, mandatory training is typically related to regulatory compliance and required without regards to needs or prior knowledge. For the purpose of this study, the proposed tool will be designed to address requested training for the purpose of learning and performance improvement.

Research Questions

The research questions for this study are:

1. What are the challenges with the use of a needs assessment in public and private sector training environments?
2. How can the development of an efficient needs assessment tool be used to provide clarity to organizations and/or instructional designers when addressing requests for new training or training programs in public and private sector training environments?

Benefits of the Study

Over the past year, training costs have totaled an estimated \$87.6 billion, with a training payroll increase of almost 13% at \$47 billion (Friefeld, 2018). This spending is typically in an effort to improve employee performance; however, specific needs are not always clearly

identified. “Many organizations do not collect the information to determine the usefulness of their own instructional programs” (Goldstein & Ford, 2002, p.28). This study seeks to help public and private sector organizations understand the benefits of clearly defined terms, effective communication, and clearly stated organizational goals when working with training designers to plan and implement effective training programs. It will also highlight the importance of the instructional design process and how proper implementation of the process, and more specifically, the needs assessment process, can produce more intentional training outcomes.

Organization of the Proposed Study

Chapter One provides the background information for the study. It provides the purpose of the study, explains why the study is needed, the research questions for the study, and the benefits of the study. Chapter Two is the review of literature. This chapter provides the research basis for the importance of the instructional design process and having clearly identified instructional goals and the identification of needs prior to the design and development of training programs for public and private sector organizations. It also establishes the basis for the use of a needs assessment tool to assist training developers and organizational stakeholders in determining training needs for their instructional programs. Chapter Three explains the research methodology for the study. It identifies the design and development approach for the study, the guidelines for the tool development, information about the expert reviewers, survey and review instruments, data collection, and data analysis procedures. Chapter Four provides a summary of the needs assessment tool, how it can be used, and questions included in the tool. Chapter Five provides the data analysis based on the review and use of the tool and suggestions on tool revisions based on the reviewer feedback. This chapter will also provide a summary of the study

and how the study can be used in the field of instructional design. Chapter Six summarizes the study and how the outcomes can be used in the field.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

The following review of the literature provides an overview of training development processes within organizations, the instructional design process, the needs assessment process and its benefits, challenges in public and private sector training environments, and strategies for implementing a needs assessment. Within this review the works of well-known scholars in the field of needs assessment and organizational training are cited, such as Roger Kaufman.

Kaufman is a scholar in the field and has been identified as the “father of the needs assessment” (Witkin, 1994, p. 19). Kaufman has authored several books on the use of a needs assessment and provided strategies for public and private-sector organizations (Kaufman & English, 1979; Kaufman & Watkins, 2000; Kaufman, Oakley-Brown, Watkins, & Leigh, 2003; Kaufman, 2006; Kaufman, 2001; Kaufman & Guerra-Lopez, 2013).

Training is the process of improving one’s knowledge and/or skills through instruction or hands on practice (van Eerde, Simon Tang, & Talbot, 2008). It is essential to an organization and is can be one of the first options explored when an organization identifies an area performing below expectations. Training serves as the connection between the organization’s strategies and goals and those who perform the work essential to accomplish the strategy and goals (Sleezer, 1993). However, only when “relevant training needs are identified and addressed will training lead to the desired results” (van Eerde et al., 2008, p.66). Identifying needs can be essential in the decision-making process and can help determine if a training program is the best solution and the specific topics that should be included in a training program (Wentling, 1993). Training programs that are not based on a proper evaluation of needs in many cases prove to be highly

ineffective (Gutierrez, 2017). In a report from the U.S. Merit Systems Protection Board over half of the respondents from federal government agencies “did not feel that they did a good job assessing their organization’s training needs and less than 33% thought their assessments provided an accurate picture” (Goldstein & Ford, 2002, p. 34). Furthermore, because organizations are often limited in resources, evaluating needs is even more important to prioritize training programs and opportunities (Sleezer, 1993). Defining organizational goals and desired outcomes is an opportunity to assess what the organization needs and figure out if training can address those needs (van Eerde et al., 2008). In some cases, this information can serve multiple benefits to the organization and can be used to highlight public relations efforts, justify funding requests, and solicit interest in possible training initiatives (Dean, 1994).

The identification of training needs prior to implementing training may be even more valuable than organizations realize. In his book, *How to Identify Your Organization’s Training Needs*, John McConnell (2003) notes some organizations measure their training departments based on training attendance or hours completed. However, training is more effective when it is developed to meet specific needs and when employees are made aware of their developmental needs prior to training (McConnell, 2003). Without properly identifying training needs, employers waste time and resources and reduces the motivation of employees (Johnson, 1993). Organizations understand the importance of training across the workforce. Training is essential. New employees have to be trained on incoming processes, while knowledgeable, well skilled employees have continuous training needs to keep up with the fast- growing markets and technologies.

From an instructional design perspective, the training needs identification is often a part of, and often referred to, as the needs assessment process. A training needs assessment identifies

where and when training is appropriate to address knowledge, skills, or ability gaps (Chen & Klimoski, 2007). Several research articles speak to the very importance of the needs assessment process (Altschuld, 2014; Brown 2002; Dick, Carey, & Carey, 2009; Kaufman, 1979; Kaufman & Guerra-Lopez, 2013). “Conducting [the] needs assessment is fundamental to the success of a training program” (Brown, 2002, p.569). The results of a needs assessment provide an understanding of the current capabilities of the workforce and without this understanding it is impossible to implement a strategic change. Strategic changes can be done with an effective training program only after a thorough needs assessment (Goldstein & Ford, 2002, p.34).

The Instructional Design Process

The needs assessment is often identified as the first step in the instructional design process. The term instructional design can be obscure, even for those within the field. Assumptions are sometimes made that it is simply the design of instruction; however, in many cases, instructional design entails much more. A comprehensive definition is provided by Rothwell, Benscoter, King, and King (1994) in their book *Mastering the Instructional Design Process*:

It is associated with the broader concept of analyzing human performance problems systematically, identifying the root causes of those problems, considering various solutions to address the root causes, leveraging organizational and individual strengths, and implementing the interventions in ways designed to minimize the unintended consequences of action. Instructional design encompasses the preparation of work-related instruction and other strategies intended to improve worker performance. It does not mean throwing training at all problems or mindlessly plugging content into virtual templates. (p. 3)

There are other, more concise definitions of instructional design that work just as well. Dean (1994) defines instructional design as “a decision-making process used to plan and develop instructional materials and activities” (p. 7).

More recently, an instructional design process that encompasses assessment, analysis, design, development, implementation, and evaluation, known as the AADDIE model has been proposed (Kaufman & Guerra-Lopez, 2013).

Table 2. 1 AADDIE process description

Assessment
<ul style="list-style-type: none"> •Identify current performance/skill level vs. desired performance/skill level •Determine priorities based on outcomes
Analysis
<ul style="list-style-type: none"> •Determine reasons for gaps between current and desired states •Identify standards for addressing gaps
Design
<ul style="list-style-type: none"> •Map a plan for addressing gaps
Development
<ul style="list-style-type: none"> •Develop a design criteria •Make updates to design as needed
Implementation
<ul style="list-style-type: none"> •Implement design plan
Evaluation and Continual Improvement
<ul style="list-style-type: none"> •Record feedback and necessary updates •Perform continuous evaluation and revisions

Note. Adapted from *Needs Assessment for Organizational Success* by R. Kaufman and I. Guerra-Lopez, p.4. Copyright 2013 by Educational Technology.

The Needs Assessment

The definition of the term “need” can at times be debatable. There are times when what is thought to be a need may actually be a want. For clarification, the term *need* as used in this study must be clearly defined. A *need* is a “gap between current results (and consequences) and desired

results and consequences” (Kaufman & Guerra-Lopez, 2013, p. 5). The needs assessment identifies the knowledge gap prior to training (Rossett, 1987). The issue with Rossett’s definition of the needs assessment is it assumes training is best option for resolving a problem, which is not always the case. “Management solutions that do not include training range from using job aids, redesigning organizational structures and reporting relationships, redesigning work and jobs, refocusing employee selection methods, re-engineering work-related feedback methods, and designing and implementing employee reward systems” (Rothwell, et al, 2016, p. xiv).

Table 2. 2 Three indicators of a needs assessment and purposes

Performance Concerns	<ul style="list-style-type: none"> • Desired performance • Current state deficiencies • Reasons for gaps
New Innovations	<ul style="list-style-type: none"> • Desired advancement • Implementation of new technology, policies, processes, etc.
Updated Requirements	<ul style="list-style-type: none"> • Updates in laws, requirements, processes • Means to address performance deficiencies

Note. Adapted from *Training Needs Assessment* by A. Rossett, p. 190. Copyright 1987 by Educational Technology.

An “effective needs assessment ensures the right problem is clearly defined in measurable terms before appropriate solutions are selected” (Kaufman, 2003, p. 112). The needs assessment essentially helps to identify the current state of things, where things are, and where things should be (Kaufman, 2003). It is important to note the difference between needs and wants. Needs typically stem from an identified problem, while wants are nice things to have but may not be problem based. There are times when the two are confused and people think they need something, and in some cases in response to a problem, but they have not fully researched the problem and possible solutions. This is where the needs assessment is essential. The needs assessment is a process that allows organizations to identify a problem, determine possible

solutions, and evaluate which solutions can be implemented to address the problem based on factors such as the cost to address the need versus the cost to ignore it (Kaufman, 2011).

The training needs assessment “provides focus and direction for the investment an organization makes in its people” (Bartram & Gibson, 2000, p.3). Kaufman and Guerra-Lopez (2013) analogize the instructional design process as a “journey” of getting to the “right place, at the right time, and in good condition” (p.2). The needs assessment comes into play as a part of this journey because it provides information on how the journey should be planned, which way you should go, why you should go that way, and is an indicator for arrival (Kaufman & Guerra-Lopez, 2013).

Benefits of the Needs Assessment

Conducting the needs assessment for training can be challenging for most organizations. It requires time and effort some organizations find difficult to support; however, it is essential to providing training that properly addresses the goal. According to Brown (2002), there are four reasons why the needs assessment is important.

- 1. To identify specific problem areas in the organization.** The problem cannot effectively be addressed if it is not properly identified;
- 2. To obtain management support.** Managers are more likely to support training they view as impactful to job production. They need to believe training will improve performance;
- 3. To develop data for evaluation.** To accurately measure the effectiveness of training, an assessment of the initial level of performance is necessary;

4. To determine the costs and benefits of training. Identifying the cost of doing training (or the cost of not doing training) will help management associate monetary figure with training and the organization's financial well-being (p.569).

In the *Training Needs Analysis Toolkit*, Bartram and Gibson (2000) identify similar benefits of the needs assessment. According to their book, the needs assessment can benefit the learner and the organization because:

1. Investment in training and development will have a focus and direction.
2. Priority training needs throughout the organization will become apparent.
3. Appropriate methods for meeting these needs will be identified.
4. Training will be systematic and planned but flexible enough to cope with as hoc requests.
5. The benefits of training will be measured against the initial costs.
6. The contribution training makes to organizational growth and success will be recognized. (p.4)

Rummler (1987) identifies the needs assessment as the most critical task in the training process.

Oftentimes, employees see training as a waste of time because it does not address the proper need and organizations are wasting hundreds of thousands of dollars on ineffective training programs. At one-time organizations embraced a "felt needs approach" which allowed employees to identify training they wanted, yet, these trainings typically failed to produce any increase in business improvement because they rarely addressed what may have been needed (Holton, Bates, & Naquin, 2000, p. 251). According to Popov (2015), "companies don't train employees in the skills most critical to the business's stage of development. They send the wrong people to the training, over-train them, and spend too little time on implementation" (Popov,

2015, para. 4). The needs assessment is important to ensure the right training is identified for the right people, to address the right outcomes. Frequently organizations expect training to fix a performance problem that may not necessarily be a training issue (Gutierrez, 2017). In the sales environment, training has occasionally been considered a waste of time because sales training often puts a whole team together for a training without any consideration for individual and team abilities, which is not beneficial to the team or the organization (Squire, 2015). So why do organizations repeatedly overlook the importance of the needs assessment? There may be several reasons for the oversight. The training needs assessment has been described as “like the weather, [the] thing that everyone talks about, but few do anything about” (Lawrie & Borringer, 1971, p. 291). Drake (2014) believes the extra step of the needs assessment is viewed as an “inconvenience” and “extra work” (p.50). However, in other cases, the needs assessment may be simply overlooked because training is based on government funding, compliance regulations, or legislative mandates (van Eerde, et al., 2008). In some instances, organizations simply do not have the insight, experience, tools, or resources to properly assess training needs (Iglicki, 2012). In other instances, management does not recognize the value in the needs assessment (Rothwell, 2003).

Challenges for Public and Private Sector Training Environments

Challenges of conducting a needs assessment may be as numerous as the private and public sector organizations that intend to implement one. Each organization may have its own challenge, but there are a few challenges that may be common to many. In some cases, the needs assessment may be overlooked because of time constraints, financial restraints, or lack of identified importance (Larson & Lockee, 2019). In other cases, instructional designers may be provided with other information from which they are to identify needs prior to developing

instructional goals and providing training (Larson & Lockee, 2019). There are several scenarios in which prior data gathering may be used to conduct the needs assessment or to guide the instructional designer with the development of instructional goals. Instructional designers may be given information from previously conducted surveys, summaries of instructional needs may be provided, or a list of instructional goals may be provided for the instructional designer to use as the needs assessment guide (Dick & Carey, 1977). Even with this provided data, the needs assessment can be challenging.

In a 2018 article related to government agency training, the Office of Personnel and Management (OPM) acknowledged one of their biggest employee challenges is insufficient training (Gunter, 2018a). In another article, Gunter notes one federal government agency recognizes the need to improve training efforts and is interested in developing a “talent development toolkit” instead of “just shooting from the hip” (2018b, para 3). This same article notes one of the challenges with improved training efforts is financial, which is, in some cases, a factor is the decision to forgo the needs assessment. Federal agencies are suffering because of a lack of training, and the lack of needed training only contributes to the hardship. According to Yoder (2018), government agencies are having a difficult time understanding what skills their employees need and this, in turn, creates a problem with selecting and retaining the right employees. In addition, agencies have had “difficulties transferring knowledge to new employees, a lack of training for specialized job functions, and gaps in training curriculums” because of inadequate training programs (Yoder, 2018, para.14).

In 2018, The Office of Personnel Management, or OPM, the agency that manages the employees of the federal government, issued a memo listing its 2018 priorities for government employees in an effort to “reshape the workforce and maximize employee performance” (Office

of Personnel Management, 2018, Priorities section, para. 1). Of the six priorities identified in the OPM report, three priorities can be aligned to or addressed by adequate training, including professional development (2018, Priorities). The key findings of the report provide data on human capital management and key challenges and identifies 28% of the high-risk issues relate to training and development (OPM, 2018, Priorities). Other studies show similar reports of training issues across government agencies. Budget cuts impacting training options, resistance to change, and outdated policies are all factors contributing to the declining workforce across the government (Dobberowsky, 2018). In addition, Dobberowsky (2018) notes the skill gaps among government workers makes it difficult for them to compete with the private sector workforce. Interestingly, of the top five employee engagement challenges Dobberowsky (2018) identifies in his article, aside from noting skills gaps and limited budgets, data-based decision making also makes the list. Data-based decision making would allow leaders to make more informed decisions, the premise behind the push for the needs assessment in government training environments. Training decisions could yield better outcomes if they are based on data to support the need and justify the time and costs.

The Council of the Inspectors General on Integrity and Efficiency (CIGIE) released a combined report, for the first time ever, of the top challenges facing federal government agencies (CIGIE, 2018). The report was based on Inspectors General findings that identified common challenges for the agencies they oversee. The twenty-one-page report identifies seven common challenges across federal government agencies. Of those seven challenges identified, human capital management is one of them, highlight “recruiting, training, and retaining qualified staff” as an issue (CIGIE, 2018, p.8). The report finds the OIG for the Department of Defense (2018), “the nation’s largest employer with over 2.1 million military and 800,000 civilian employees,

faces challenges maintaining a force with the right mix of skills and experience for an ever-changing, globally deployed force” and identifies “time and funding for training” as factor (p. 8). While the needs assessment does not provide the actual training, it is the essential component for identifying appropriate training, and a factor that could reduce time and funding spent on training where intended outcomes are not realized.

Training Within the Organization

Training development is essentially an effort to improve employee competence in a specified area. For this training to be effective there must be a clear understanding of what “constitutes human competence at work” (Gerber & Lankshear, 2000, p. 47). Training should align not only with the company’s policies but should encompass and align with an identified business strategy (Rainbird, 2000). Because training is not a solution for all organizational issues, a process must be in place to ensure training is linked to a particular issue, and that training is the best solution for the issue. Performance issues are not always attributed to a lack of knowledge. There are instances where training will not improve performance (Wentling, 1993). For example, training cannot improve the performance of an employee who is working in an environment that is not conducive to the completion of the task. It has already been noted that training is a billion-dollar industry. Yet, some organizations and agencies fail to analyze the return on their training investment. The book *Running Training Like a Business*, Adelsberg and Trolley (1999) highlight how rare it is that organizations understand the true cost of training, or in some cases, lack of training, and identify two core concepts, “effectiveness and efficiency” (p. 20). Effectiveness ensures training aligns with business and organizational goals. Efficiency is associated with the costs and resources associated with training. To adequately consider both effectiveness and efficiency (and run training like a business), organizations must have a strategy

and training managers must be able to articulate what skills matter as it relates to the strategy.

“You want to stake out a well-defined and crucial role in the business of your training organization. You’re not just promoting learning. You’re promoting learning to make something important happen for the business” (van Adelsberg & Trolley, 1999, p. 24).

Strategies for Implementing the Needs Assessment

Goldstein and Ford (2002), Sleezer (1993), and van Erde (2008) provided several strategies to address the omission of needs assessments in public and private sector training environments. Training in organizations is heavily reliant on the organizational culture; therefore, conducting a needs assessment for training must embrace the organizational culture and identify needs and training that align with it. Analyzing the organizational culture as a first approach for conducting a needs assessment is important because it involves the organizational goals, resources, training beliefs, and environmental supports for the workforce (Goldstein & Ford, 2002). Training “supports or challenges an organization’s culture” (Sleezer, 1993, p. 248). An organizational analysis provides information about the organization’s financial ability to support training, the extent of their flexibility for time to devote to training. The size of the organization can play a role in many aspects of its ability to embrace training, and its willingness to support the needs assessment process. An organization with a large Human Resources (HR) department may have more resources to support training, may have internal training personnel, and more support for employee development programs (van Eerde, et al., 2008). Organizational analysis can also help to identify key players or stakeholders who will be needed to implement a successful training program. Identifying management and obtaining managerial support is another key step in the needs assessment process.

Managerial support, stakeholder-buy in, and leadership endorsement are all terms that can be used to describe the commitment needed for conducting the needs assessment and ultimately implementing an effective training program. Bennis (1969) calls it the “hierarchical umbrella of acceptance” (p.23). This involves getting the support for the needs assessment by key players within an organization. Leadership should understand why the needs assessment is important and how it will help in the development of a training program tailored to the goals and objectives of the organization (Goldstein & Ford, 2002). Iglicki calls it “fostering collaboration” (2012, para. 6). There are different ways to gather this support, and the organizational culture can determine the best way to go about this. One strategy is to develop a training leadership team within the organization. This team should include influential figures within the organization who are willing to support training for the competitive edge it can help the organization achieve (Rothwell, 2003). The team should also include decision-makers. Decision-makers have some say over what can be implemented, the level of effort needed, and the time constraints associated with development that can be expected for a training effort (Sleezer, 1993). It can be beneficial to meet with the team to discuss the organization’s ability to support training through time, finances, and staff availability. It is also a good start to clarifying the organizational goals, objectives of training, and identifying key subject matter experts who can support the training effort.

The next strategy in conducting an effective needs assessment is identifying specific training goals. Organizational and training goals must be clearly identified as a part of the needs assessment. However, a good needs assessment must dig a little deeper and consider the goals of the organization’s different departments and the individual goals of the learner. Individual goals may shape the needs assessment because they may address goal-based learning outcomes,

licensure or certification requirements, learner's observed needs, or needs that have been identified by the learner (Dean, 1994). Consideration of individual goals provides employees with a sense of empowerment and responsibility for learning that shapes positive attitudes towards training (Richey, 1992). Individual goals will provide the opportunity to do an analysis on who needs training and their readiness for the training. Training may be effective to improve performance issues if performance issues are based on a lack of skills. However, training may not be appropriate to address performance issues that may be due to personal issues or low motivations (Dachner, Saxton, Noe, & Keeton, 2013).

Departmental goals are important because they may dictate the organizational climate, which can transfer to how individuals in the organization view the support for training (Goldstein & Ford, 2002). Some researchers call this step the task analysis step. Task analysis will determine what the job is, how it should be done, who should be doing it, what skills are needed to perform the job correctly, and what are the standards for measuring successful outcomes (Gutierrez, 2017). This step can be a tedious and time-consuming step because it involves gathering information from many different people and may require more than one method for collecting the information needed (Noe, 2013). Different methods for taking on the task analysis may include HR records, individual interviews, focus groups, surveys or questionnaires, and observations (SHRM, 2014).

Once analysis of the organization, individual, and the task have been completed, the next step is to move into the needs assessment process. This involves gathering data to identify the needs. In some cases, methods used for the task analysis can be used for data gathering for the needs assessment. This too, can be a tedious and time-consuming task, which takes us back to the reasons why it can be overlooked in many training requests. A few methods for gathering

data for the needs assessment are surveys, interviews, performance appraisals, observations, and tests. As with most things, each method has its advantages and disadvantages and the best method for conducting the needs assessment is dependent on several factors unique to the organization and desired training outcomes. Appendix A provides a table that details several methods for gathering data to conduct the needs assessment.

Kaufman and Guerra-Lopez (2013) offer a different perspective when it comes to strategies for implementing a needs assessment. They believe the needs assessment should be based on the desired organizational result level, with the options being mega, macro, micro, and quasi. For example, a mega needs assessment should be conducted when the organizational results are societal outcomes and consequences, such as quality of life, health, or employed graduates (Kaufman & Guerra-Lopez, 2013). In instances where the desired organizational result is outputs for the organization, such as profits and sales, a macro needs assessment is suggested (Kaufman & Guerra-Lopez, 2013). A micro level assessment is suggested for organizational products, such as knowledgeable employees, completed processes, and meeting organizational standards (Kaufman & Guerra-Lopez, 2013). The quasi needs assessment is used when the organization is looking for interventions or solutions. This is where things like training, teaching, and marketing are found (Kaufman & Guerra-Lopez, 2013). Table 2.3 depicts a summary of the levels of needs assessments and when each should be used in the organization.

Table 2. 3 Needs assessment levels and framework

Level on Assessment	Recommended for Organizations When...
Mega	<ul style="list-style-type: none"> • Strategic planning and long-term gain/profits are actively considered • Major changes are expected • Internal, external, or public welfare may be impacted
Macro	<ul style="list-style-type: none"> • Short-term planning and immediate profits are important • Internal and external welfare may be impacted
Micro	<ul style="list-style-type: none"> • Specific operational planning/job related requirement is being addressed • Internal/organizational personnel will be impacted
Quasi	<ul style="list-style-type: none"> • New processes or resources are being acquired • New processes require new skills/knowledge for personnel

Note. Adapted from *Needs Assessment for Organizational Success* by R. Kaufman and I. Guerra-Lopez, p.24. Copyright 2013 by Educational Technology.

Training is an essential process for organizations. As mentioned in this study, it can serve several purposes to benefit the organization if it is developed and implemented properly to address the needs of the organization, which supports the importance of the needs assessment. The following study seeks to develop a tool that may support the needs assessment process within public and private sector organizations, making it a more feasible component of training development activities. A design and developmental methodology will to provide an evidence-based tool for organizations and instructional designers to use in an effort to create effective and appropriate solutions for learning and performance needs.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

This chapter describes the development and evaluation process for this study. The purpose of this study is to examine the practices and challenges of private and public sector organizations when defining training needs and achieving the intended outcomes and goals of training. This study is designed to develop a needs assessment training tool that can help organizations understand the importance of identifying needs, defining goals more clearly, and specifying desired outcomes so needs can be better identified and training development can be better aligned to those needs. Research has been conducted identifying the importance of the needs assessment and how the use of a needs assessment can benefit an organization. Additional research supports the finding that private and public sector organizations face challenges with providing adequate training for employees for a number of reasons, many of which can be addressed by the use of a needs assessment. This study has identified other challenges of private and public sector organizations related to the needs assessment, such as time and resources. This study is intended to explain what components should be included in a needs assessment, identify the challenges with the use of a needs assessment in public and private sector training environments, and explain how the development of an assessment tool can be used to increase the use of a needs assessment in public and private sector training environments. An efficient tool for conducting a needs assessment could reduce the time, costs, and difficulty that can lead to the reluctance of conducting a needs assessment in public and private sector training environments. For this study the design and development methodology was used.

Research Questions

This research study and tool development is intended to support the needs assessment process in public and private sector training environments. As such, this research seeks to answer the following questions:

1. What are the challenges with the use of a needs assessment in public and private sector training environments?
2. How can the development of an efficient needs assessment tool be used to provide clarity to organizations and/or instructional designers when addressing requests for new training or training programs in public and private sector training environments?

Design and Development Research

Richey and Klein (2007) define design and development research as “the systematic study of design, development and evaluation processes with the aim of establishing an empirical basis for the creation of instructional and non-instructional products and tools and new or enhanced models that govern their development” (p.1). There are two main categories of the design and development project: Product and Tool Research and Model Research (Richey & Klein, 2007). In product and tool research a research situation is analyzed, a problem is identified, a tool is developed to address the problem, and the final tool is then evaluated (Richey & Klein, 2007). Model research focuses more on how well a previously developed process works within a particular research area (Richey & Klein, 2007). Although the two types of research may seem similar, Klein and Richey (2007) explain the outcomes of these types of research vary. While product and tool research may result in more “lessons learned,” model research typically

results in a new development or model (p. 13). The table below describes the varying outcomes of both research categories.

Table 3. 1 Varying outcomes of design and development research

Outcomes of Design and Development Research	
Product and Tool Research	Model Research
<ul style="list-style-type: none"> • Emphasizes the study of specific product or tool design and development projects • Results in lessons learned from developing specific products and analyzing the conditions which facilitate their use • Provides context specific conclusions 	<ul style="list-style-type: none"> • Emphasizes the study of model development, validation or use • Results in new design and development procedures or models, and conditions which facilitate their use • Provides generalized conclusions

Note. Adapted from *Design and Development Research* by R. Richey and J. Klein, p.13. Copyright 2007 by Routledge.

This study aligns with the product and tool research as it is intended to design a product based on the principles of instructional design which addressed the challenges public and private sector environments face with using a needs assessment. The product and tool research involve a description of the current situation, identifying the impact or importance of the situation, and the development of a tool to address the situation (Richey & Klein, 2007). When considering the research activities involved with design and development research, “a very general aim of all approaches [is] reducing uncertainty of decision making in designing and developing (educational) interventions” (van den Akker, Branch, Gustafson, Nieveen, & Plomp, 1999, p.5). In some cases, the value of instructional technology may be questionable. The debate between the importance of basic research versus applied research in the field is one that is mentioned across the field. In an article by Thomas Reeves, he highlights several goals of instructional technology research, one of which is development goals. “Development goals are focused on the dual objectives of developing creative approaches to solving human teaching, learning, and

performance problems while simultaneously constructing a body of design principles that can guide future development efforts” (Reeves, 2000, p.15). This is the premise of this study as it describes the reluctance to embrace the use of a needs assessment in training environments. It further describes how the random use impacts training outcomes and the importance of the needs assessment in the instructional design process. Finally, the study provides a tool that can be implemented to make the use of the needs assessment more likely in public and private sector training environments. The benefit of any design and development research is it can directly impact work and learning environments by addressing real problems found in these settings (Klein & Richey, 2007). Development of a needs assessment tool benefits an organization by providing a means to measure human performance at its current state, and what is needed to achieve the desired results (Kaufman & Guerra-Lopez, 2013).

Design and Development Research Challenges

As with most types of research, design and development research has its challenges. Klein and Richey noted they recognized a trend in researchers having difficulty identifying a research problem that needed design and development (2007). However, van den Akker et al identify actual challenges once the research problem has been identified. In some instances, they have seen a challenge between developers and researchers, noting “a tension can easily arise between designers who are eager to pursue their ideals in creating innovative interventions on the one hand, and researchers who tend to critically seek for correctness of decisions and empirical proof of outcomes” (van den Akker, et al., 1999, p.11). Another challenge identified is the inability to isolate particular variables in a comprehensive research study (van den Akker, et al., 1999). In some research studies there may be important variables that can impact the outcome of the study. In cases such as this, it can be challenging to make conclusive arguments for the

research outcomes due to the different outcomes those variables could present. This challenge may be relevant to the training needs assessment because a number of variables may exist in an organization and can impact the use of the needs assessment and the reasons why the needs assessment may not be used. Cennamo and Kalk identify the needs assessment as something to be valued by the client or intentional strategies must be used to persuade the client of accepting its importance (2019). A needs assessment tool could assist with highlighting the value and emphasizing the importance for the client.

Tool Description

The needs assessment tool is a structured survey used by instructional designers or course developers to gather information from an organization about their training requests. The survey format is used as a means to provide a tool easily accessible to a large audience, inexpensive, and informative (Dean, 1994). The tool is based on the indicators described by Rossett (1997) that typically drive a needs assessment or help to shape the needs assessment. Additional questions within the tool provide guidance for the instructional designer to determine organizational goals and expected outcomes. This will be determined by a series of questions the user will answer, including information about the organization's goals, intended purpose and outcome of the training, and assumed knowledge base of the learners. The tool will provide information to the instructional designer to allow the designer to determine if training is the best option for the organization, and if so, what next steps should be taken to further assess the learners, learning environment, and best approach to address the learning need of the organization.

Participants

Participants for this study have been selected from four different training and development organizations. Participants were required to have over five years of experience in the instructional design and/or organizational training field. Participants must have either developed training programs for organizations, managed training programs for an organization, or participated in training acquisition for an organization. For the purpose of anonymity, real names have been replaced with pseudonyms. The first participant, Nolan Bully, is a partner at a company providing learning solutions to various organization including government and commercial clients. According to Bully, this company addresses the business problem of the clients, but admittedly recognizes clients rarely show interest in a needs assessment. The second participant is Karen Amish, a consultant for a large firm providing training support to many public and private sector agencies. Ms. Amish is an Instructional Systems Designer and provides mostly web-based training solutions to clients. She also acknowledges training requests rarely, if ever, come with a request for a needs assessment. The third participant is John Heather, a consultant with a consulting firm providing support services to government clients. The fourth reviewer is Carter Lance, a training manager for a federal government agency. Mr. Lance is a key decision-maker for his agency on training made available to the agency's employees and in many cases solicits outside contractors to provide training. These reviewers will examine the tool and provide feedback on its usability, including the efficiency of use, data gathering, and potential to provide content needed to effectively assess the training needs of an organization. The participants, employed by organizations affiliated with public and private sector training, agreed to serve as expert reviewers on a volunteer basis and in adherence with the Virginia Tech Institutional Review Board policy.

Procedures

Summary of Data Collection Procedures

Data for this research study was collected and organized based on three phases: analysis, design and development, and formative evaluation.

Phase One – Analysis. Phase One consisted of the review of literature and collection of data regarding the use of training in organizations. Training is typically used as a performance improvement effort, but these performance improvement efforts should be associated with a goal (Johnson, 1993). Phase One detailed the challenges and expenditures associated with training and collects data on the process often used in the decision-making related to training for organizations, which in many cases does not include a needs assessment. This phase helped to identify why the needs assessment tool would be important, how organizations might benefit from the needs assessment tool, and how such a tool might aid in the decision to conduct a more formal needs assessment prior to the development of training. This phase shaped the reason for the tool and addressed some of the key components often overlooked with organizational training, such as identifying skill sets, target audiences, and performance objectives.

Phase Two – Design and Development. This phase identifies the importance of the needs assessment in the instructional design process. It highlights instructional design models and types of needs assessments that can support training development. During this phase, Rossett's research and insight on the three indicators for training needs assessments is used to frame the needs assessment tool (1987). Identification of typical decisions for consideration when conducting a needs assessment also shaped the development of the tool (Reeves &

Hedberg, 2003). Table 3.2 below depicts the typical decisions to consider when conducting a needs assessment.

Table 3. 2 Decisions to consider when conducting a needs assessment

Decision	Example Questions
Product Objectives	Why is the product needed? What are the priorities of the product?
Product Marketing	Who needs the product? What drives the need for the product? Who does the product benefit the most? In what ways?
Product Funding	Does the product impact resources? How will the product be funded?
Product Evaluation	How will success of the product be measured? What is the timeframe for monitoring success?

Note. Adapted from *Interactive Learning Systems Evaluation* by T. Reeves and J. Hedberg, p. 120. Copyright 2003 by Educational Technology.

This phase guided the development of the questions used in the needs assessment tool for this research by identifying key concepts of learner needs and organizational goals that may be overlooked in training requisition. The tool was developed as a questionnaire and expert reviewers were provided a survey to evaluate the tool along with an interview for follow up questions. According to Brown (2002) there are advantages to a survey tool for a needs assessment, including cost-effectiveness, availability, and anonymity. Design of the needs assessment tool was based on research of current challenges in training environments, benefits of

the needs assessment, and research regarding training outcomes and challenges of public and private sector training environments.

The tool is a questionnaire designed to provide the instructional designer or training project manager with a set of questions that can be used to gather enough information to conduct an analysis of needs and provide possible solutions to an organization for achieving intended outcomes. Questions in the tool inquire about organizational goals, current state, gaps, and priorities. These are four of the six priorities of a needs assessment (Kaufman & Guerra-Lopez, 2013). The tool does not include questions directly related to the two remaining priorities (priority 5 – updates and new requirements, priority 6 – recommendations), as information related to these two priorities would be based on responses to questions from the first four priorities. The questions are divided into four sections, each with open-ended questions. This allows participants to focus on a related issue or area of consideration within the same set of questions (Kaufman & Guerra-Lopez, 2013). Questions are designed so participants can answer freely, with no indication or expectation to provide a correct or incorrect response, and all questions can be answered within a few sentences (Witkin & Altschuld, 1995). The needs assessment tool questions can be found in Appendix B.

Phase Three – Formative evaluation. Phase Three identifies the expert reviewers for the needs assessment tool and how their expertise may be leveraged to provide feedback for tool enhancements. This phase examines how each question within the tool can provide the instructional design team or training manager with a clearer understanding of needs for the organizational goals intended. Phase Three provides each expert reviewer with a survey of ten close-ended questions, allowing for additional comments to be included, to evaluate the tool and determine its usefulness in understanding an organization's goals, challenges, resources, and

ultimately possible training solutions, or if training is a solution. The reviewers will receive the tool by email with instructions for the review. The questions and the reviewer evaluation tool can be found in Appendix C. In addition to the expert review survey, each reviewer will participate in a follow up interview conducted by phone to provide more feedback about their views on the tool, how the tool might be enhanced to be more useful in identifying training needs, and other feedback that might be useful to an instructional designer working with a public or private sector training program. The interview consists of six open-ended questions allowing the reviewer to elaborate on their thoughts about the tool and how it may or may not benefit an instructional design or training development team. The reviewer interview questions can be found in Appendix D. Phone interviews will be recorded using an audio recording software and analyzed for themes.

Data Collection

After approval from the Institutional Review Board (IRB), the researcher sent an email to eight prospective participants requesting participation in the study. Once prospective participants agreed to participate, the researcher provided expert reviewers with an email that included the reviewer guide, informed consent notification, the needs assessment tool, and a link to the evaluation survey. Once the reviewers completed the tool evaluation, the researcher gathered responses and feedback for common themes. Due to the small sample size, the researcher conducted a two-part interview to ensure in-depth feedback. In the two-part interview, reviewers received a follow up phone call interview for additional feedback on the tool. The interviews were recorded using Adobe Audition recording software and transcribed.

The researcher analyzed the responses to the Needs Assessment Tool Expert Review Instrument (Appendix C) and follow up phone interview responses. Based on responses, the

researcher conducted a thematic analysis. Thematic analysis “is a method of identifying, analyzing, and reporting patterns (themes) within data” (Collingridge & Gantt, 2008, p.291). From the thematic analysis, coding was used to identify interesting common features of the feedback provided across the data set (Castleberry & Nolan, 2018). Based on the analysis, the researcher recorded the findings and reported suggested revisions for the needs assessment tool that might be more beneficial to the public and private sector organizations.

CHAPTER 4

THE NEEDS ASSESSMENT TOOL

This chapter describes the process for the development and design of the needs assessment tool. The purpose of the needs assessment is to gather information that can serve as the basis for new policies, programs, or training that will address the gap between the current state and the desired state (Witkin & Altschuld, 1995). The tool design involves research and literature review to identify essential elements of a needs assessment. In the area of curriculum and instruction, development research supports the development of products that can be used as prototypes and provide evidence for that the prototypical products are effective (van den Akker et al., 1999). In short, development research is intended to shape decision making processes for the improvement of a product or program (van den Akker et al., 1999). Design and development research typically take on one of four different paradigms (Visscher-Voerman, Gustafson, & Plomp, 1999). The four paradigms are outlined in Table 4.1 as follows.

Table 4. 1 Four design and development research paradigms

Instrumental paradigm	Planning by objectives approach <ul style="list-style-type: none"> • Explores intended outcomes • Concrete project objectives • Development specifies means to reach the goal
Communicative paradigm	Communication to reach consensus/Social focus approach <ul style="list-style-type: none"> • Explored different perspectives and opinions • Formulates a platform of ideas • Development involves all who are affected
Pragmatic paradigm	Interactive and repetitive models and revisions approach <ul style="list-style-type: none"> • Involves the multiple evaluations and revisions • Development involves several versions of the product
Artistic paradigm	Connoisseurship approach <ul style="list-style-type: none"> • Emphasizes multiple views of reality • More exploratory perspective of development • Development involves multiple iterations

For the purpose of this research, and the development of the needs assessment tool, the development phase will more closely align with the instrumental paradigm. The instrumental design phase “results in a blueprint” of the training to be developed (Visscher-Voerman et al., 1999, p. 17). This paradigm identifies intended outcomes, plans for their achievement, and results in clear goals and objectives. This design requires a systematic process and realistic considerations to be successful. The needs assessment helps to ensure time and resources are used in the most effective and efficient manner (Kaufman & English, 1979). It must be conducted systematically and take into account realistic factors that impact the organization, such as priorities and resources (Witkin & Altschuld, 1995).

Tool Design

The tool design phase involves an analysis of research of types of procedures and elements of needs assessments. An assessment that adds value to the field must include the right questions and provide information based on evidence (Kaufman & Guerra-Lopez, 2013). Based on the definition of need as the gap between current state and desired state, a needs assessment can help guide decisions for what to do in response to a gap (Altschuld, 2014). The needs assessment should define next steps for getting an organization to its goal (Altschuld, 2014; Rossett, 1987). To be most effective, a needs assessment should be done in three phases: a pre-assessment, assessment, and post-assessment (Witkin & Altschuld, 1995). While the research provides some guidance on the pre-assessment and post-assessment phases, the tool design will mostly focus on Phase Two, the assessment, with some crossover of Phase One, the pre-assessment, and Phase Three, the post-assessment.

Table 4. 2 Three-phase plan for needs assessment

Phase One Pre-assessment	Phase Two Assessment	Phase Three Post-assessment
<ol style="list-style-type: none"> 1. Outline NA plan 2. Identify purpose and major challenges 3. Determine current state 4. Gather information on <ul style="list-style-type: none"> • Resources • Deliverables • Implementation plans <p>Outcomes: Draft plans for Phase Two and Phase Three</p>	<ol style="list-style-type: none"> 1. Shape NA plan to be more defined 2. Collect data to determine needs 3. Prioritize needs 4. Summarize findings <p>Outcomes: Analysis of needs and initial plan for addressing needs</p>	<ol style="list-style-type: none"> 1. Evaluate priorities based on resources 2. Determine possible solutions for addressing needs 3. Implement a plan 4. Evaluate effectiveness of plan <p>Outcomes: Solutions for implementation; summary reports</p>

Note. Adapted from *Planning and Conducting Needs Assessments* by B. Witkin and J. Altschuld, p. 15. Copyright 1995 by Sage Publications.

Because needs identify the gap between current state and desired state, the needs assessment is used to identify results so that processes and plans can be implemented to address the needs (Kaufman & English, 1979; Kaufman & Guerra-Lopez, 2013; McConnell, 2003; Witkin & Altschuld, 1995). Based on the literature review, an effective needs assessment involves a six-step process (Kaufman & Guerra-Lopez, 2013). These six steps include identifying organizational goals, clarifying the current state of action or knowledge, determining the gaps between the current state and organizational goals, identifying organizational priorities, making updates to goals based on priorities, and making recommendations based on closing gaps. Table 4.3 details the six steps and help to shape the questions for the tool development.

Table 4. 3 Six-step process for a needs assessment

1. Organizational Goals	•Identify organizational desires/requirements
2. Current State	•Identify current state as it relates to desires/requirements
3. Gaps	•Determine gaps between organizational goals and current state
4. Priorities	•Prioritize gaps based on organizational resources/goals
5. Updates	•Identify new requirements based on priorities and resources
6. Recommendations	•Make recommendations for closing gaps/meeting needs

Design Phase. A needs assessment tool can take on a number of formats. Ultimately, the assessment tool should allow organizations to make decisions about training based on answers from the tool and reliable evidence (Kaufman & Guerra-Lopez, 2013). Based on the literature

review there are three main formats that can be used for needs assessment tools, interviews, questionnaires/surveys, and meetings (Kaufman & Guerra-Lopez, 2013; McConnell, 2003; Witkin & Altschuld, 1995). Each format has its advantages and disadvantages and other factors such as delivery method, costs, and time influence the best format that should be used. For example, face-to face interviews might be the most effective format to use, however, time and costs for conducting such interviews could be well beyond the resources available for the assessment (Kaufman & Guerra-Lopez, 2013). Interviews are more likely to be used when there are very few participants involved in the needs assessment process (McConnell, 2003). Questionnaires are the most popular format used for the needs assessment tool (Witkin & Altschuld, 1995). Table 4.4 describes the three main formats of needs assessment tools.

Table 4. 4 Needs assessment tool formats

Formats	Description	Advantages	Disadvantages
Interviews	One-on-one planned verbal communication/questions asked between key personnel, employee, manager, or relevant respondent and interviewer; can be conducted face-to-face or by phone	Allows for immediate follow up on information provided; flexible because it can be adjusted as it proceeds (McConnell, 2003); allows for open-ended questions; may identify other areas that should be considered (Witkin & Altschuld, 1995)	Can be time consuming and costly (Kaufman & Guerra-Lopez, 2013); requires a concrete interview schedule, respondents should be strategically selected; interviewers may need to establish rapport; answers to open-ended questions may be more difficult to summarize and analyze (Witkin & Altschuld, 1995)
Questionnaires/ Surveys	Written, structured questions that can be delivered to respondents by mail or electronically	Useful in assessing views and opinions, convenient for completion by respondents, can be completed anonymously (Kaufman & Guerra-Lopez, 2013); provides structured questions without the possibility of inclusion of irrelevant information; more cost effective; more efficient in data gathering and analyzing (Witkin & Altschuld, 1995; McConnell, 2003)	Language/wording can be misinterpreted based on culture, response rates can be low; respondent selection process can be challenging (Kaufman & Guerra-Lopez, 2013); May be too general to yield relevant data, may be too long and time consuming; more commonly produce respondents' wishes and not necessarily needs (Witkin & Altschuld, 1995);
Meetings/Focus Groups	Face-to-face setting with stakeholders or selected individuals who have instrumental knowledge related to the needs assessment	Participants can share views more vividly; allows for different perspectives and priorities to be shared; allows for clarification of ideas/input (Witkin & Altschuld, 1995); can be conducted by conference call to convenience of dispersed participants and cost effectiveness; brings together multiple people so may be more time efficient; discussion can produce more information gathering (McConnell, 2003)	Requires an agenda; costly due to requirements such as meeting rooms, supplies, audio-visual equipment rental; participants need to be fully involved throughout; may be difficult to reach consensus on ideas/input (Witkin & Altschuld, 1995); requires a skilled facilitator, scheduling convenient time for all participants may be challenging, can be dominated by one or two participants without significant input from other participants (McConnell, 2003)

Development of questions. The development of questions for the tool was determined based on the literature review and research on developing effective questions for the needs assessment and the six-step process for an effective needs assessment. When developing the right questions, it is important to understand the purpose of the answers or how the answers will be used in the decision-making process (Altschuld, 2014; Witkin & Altschuld, 1995). Questions included in the needs assessment should be direct and yield the answers that will produce the information you need. However, questions that have one-word responses should be avoided (McConnell, 2003). Despite the format used for conducting the needs assessment, questions should not indicate bias or suggest a desired response (Kaufman & English, 1979; McConnell, 2003; Witkin & Altschuld, 1995). Questions, should, however, invite participants to express feelings and opinions freely (Rossett, 1987).

Step 1 – Organizational Goals. The questions in the needs assessment should focus on a desired or future result, therefore organizational goals must be identified (Altschuld, 2014). Questions should include information about how success is measured and how progress is monitored (Kaufman & Guerra-Lopez, 2013; McConnell, 2003; Witkin & Altschuld, 1995).

Table 4. 5 Step 1 – Organizational Goals

Step 1	Questions
Organizational Goals	<ol style="list-style-type: none"> 1. As it relates to the performance concerns/deficiencies, what are some goals and/or outcomes of training that you would like to see? (Altschuld, 2014; Kaufman & English, 1979; Kaufman & Guerra-Lopez, 2013; Kirkpatrick & Kirkpatrick, 2016; Larson & Lockee, 2019; Phillips & Holton, 1995) 2. What are the requirements for reaching these goals and objectives? (Kaufman & Guerra-Lopez, 2013; 3. How will these requirements/outcomes impact the organization? (Altschuld, 2014; Kaufman & Guerra-Lopez, 2013; Witkin & Altschuld, 1995) 4. How will you know when these requirements have been obtained and/or goals and outcomes have been achieved? (Kaufman & Guerra-Lopez, 2013; McConnell, 2003; Witkin & Altschuld, 1995) 5. How will this progress be measured/monitored? How often? (Kaufman & Guerra-Lopez, 2013; McConnell, 2003; Witkin & Altschuld, 1995)

Step 2 – Current State. The current state questions are exploratory and used to determine what is already known. These questions should identify issues or areas of concern that may be driving

the needs assessment or request for training (Kaufman & English, 1979; Witkin & Altschuld, 1995).

Table 4. 6 Step 2 – Current State

Step 2	Questions
Current State	<ol style="list-style-type: none"> 1. As it relates to the performance concerns/deficiencies, describe the current knowledge, skills, and abilities (KSA) of the workforce? (Kaufman & English, 1979; Kaufman & Guerra-Lopez, 2013; McConnell, 2003; Witkin & Altschuld, 1995) 2. How does the current state of KSAs impact organizational outcomes/shape organizational goals? (McConnell, 2003; Kaufman & English, 1979; Kaufman & Guerra-Lopez, 2013; Altschuld, 2014) 3. Are there currently requirements in place related to the training subject/employee performance? 4. What measures are taken to ensure employees meet the current requirements? (Kaufman & English, 1979; Kaufman & Guerra-Lopez, 2013; Witkin & Altschuld, 1995)

Step 3 – Gaps. Determining the gap between the organization’s goals and requirements and the current state is the basis for identifying needs. Properly identifying these gaps helps to shape decisions and can help an organization determine the “cost to meet the need” versus the “cost to ignore the need” (Kaufman & Guerra-Lopez, 2013, p.8). It is important to note that the needs assessment provides information about gaps, and gaps are not solutions. It is also important that

questions related to gaps address gaps in outcomes, not gaps in procedures or processes (Kaufman & English, 1979). Solutions are the actions an organization may implement to address the gaps. While the tool does include questions related to gaps, the overall responses from the tool will help to more clearly define organizational gaps for needs assessment.

Table 4. 7 Step 3 – Gaps

Step 3	Questions
Gaps	<ol style="list-style-type: none"> 1. What do you consider to be the reason for the deficiencies in KSAs related to the intended training/subject area? (Altschuld, 2014; Kaufman & English, 1979; Larson & Lockee, 2019) 2. Are there challenges that impede the progress of employees in this area? (Kaufman & English, 1979; Kaufman & Guerra-Lopez, 2013; Larson & Lockee, 2019; McConnell, 2003)

Step 4 – Priorities. “Prioritization is perhaps the most glossed-over procedure in the needs assessment” (Altschuld & White, 2010, p.83). Different factors may impact priorities. Priorities may be shaped by resources, such as budgets, physical space, timelines, and technology. They may also be shaped by organizational goals. According to Mendonca (2019), “leaders only make tangible investments that contribute to long-term growth” (para. 2). Questions related to priorities should provide some perspective for decision-makers on how addressing identified needs impact outcomes, and how failing to address those needs may also impact outcomes (Altschuld, 2014; Kaufman & English, 1979; McConnell, 2003). Areas that are deemed high priority may be high costs or consequences for the organization if not addressed, whereas, low

priority areas may result in minimal costs or consequences if not addressed (Kaufman & Guerra-Lopez, 2013).

Table 4. 8 Step 4 – Priorities

Step 4	Questions
Priorities	<ol style="list-style-type: none"> 1. What are the specific areas where more attention should be given to improvement? (Altschuld & White, 2010; Witkin & Altschuld, 1995) 2. How does improvement in these areas impact organizational outcomes? (Kaufman & English, 1979; Kaufman & Guerra-Lopez, 2013; Witkin & Altschuld, 1995) 3. What resources are available to support the areas of improvement that the organization is striving to achieve? (Bartram & Gibson, 2000; McConnell, 2003) 4. What is the timeframe for which requirements should be met/organizational goals should be achieved? (Altschuld, 2014; Kaufman & English, Witkin & Altschuld, 1995)

Step 5 – Updates. Updates may be necessary based on responses to questions asked in steps 1-4.

In the event that responses provide insight on organizational requirements or expectations that may not have been mentioned initially, or perhaps responses related to priorities may indicate that things that may have been thought to be required may only be a preference but not a requirement, updates to requirements and priorities may need to be considered. This step will

help decision-makers and assessors build more functional objectives and more strategically design solutions to address gaps (Kaufman & Guerra-Lopez, 2013).

Step 6 – Recommendations. Step 6 is referred to here as recommendations. It may also be referenced to as the needs analysis (Christensen, 2018; Kaufman & English, 1979; Kaufman & Guerra-Lopez, 2013; McConnell, 2003). Recommendations should be based on an analysis of the information gathered in Steps 1-5. During the recommendations step, consideration should be given to organizational goals and requirements, acknowledged and implied gaps, possible reasons for gaps, and priorities based on resources. According to Kaufman and Watkins (2000), “a needs analysis also identifies possible ways and means to close the gaps in results—needs—but does not select them” (p. 29). This step involves “systematic planning and systematic execution” (Rossett, 2012, para.3).

Implementation of the tool. The tool is designed as a questionnaire that can be used by an instructional designer or training team to gather information and provide guidelines as a part of the needs assessment process. This tool is intended to serve as an initial step to the needs assessment process and can be used to get organizations, stakeholders, and learners to consider key aspects of a needs assessment prior to the development of training programs. Information provided from this tool can serve as guidance in the application of a more in-depth needs assessment or follow up interviews for stakeholders or training managers. In addition, responses from the questions in the tool may yield significantly different responses from varying levels within an organization. Use of the tool across an organization could include responses from stakeholders, leadership, front line workers, and/or intended learners and may provide a more robust initial assessment of training needs.

CHAPTER 5

EXPERT REVIEW

As a part of this research, a needs assessment tool was developed, and four expert reviewers agreed to participate in the evaluation of the tool. The four reviewers each have experience in the field of instructional design and/or training in public and private sector organizations. Each reviewer received an email that included the Informed Consent form (Appendix F), the Needs Assessment Tool Reviewer Guide (Appendix G), which provided instructions for reviewing the tool, and the Needs Assessment Tool (Appendix B). After completing the survey on the tool, each reviewer was contacted by phone for a follow up interview that consisted of six questions (Appendix D). Responses and comments from the survey were collected and feedback from the follow up interviews was gathered and analyzed for themes. For the purpose of anonymity, reviewers are identified by numbers instead of names.

Themes from Data Analysis

Usefulness of questions in the tool. The tool was developed to include ten questions that address four of the six steps of a needs assessment. These four steps are organizational goals, current state, gaps, and priorities (Kaufman & Guerra-Lopez, 2013). Each question in the survey asked about the usefulness of the tool questions in providing enough information for an instructional designer to identify or determine the organization's goals, current state, gaps, and priorities. Based on the overall responses on the survey, the reviewers felt that the questions in the tool provided enough information for the instructional designer in the designated areas. However, comments provided on the survey provided more detail about areas where other aspects may need to be considered or where an instructional designer may need more

information. Feedback and comments related to usefulness of the questions have been broken down based on steps.

Step 1 – Organizational Goals. Three of the four reviewers agreed that the questions related to organizational goals provided enough information for an instructional designer to determine the organization’s goals and reasons for a training requisition. Reviewer 1 commented that the questions under organizational goals “provides a nice framework for the client to think about as they answer the questions.” Reviewer 2 commented “I was thinking about how the needs assessment might be different if the need was to meet a safety issue vs a regulatory issue vs a financial goal, but the first question under organizational goals seems to cover that.” Reviewer 3 did not feel the questions in Step One provided enough information for the instructional designer. Reviewer 3 provided a suggestion for an update that would allow more information for the instructional designer related to this area.

Reviewer 3: “I’d like to see "requirements" better defined in question 2. To me, requirements is a bit vague. Perhaps break into two or three questions to gain a more specific understanding of the "requirements". I [also] think a question related to what solutions have been helpful in the past, if any. This will provide an opportunity to learn expectations and additional supportive details.”

Step 2 – Current State. All reviewers agreed that the questions in the tool provided enough details for the instructional designer related to the current state of the organization. There were no comments related to updates for current state questions provided in the survey.

Step 3 – Gaps. The survey included questions about the knowledge, skills, and abilities within the organization to identify gaps. While all reviewers agreed that the questions in the tool provided enough detail for the instructional designer to determine deficiencies in knowledge,

skills, and abilities, comments provided by reviewers suggested revisions to the questions in this step that would request more information about the gaps and suspected reasons for gaps.

Reviewer 2: “I’d be curious as to how the organization is measuring individuals’ deficiencies in the KSAs. Is it through observation or through testing? And then review the overall results. It could be that what is being used to measure the deficiencies is not correct.”

Question 2 in the Step Three asks “Are there challenges that impede the progress of employees in this area?” however, Reviewers 1 and 4 provided comments suggesting the inclusion of more questions for more specific details.

Reviewer 1: “In the Gaps section, I’d like to see a few more questions to get more detail on the origins/reasons for the gaps. There may be institutional gaps. Political considerations. Budgetary limitations. Frequent change in leadership/management/direction. Lack of strategic focus/direction/goals. Shifting business plans/KSAs that are required to do the job. I think the potential basis for the gaps requires several additional questions to truly understand the cause of the current state/gaps.”

Reviewer 4: I’d like the question under Gaps to ask about the challenges that might impede learning. It could be there is something outside of KSAs that would prevent learners from meeting the organizational goals. We can train folks but if they don’t have the tools they need or aren’t supported by management, things may not change.

Step 4 – Priorities. All reviewers agreed that the questions in the tool provided enough details for the instructional designer to determine priorities of the organization. Reviewer 4 provided a comment that should be considered for any updates to the tool.

Reviewer 4: “Perhaps additional questions around the "importance the organization places on training" and remediating these gaps would be helpful.”

Included under Step 4 – Priorities are questions related to organizational resources and timeframes for expected outcomes. Reviewers 1 and 3 provided comments related to these areas.

Reviewer 1: “Maybe add a question about how accessible the resources are. If everyone cannot access the resources to support the areas where the improvement is needed, the improvements cannot happen.”

Reviewer 3: “The last question under Priorities asks about time frame. It would be interesting to understand what the drivers are behind that time frame. If it is safety, of course, a short time frame makes sense. If the driver is profits, it might take longer to achieve.”

The survey includes three additional questions related to the overall usefulness of the questions in the tool. These questions are intended to gauge the tool’s usefulness in determining training objectives, how success would be measured, and possible training solutions. All reviewers agreed that the tool questions would provide an instructional designer with enough information to successfully determine that information.

Benefits to the organization and/or instructional designer. The premise of this research was to yield a tool that would be beneficial to public and private sector organizations and make a needs assessment more likely to be used. The questions in the tool are intended to provide

guidelines and information for the organization and/or instructional designer that would more clearly depict the needs of the organization and benefit the organization in its training requisition process. Each reviewer was contacted by phone for a follow up interview that included six questions. The follow up interview was designed to allow the reviewer to elaborate on their comments and provide feedback on the tool. The questions in the follow up interview yielded more feedback and all reviewers elaborated on how they saw the tool as a benefit to organizations and instructional design teams for various reasons.

Reviewer 1: “This tool would have helped us to get more targeted training to folks and get more buy in. We had some tough audiences who were not really open to receiving training. It could have been very helpful. Understanding the current state and obstacles around why the organization may not be where it wants to be are most helpful. In the federal space sometimes there are resources, there’s continuously changing leadership, and then there are some offices that think they know what they are doing and they do it well and they don’t want someone to come in and tell them there are gaps in their training so having that insight around the current state and understanding why things are the way they are is an area that’s really helpful.”

Reviewer 2: “Looking at the current state of an organization is important but it’s equally as important to figure out where they want to go. The organizational goals section is good to tell where they want to go and then the tool asks about priorities, so there are several sections of the tool that I think are great. It gets folks thinking about what is going on in their environment and why.”

Reviewer 3: “The needs assessment is critical to developing high quality learning products. The tool helps with the client’s thought process and doing more discovery

within themselves. The organizational goals and priorities were the most beneficial sections. Sometimes the gaps will evolve and become more clear from the goals and priorities. Those sections help me understand how I can demonstrate business value for your organization for what I create and once I understand your priorities I can determine if I need to come up with a single learning event or are we going to phase this product out into different tools or training events such as job aids or webinars.”

Reviewer 4: “The needs assessment is an important part of the design process. The tool was good because it helps to prompt the thinking of the client and considers the resources that are available to support the training.”

Suggested revisions to the tool. Although the tool received positive reviews overall, the reviewers provided valuable feedback that can be used to make revisions to the tool. Some revisions were provided as comments in the survey. Other suggestions were discussed during the follow up interview.

As it relates to Step 1 – Organizational Goals, reviewers had the following suggestions for revisions.

Reviewer 1: “I think more questions around intended outcomes would be good. So often we develop trainings, we develop programs, and we don’t really know what we are trying to solve for. It would also be good to know what the limitations of training have been in the past. Why haven’t they done training in the particular area before?”

Reviewer 4: “Create some questions around understanding clients expectations of what a learning event looks like. What learning solutions have been helpful in the past and what

measures were used to know that it was successful? Asking questions about the type of delivery methods preferred would be helpful.”

For Step 2 – Current State, reviewer 4 suggested asking more questions related to the current knowledge, skills, and abilities in the organization and reasons for the current state.

Step 3 – Gaps addresses questions related to where the deficiencies might be and challenges within the organization. Reviewer 2 was concerned with how deficiencies and/or skills are measured. Within the survey reviewer 2 commented about the measurement tool, but elaborated more during the follow up interview.

Reviewer 2: “If skills are being measured through observation, there could be some bias there somehow, or even through testing. You know, standardized testing in public school doesn’t really measure the knowledge of students because some students don’t test well. I could translate that to a workplace test situation, too. Like if they are giving them a standardized test, some people don’t test well so I’d be curious to know about how skills are being measured.”

During the follow up interview, Reviewer 3 elaborated on the survey comment related to Step 4 – Priorities, suggesting more questions related to the drivers of the training, so the instructional designer could better determine underlying priorities.

Reviewer 3: “More questions about what is driving the training may be helpful. Knowing if it’s a safety issue or if it’s something financial may help the team determine where the priority is and where they can leverage more resources.”

Summary of Expert Reviews

The tool was well received by reviewers and said to be seen as a valuable asset to an organization or instructional designer. Reviewers praised the tool for being concise, a feature that would make it more likely to be used, while still demonstrating the ability to capture valuable information. Reviewers also noted that the tool would be valuable in assisting clients or stakeholders consider important aspect of the training process and training request by asking questions that invoked thought about the organization's goals and priorities.

The goal of the tool and the intention of this research was to produce a tool that would make it more likely for public and private sector organizations to use a needs assessment prior to requesting or developing training programs. As noted within the research, in some cases organizations neglect to conduct a thorough needs assessment for various reasons, which may lead to training that does not address the need (Gutierrez, 2017). Furthermore, deficiencies within an organization may not always be addressed by training, which also justifies the importance of the needs assessment (Kaufman & English, 1979; Larson & Lockee, 2019; Wentling, 1993). Reviewers agree that the current tool meets the intended objective and allows for the gathering of enough information to determine training objectives, organizational priorities, and possible solutions to address needs.

Based on comments and feedback from the tool review, there were suggested updates to improve the tool so that it would capture more details for an instructional designer or training team. Additional questions should be included in the tool to provide more information about current or past training practices, measurement tools, resources, and training drivers. A revision to the tool has been developed to include suggested updates and included in Appendix H. The revised tool includes additional questions in each step that would provide more details for the

instructional designer and were added based on the feedback from the expert reviewers.

Revisions to the tool can be identified by red text.

While it is important that the tool remain concise in an effort to promote ease of use, custom tailoring to the tool may be needed based on the organization, the training goals, and/or priorities. In addition to customizing the tool to gather more detailed information, a follow up interview with stakeholders is suggested to allow for clarifications. Future iterations of the tool could include an updated format that includes an electronic format that would allow the organization or representative to respond within the tool and submit responses directly to the instructional designer or training team.

CHAPTER 6

DISCUSSION

The purpose of this design and development study was to identify the challenges of conducting a needs assessment and develop a tool that could make it more likely for public and private sector organizations use to address learning and performance issues. To do this, the research approach required a literature review to explain the importance of the needs assessment in the instructional design process, determine common challenges with needs assessments for organizations, and examine key features of a needs assessment tool. The outcomes of the literature review led to the specifications for the tool was created analyzed for its usefulness to public and private sector organizations.

According to Reeves (2016), design and development research focuses on “the creation and improvement of effective solutions to education problems as well as identifying reusable design principles related to teaching, learning, and performance” (p.326). This research focused on the creation of a needs assessment tool with the intention of improving the instructional design process and properly addressing training needs for units of public and private sector organizations. The research drew from the literature of scholars in the field to provide information about where a needs assessment is overlooked, its importance, and features to create an evidence-based solution. Furthermore, the research aligns with Richey and Klein’s definition of product and tool research because it results in lessons learned from developing a specific product and analyzes the conditions for use of the product (2007).

This research can also be defined as “socially responsible” research in that it addresses a problem related to “learning and human development” (Reeves, 1995, p.460). Conducting a needs assessment for an organization means gathering data to determine the gaps between what

is and what should be and sets the ground work for developing solutions to address those needs (Altschuld, 2014; Kaufman & Guerra-Lopez, 2013; Larson & Lockee, 2019; Witkin & Altschuld, 1995). Because training is sometimes viewed as an expense instead of an investment, it is important for leadership to recognize how it will benefit the organization (Mendonca, 2019). The training needs assessment “provides focus and direction for the investment an organization makes in its people” (Bartram & Gibson, 2000, p.3).

The literature review identified common challenges related to conducting needs assessments. Some of those challenges include time constraints and financial limitations, or both (Brown, 2002; Gunter, 2018b, Larson & Lockee, 2019). In some cases, simply understanding the importance of the needs assessment may increase the use of the tool. If organizations understand that training is more effective when it is developed to meet specific needs and when employees are made aware of their developmental needs prior to training, they may find the needs assessment worth the investment (McConnell, 2003). The Association for Talent Development (ATD) issued a report in December 2019 finding that only 40% of training professionals think their organization’s training programs align with business goals, and only 50% think they meet learning goals (ATD, 2019, para. 1). The needs assessment can help organizations analyze strengths and weaknesses and then map a plan for achieving organizational goals (Weisberg, 2017).

The needs assessment tool was developed based on research that identified key features of a needs assessment. This resulted in a tool that included four steps, allowing the respondent to provide information about the organizational goals, current state, gaps, and priorities. Evaluation of the tool yielded feedback from experts in the field of instructional design and public and private sector training. Reviewers validated the usefulness of the tool and commended its ability

to capture valuable information and promote consideration of organizational priorities and resources. Feedback from the reviewers suggested updates and noted the need for customization in some instances in order to prescribe appropriate training solutions.

Implications

This study researched the challenges of conducting a needs assessment, the importance of a needs assessment, and key features of a needs assessment to develop an efficient needs assessment tool that could be used by public and private sector organizations. The research study includes theoretical and practical implications

Theoretical implications. This study examines the instructional design process, specifically the AADDIE process (Kaufman & Guerra-Lopez, 2013), to explain the importance of the needs assessment step in producing training that meets organizational goals and uses this research to develop a needs assessment tool. The study used the design and development research methodology to provide a generalizable solution to a performance problem, which is the absence of the needs assessment in the development of training programs (Richey & Klein 2007). A literature review validated the importance of the needs assessment in the instructional design process and identified key features of a needs assessment tool.

The study aligns with the six-phase design and development model that includes (1) identifying a problem, (2) describing the objectives, (3) designing an artifact, (4) testing the design, (5) evaluating the results, and (6) summarizing the results (Peffer, Tuunanen, Rothenberger & Chatterjee, 2007). This study contributes to the knowledge base by examining and synthesizing literature on needs assessments and the instructional design process. The research addresses the importance of the needs assessment in the instructional design process.

The training needs assessment “provides focus and direction for the investment an organization makes in its people” (Bartram & Gibson, 2000, p.3). As a part of the instructional design process it allows organizations to identify current skills and desired skills, while also indicating priorities and goals (Kaufman & Guerra-Lopez, 2013). The research also examines the challenges of conducting needs assessments and how training outcomes can be impacted by the absence of the needs assessment. In a February 2020 article, David Housel presents factors that impact adult learning, specifically, educational background, disabilities, and status. Housel highlights that there are factors that impede learning outcomes, factors that would be addressed if a comprehensive needs assessment is conducted (2020). Within his study, Housel notes “Providing more effective, relevant, and individualized instruction to all adults is critical to enhancing their academic achievement and success” (2020, p.14). When working with organizations, gathering information about the organization and the intended training participants should happen immediately (Murk, 1993).

The literature review spans over forty years of research on needs assessments, what they are, and why they are important. However, there are few remedies to address the challenges that organizations encounter or why organizations are developing training programs without them. Challenges to conducting needs assessments include time constraints and financial resources (Dick & Carey, 1977; Gunter, 2018b; Larson & Lockee, 2019). In some organizations, failing to properly identify needs may result in outcomes that impact the organization’s financial gain, in other organizations the negative outcomes could be more detrimental. Recently, a health organization noted that “it is paramount to develop a comprehensive understanding of needs and implications to ensure that the EH [Environmental Health] profession and workforce can respond to emerging issues” (Gerding, 2020, p.288). This research addresses the challenges of

conducting a needs assessment and synthesizes the literature to determine key aspects of a needs assessment and develops a tool to be used as a means to improve training outcomes for private and public sector organizations. This research can be used as a basis for a more current study on needs assessments in public and private sector training environments to further support the use of needs assessments and improvements in training outcomes.

Practical implications. Design and development research is intended to provide information based on a systematic collection of data and application in the field (Richey & Klein, 2007). The idea of providing socially responsible research in the field of instructional design is to provide research that adds value to the education process and in some way makes the process better (Reeves, 1995). This study examined the problem of training in organizations that fail to conduct a needs assessment prior to developing training programs. These programs, in some cases, fail to yield the intended outcomes and waste time, resources, and possibly diminish employee motivation (Johnson, 1993). This research was used to develop a needs assessment tool that could be used by organizations or instructional designers working with organizations to ensure a needs assessment is conducted prior to development of training programs. Expert reviewers evaluated the tool to validate its usefulness to an organization and provided suggested revisions to increase the usefulness of the tool (Richey & Klein, 2007).

This research used design and development methodology to create a tangible outcome that could be used to address the performance problem for public and private sector organizations related to unsuccessful training programs. Use of the developed tool can be used to assist organizations with determining more appropriate solutions for identified deficiencies and to enable organizations to more clearly define goals, priorities, and resources. According to Rothwell et al. (1994) “Instructional design encompasses the preparation of work-related

instruction and other strategies intended to improve worker performance” (p. 3). Ultimately, the tool can assist instructional designers and training teams with the development of more targeted solutions, which may or may not always be training programs. In some cases, information gathered from the tool may determine that training is not the solution and result in other solutions such as job aids or awareness materials. Based on Kaufman’s needs assessment hierarchy, the tool can serve as an efficient way to ensure training outcomes are successful (2018). Time constraints was identified as one of the top challenges of organizations related to conducting needs assessments (Kaufman & Cole, 2018). The tool provides a systematic approach to gathering information for organizations in an efficient, timely, and low-cost manner. It can be used to support the ID field by providing research to support the importance of the needs assessment step. Instructional designers can leverage this research study to present a case to training departments and organizations and impress upon stakeholders and decision-makers the importance conducting an effective needs assessment in order to develop appropriate solutions and/or training programs. This can increase the likelihood that training programs will produce the intended outcomes. The tool can and should be tailored in some ways to more closely align with the organization and based on responses may prompt the need for additional information. The expert review of the tool produced lessons learned that resulted in a revision of the tool and highlighted in the needs assessment process where customization may be useful or future revisions may be necessary.

Study Limitations

The limitations of this study are related to factors outside of the needs assessment process and the developed support tool that could impact training outcomes. Application of the tool as an initial needs assessment support tool along with a more in-depth needs assessment process does

not guarantee successful training outcomes. Factors such as learner motivations, learning environments, workloads, time management, learning styles, and training design and delivery may impact outcomes. Furthermore, the use of this tool across various levels within an organization (i.e., stakeholders, leadership, management, workforce employees, etc.) may result in contradictory responses and further research and data gathering may be needed to identify needs determine adequate solutions to address needs.

Next Steps

The needs assessment tool created as a result of this study is ready for pilot testing and, following such, application by public and private sector organizations in support of training and development efforts. Expert reviewers validated the usefulness of the needs assessment tool and provided feedback for updating the tool. A revision to the tool has been developed; however, future iterations of the tool could include more questions directly related to the specific organization or suggest a follow up interview with key stakeholders to gather more insight for intended goals and outcomes. Additional research and evaluation of the tool may provide suggestions for more innovative delivery methods that use technology to facilitate implementation across organizations.

REFERENCES

\$162.4 billion spent on training and development by U.S. companies. (2013, December 13).

Retrieved from <https://www.td.org/insights/1642-billion-spent-on-training-and-development-by-us-companies>

Altschuld, J. (2014). Needs assessment: Trends and a view toward the future. *New Directions for Evaluation*, No. 144.

Altschuld, J., & White, J. (2010). *Needs assessment: analysis and prioritization*. Thousand Oaks, CA: Sage Publications.

ATD Research. (2019). *Effective evaluation: Measuring learning programs for success*.

Retrieved from: <https://www.td.org/research-reports/effective-evaluation>

Bartram, S., & Gibson, B. (2000). *The training needs analysis toolkit: A resource for identifying training needs, selecting training strategies and developing training plans*. Amherst, MA: HRD Press.

Bazeley, P., & Jackson, K. (2013). *Qualitative data analysis with NVIVO*. Thousand Oaks, CA: Sage Publications.

Bennis, W. (1969). *Organization development: Its nature, origins, and prospects*. Reading, MA.: Addison-Wesley.

Brown, J. (2002). Training needs assessment: A must for developing an effective training program. Retrieved from <https://doi.org/10.1177/009102600203100412>

Castleberry, A., & Nolan, A. (2018). Thematic analysis of qualitative research data: Is it as easy as it sounds? *Currents in pharmacy teaching and learning*, 10 (6) 807-815.

- Cennamo, K., & Kalk, D. (2019). *Real world instructional design: An iterative approach to designing learning*. New York: Routledge.
- Chen, G., & Klimoski, R. (2007). Training and development of human resources at work: Is the state of our science strong? *Human Resource Management Review*, 17(2), 180-190.
- Christensen, B. (2018). From needs assessment to needs analysis. *Performance Improvement*, 57(7), p. 36-46.
- Collingridge, D., & Gantt, E. (2008). The quality of qualitative research. *American Journal of Medical Quality*, 23(5), 389–395.
- Council of the Inspectors General on Integrity and Efficiency. (2018, April). *Top management and performance challenges facing multiple federal agencies*. Retrieved from <https://www.oversight.gov>
- Dachner, A., Saxton, B., Noe, R., & Keeton, K. (2013). To infinity and beyond: Using a narrative approach to identify training needs for unknown dynamic situations. *Human Resources Development Quarterly*, 24(2), 239-267.
- Dean, G. (1994). *Designing instruction for adult learners*. Malabar, FL: Krieger.
- Dick, W., & Carey, L. (1977) Needs assessment and instructional design. *Educational Technology*, 17(11), 53-59.
- Dick, W., Carey, L., & Carey, J. (2009). *The systematic design of instruction (8th ed)*. Upper Saddle River, NJ: Merrill.
- Dobberowsky, S. (2018). *The top 5 engagement challenges that government agencies face*. Retrieved from <https://www.cornerstoneondemand.com/rework>

- Drake, L. (2014). Corporate training is broken; so why are you still doing it? *Training Journal*, 1, 49-53.
- Elmokadem, P. (2018). *Six types of online employee training programs*. Retrieved from <https://www.uscreen.tv/blog/6-types-online-employee-training-programs/>
- Friefeld, L. (2018). 2018 Training industry report. *Training Magazine*. Retrieved from <https://trainingmag.com/sites/default/files/trn-2018-industry-report.pdf>
- Goldstein, I., & Ford, J. (2002). *Training in organizations*. Belmont, CA: Wadsworth Group.
- Gray, G., Hall, M., Miller, M., & Shasky, C. (1997). Training practices in state government agencies. Retrieved from <https://doi.org/10.1177/009102609702600203>
- Gerber, R., & Lankshear, C. (Eds.). (2000). *Training for a smart workforce*. New York, NY: Routledge.
- Gerding, J. (2020, March). Identifying needs for advancing the profession and workforce in environmental health. *American Journal of Public Health*, 110(3), 288-294.
- Guerra-Lopez, I. (2008). *Performance evaluation: Proven approaches for improving program and organizational performance*. San Francisco, CA: Jossey-Bass.
- Gunter, C. (2018a). *OPM looks to improve training; fix skills gap*. Retrieved from <https://fcw.com/articles/2018/02/09/opm-workforce-challenges-gunter.aspx>
- Gunter, C. (2018b). *Why modernizing human capital systems is so hard*. Retrieved from <https://fcw.com/articles/2018/08/28/modernizing-hr-systems-gunter.aspx>

- Gutierrez, K. (2017). *Mind-blowing statistics that prove the value of employee training and development*. Retrieved from <https://www.shiftelearning.com/blog/statistics-value-of-employee-training-and-development>
- Holton, E., Bates, R., & Naquin, S. (2000). Large-scale performance driven training needs assessment: A case study. *Public Personnel Management*, 29(2), 249-268.
- Housel, D. (2020, February). When co-occurring factors impact adult learners: Suggestions for instruction, preservice training, and professional development. *Adult Learning*, 31(1), 6-16.
- Iglicki, D. (2012). *Hurdles to accurate assessment of training needs within organizations*. The Evolllution. Retrieved from https://evolllution.com/category/revenue-streams/workforce_development/
- Johnson, R. (1993). *TQM: Quality training practices*. Milwaukee, WI: ASQC Quality Press.
- Kaufman, R. (2006). *Change, Choices, and Consequences: A Guide to Mega Thinking and Planning*. Amherst, MA. HRD Press Inc.
- Kaufman, R. (2011). *A Manager's Pocket Guide to Strategic Thinking and Planning*. Amherst, MA. HRD Press, Inc.
- Kaufman, R. (2018). A hierarchy of planning: Where you start can make a difference. *Performance Improvement Journal*, 57(10), 37-40.
- Kaufman, R., & Cole, M. (2018). Needs assessment: A tale of two approaches. *TD: Talent Development*, 72(4), 14.

- Kaufman, R., & English, F. (1979). *Needs assessment: Concept and application*. Englewood Cliffs, NJ. Educational Technology Publications, Inc.
- Kaufman, R., & Guerra-Lopez, I. (2013). *Needs assessment for organizational success*. Alexandria, VA: ASTD Press.
- Kaufman, R, Oakley-Browne, H., Watkins, R., & Leigh, D. (2003). *Strategic Planning for Success: Aligning People, Performance, and Payoff*. San Francisco, CA: Jossey-Bass/Pfeiffer.
- Kaufman, R., & Watkins, R. (2000). Getting serious about results and payoffs: We are what we say, do and deliver. *Performance Improvement*, 39(4), 29–32.
<https://doi.org/10.1002/pfi.414039040>
- Kirkpatrick, J., & Kirkpatrick, W. (2016). *Kirkpatrick's four levels of training evaluation*. Alexandria, VA. ATD Press.
- Larson, M., & Lockee, B. (2019). *Streamlined ID: A practical guide to instructional design* (2nd ed.). New York, NY. Routledge.
- Lawrie, J., & Borringer, C. (1971). Training needs assessment and training program evaluation. *Training Development Journal*. November, 291-294.
- McConnell, J. (2003). *How to identify your organization's training needs*. New York, NY: AMACOM.
- Mendonca, S. (2019). *Measuring learning effectiveness*. Retrieved from <https://trainingindustry.com/articles/measurement-and-analytics/measuring-learning-effectiveness/>

- Murk, P. (1993, November). *Diagnostic techniques for training and development*. Paper presented at the annual meeting of American Association for Adult and Continuing Education, Dallas, TX.
- Noe, R. (2013). *Employee training and development*. New York, NY: McGraw-Hill.
- Office of Personnel Management. (2018, February 7). *Federal Workforce Priorities Report*. Retrieved from <https://www.opm.gov/policy>
- Peffer, K., Tuunanen, T., Rothenberger, M., & Chatterjee, S. (2007). A design science research methodology for information systems research. *Journal of Management Information Systems*, 24(3), 45-77.
- Phillips, J., & Holton, E. (Eds.). (1995). *In action: Conducting needs assessment*. Alexandria, VA: American Society for Training and Development.
- Popov, C. (2015 August 30). *Why your employee training is a waste of time and money and what to do about it*. Retrieved from <https://www.forbes.com>
- Rainbird, H. (Ed.). (2000). *Training in the workplace: Critical perspectives on learning at work*. New York, NY: St. Martin's Press, Inc.
- Reeves, T. (2000). *Enhancing the worth of instructional technology research through "design experiments" and other development research strategies*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Reeves, T. (1995). Questioning the questions of instructional technology research. In M. R. Simonson & M. Anderson (Eds.), *Proceedings of the Annual Conference of the*

- Association for Educational Communications and Technology, Research and Theory Division* (pp. 459-470), Anaheim, CA.
- Reeves, T., & Hedberg, J. (2003). *Interactive learning systems evaluation*. Englewood Cliffs, NJ: Educational Technology.
- Reeves, T., & Oh, E. (2017). The goals and methods of educational technology research over a quarter century (1989–2014). *Educational Technology Research Development*, 65, 325 - 339, <https://doi.org/10.1007/s11423-016-9474-1>
- Richey, R. (1992). *Designing instruction for the adult learner: Systematic training theory and practice*. London: Kogan Page.
- Richey, R., & Klein, J. (2007). *Design and development research*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Rossett, A. (2012). *Needs analysis—Something old, something new*. Retrieved from <http://www.allisonrossett.com/2012/05/31/needs-analysis-something-old-something-new/>
- Rossett, A. (1987). *Training needs assessment*. Englewood Cliffs, NJ: Educational Technology.
- Rothwell, W., Benschoter, G., King, M., & King, S. (2016). *Mastering the instructional design process (5th ed.)*. Hoboken, NJ: Wiley & Sons, Inc.
- Rothwell, W., Lindholm, J., & Wallick, W. (2003). *What CEOs expect from corporate training*. New York, NY: AMACOM.

- Schneier, C., Guthrie, J., & Olian, J. (1988). A practical approach to conducting and using the training needs assessment. *Public Personnel Management*, 17(2), 191-205.
- Sleezer, C. (1993). Training needs assessment at work: A dynamic process. *Human Resource Development Quarterly*, 4(3), 247-263.
- Squire, P. (2015). Corporate training is broken – fix it! *Training Journal*, 1, 37-40.
- van Adelsberg, D., & Trolley, E. (1999). *Running training like a business*. San Francisco, CA: Brett-Koehler.
- van de Akker, J., Branch, R., Gustafson, K., Nieveen, N., & Plomp, T. (1999). *Design approaches and tools in education and training*. Netherlands: Kluwer Academic Publishers.
- van Eerde, W., Simon Tang, K., & Talbot, G. (2008). The mediating role of training utility in the relationship between training needs assessment and organizational effectiveness. *The International Journal of Human Resource Management*, 19(1), 63-73.
- Visscher-Voerman, I., Gustafson, K., & Plomp, T. (199). Educational design and development: An overview of paradigms. In J. Van de Akker, R. Branch, K. Gustafson, N. Nieveen, & T. Plomp (Eds.), *Design approaches and tools in education and training* (pp.15-28). Netherlands: Kluwer Academic Publishers.
- Warren, M. (1979). *Training for results: A system approach to the development of human resources in industry* (2nd ed.). Reading, MA: Addison-Wesley.
- Weisberg, A. (2017). *How to conduct needs assessment part 1: What is it and why do it?*
Retrieved from <https://www.ies.ncsu.edu/blog/>

Wentling, T. (1993). *Planning for effective training: A guide to curriculum development*. Rome: FAO.

Witkin, B. (1994). Needs Assessment Since 1981: The State of the Practice. *Evaluation Practice*, 15(1), 17-27.

Witkin, B., & Altschuld, J. (1995). *Planning and conducting needs assessments*. Thousand Oaks, CA: Sage.

Yoder, E. (2018, Feb 8). Understaffing, lack of training at agencies hampering agency services to public, personnel agency says. *Washington Post*. Retrieved from <https://www.washingtonpost.com>

APPENDIX A

METHODS FOR GATHERING DATA FOR A NEEDS ASSESSMENT TOOL

Method	Description	Advantages	Disadvantages
Surveys/ Questionnaires	Paper or electronic survey/questions; Can be open-ended questions, multiple choice, or priority ranking (Brown, 2002)	Can be conducted before and during the learning activity (Dean, 1994) Availability to large numbers of people, inexpensive, can be anonymous (Brown, 2002)	Input is secondary, if considered at all (Dean, 1994) Can be time-consuming to develop, may not address causes of problems (Brown, 2002) Subject to sampling biases; low return rate (Goldstein, 2002)
Interviews	Formal or informal; can include a sample population or whole group; flexibility in access (phone, in person, on site, remote) (Brown, 2002)	Can provide more insight into feelings and causes of problems; allows for open-ended questions (Brown, 2002; Goldstein, 2002)	Time-consuming; analysis can be difficult (Brown, 2002) Interviewer bias is possible (Goldstein, 2002)
Performance appraisals	Formal or informal; should be conducted on a scheduled basis (Brown, 2002)	Identifies strengths and weaknesses; can be used to identify areas where training is needed (Brown, 2002)	May not be cost effective; can include managerial bias (Brown, 2002)
Observations	Technical, functional, or behavioral; can provide qualitative or quantitative information (Brown, 2002)	Provides opportunity to “read” the learners (Dean, 1994) Provides real-life information (Brown, 2002)	Observer’s skills can impact observation outcomes (Dean, 1994) Limits data collection to the work environment;

			may be viewed as “spying” (Brown, 2002)
Tests	Similar to a questionnaire; can be flexible in format and delivery (Brown, 2002)	Can identify gaps in skills (Brown, 2002; Goldstein, 2002)	Has to be developed for specific group; may not necessarily coordinate with job duties (Brown, 2002)
Group Discussions	Includes multiple people/points of view in one setting Can focus on a specific subject area or issue (Brown, 2002)	Allows immediate feedback on viewpoints (Goldstein, 2002) Can increase awareness for participants (Brown, 2002)	Time-consuming (Brown, 2002; Goldstein, 2002) Data may be hard to categorize for use (Brown, 2002)

APPENDIX B

TRAINING NEEDS ASSESSMENT TOOL

The Needs Assessment tool is intended to help Instructional System Designers (ISD) and organizational training professionals identify the efficacy of training. This tool is designed to provide the ISD and organizational training professionals with information to establish the expected outcome of training, provide pertinent information to conduct the needs analysis, and identify possible solutions to needs. Each reviewer will be emailed the tool in PDF, along with instructions for reviewing the tool and accessing the reviewer evaluation survey. The evaluation survey will be accessed from the Qualtrics link

(https://virginiatech.qualtrics.com/jfe/form/SV_0vawC73nYIB0YzH), also provided in the email. The link will display the survey questions and upon submission, the researcher will be notified, and results will be compiled for data analysis.

The tool is intended to support the instructional design process. Once information from the tool has been gathered, the next step is to conduct a needs analysis. The needs analysis will be used to determine training specifics, such as training objectives and content, proposed mode of delivery, and possible solutions to address needs.

Needs Assessment Tool

	Questions
Organizational Goals	<ol style="list-style-type: none"> 1. As it relates to the performance concerns/deficiencies, what are some goals and/or outcomes of training that you would like to see? 2. What are the requirements for reaching these goals and objectives? 3. How will these requirements/outcomes impact the organization? 4. How will you know when these requirements have been obtained and/or goals and outcomes have been achieved? 5. How will this progress be measured/monitored? How often?
Current State	<ol style="list-style-type: none"> 1. As it relates to the performance concerns/deficiencies, describe the current knowledge, skills, and abilities (KSA) of the workforce? 2. How does the current state of KSAs impact organizational outcomes/shape organizational goals? 3. Are there currently requirements in place related to the training subject/employee performance? 4. What measures are taken to ensure employees meet the current requirements?
Gaps	<ol style="list-style-type: none"> 1. What do you consider to be the reason for the deficiencies in KSAs related to the intended training/subject area?

	2. Are there challenges that impede the progress of employees in this area?
Priorities	<ol style="list-style-type: none"> 1. What are the specific areas where more attention should be given to improvement? 2. How does improvement in these areas impact organizational outcomes? 3. What resources are available to support the areas of improvement that the organization is striving to achieve? 4. What is the timeframe for which requirements should be met/organizational goals should be achieved?

APPENDIX C

NEEDS ASSESSMENT TOOL EXPERT REVIEW INSTRUMENT

Please respond to the following questions as you evaluate the Needs Assessment tool. You can provide an electronic review of the tool using the link provided in the email.

1. Do the questions in the tool provide the instructional designer with enough detail about the organization's purpose for a training requisition?

- ☐ Yes
- ☐ No

Comments:

2. Do the questions in the tool provide the instructional designer enough information to identify the organization's goals and desired outcomes?

- ☐ Yes
- ☐ No

Comments:

3. Do the questions in the tool allow for an adequate description of the organization's current capability?

- ☐ Yes
- ☐ No

Comments:

4. Do the questions in the tool provide the instructional designer with enough information to possibly identify deficiencies in knowledge, skills, and abilities of personnel?

- ☐ Yes
- ☐ No

Comments:

5. Do the questions in the tool provide enough information for the instructional designer to identify if training would be a viable option to achieve the organization's goals?

- ☐ Yes
- ☐ No

Comments:

6. Do the questions in the tool provide enough information to determine priorities of the organization?

- ☐ Yes
- ☐ No

Comments:

7. Do the questions in the tool provide enough information to determine organizational resources?

- ☐ Yes
- ☐ No

Comments:

8. Do the questions in the tool provide enough information for the instructional designer to determine training objectives for the organization?

- ☐ Yes
- ☐ No

Comments:

9. Do the questions in the tool provide enough information for the instructional designer to determine how success will be measured?

- ☐ Yes
- ☐ No

Comments:

10. Does the tool provide enough information for the instructional designer to conduct an analysis of gaps and provide possible solutions to address gaps?

- ☐ Yes
- ☐ No

Comments:

APPENDIX D

EXPERT REVIEWER PHONE INTERVIEW QUESTIONS

1. Please tell me about yourself, including what type of work you do.
2. What are your overall views on using a needs assessment?
3. What aspects of the tool do you think are most beneficial to the organization and/or instructional designer? Why?
4. What information or question could be added to the tool to make it more useful?
5. Do you think this tool would be beneficial to the organization and/or instructional designers? Why or why not?
6. Do you think this tool would make it more likely for organizations to use a needs assessment prior to training development? Why or why not?

APPENDIX E
RECRUITMENT EMAIL

Subject: Dissertation Research Participation - IRB #19-503

Hello, my name is Carmalita Trotman, and I am a doctoral candidate in the Curriculum and Instruction program at Virginia Polytechnic Institute and State University. I am completing a Dissertation on maximizing training outcomes by implementing a needs identification tool. As a part of my research, I have studied the benefits and challenges organizations face with conducting a needs assessment and how those challenges influence and impact training outcomes. The methodology I am using, a design and developmental methodology, requires me to develop a needs assessment tool and have the tool evaluated by instructional design professional and managers. The tool I have developed is intended to identify the training needs of an organization and serve as the basis for the instructional design process and implementation of a training program. To assess the tool, I have developed a survey to analyze the effectiveness of the tool based on the insight of experts in the field. The survey will be conducted as an anonymous survey. In addition to the survey, participants will be contacted by phone for follow up questions and comments about the needs assessment tool. Telephone interviews will be recorded and transcribed. Results and future findings will be released at the end of the Dissertation.

To find out more about this study or if you are interested in participating in this research study, please reply to this email or contact Carmalita Trotman at carmalita1@vt.edu. In your reply please provide your name, email, and phone number so you can be contacted for participation.

Thank you,

Carmalita Trotman

APPENDIX F

INFORMED CONSENT

Hello, my name is Carmalita Trotman, and I am a doctoral candidate at Virginia Polytechnic Institute and State University. I am inviting you to be in a research study on the instructional design process and the use of a needs assessment in maximizing outcomes. You were selected as a possible participant because of your work in the field of instructional design or organizational training. Please read the form and ask any questions you may have before agreeing to participate in the study.

Purpose and Procedures: The purpose of this study is to examine the practices and challenges of public and private sector organizations when defining training needs and achieving the intended outcomes and goals of training. By implementing the instructional design process, specifically, the first step of the process, needs assessment, agencies and organizations can effectively achieve outcomes that provide benefits to the organization. The study will involve a survey, in which you will respond to ten questions about the efficacy of this Needs Assessment Tool, and a follow up phone interview requesting additional thoughts and suggestions for tool improvements. The survey should take no more than 15 minutes to complete. The phone interview should take no more than 15-20 minutes. If you agree to participation in the study, you agree to the following procedures:

1. You will be emailed a Needs Assessment Tool Review Guide, the Needs Assessment tool, and a Qualtrics link to access the survey questions.

2. You will submit your responses to the survey questions using the Qualtrics submission and provide a contact phone number where you can be reached for the follow up phone interview.
3. You agree to be contacted by phone as a follow up where you will be asked more about your background in the field of instructional design and/or training and your thoughts about the Needs Assessment tool. The phone interview will last no more than twenty minutes.
4. You agree to have your phone interview audio recorded and transcribed for inclusion in the data collection and research study.

Risks and Benefits: There is minimal to no risk involved in participating and there is no benefit to you to participate in the study.

Compensation: There is no payment for participating in this study.

Confidentiality: The records of this study will be kept private and confidential to the extent allowed by law. The study will not include any information that will make it possible to personally identify you. In addition, audio recordings of the interview will not be shared and will only be used for the purposes of this study. Furthermore, once the session is transcribed, the audio recording will be destroyed.

Voluntary Participation: Participation in this study is voluntary. If you decide to participate, you are free to not answer any question or withdraw at any time.

Contacts and Questions: The researcher conducting this study is Carmalita Trotman. You may contact her at 240-882-0079 or email carmalita1@vt.edu with questions or for additional

information. If you have questions or concerns regarding this study and would like to speak to someone other than the researcher, you are encouraged to contact the VT IRB at 540-231-3732 or email at irb@vt.edu. You may request a copy of this information to keep for your records.

Statement of Consent: I have read the above information. I have asked questions and have received answers. I consent to participate in the study. Consent is implied by completion and submission of the survey.

APPENDIX G

IRB APPROVAL LETTER



Division of Scholarly Integrity and
Research Compliance
Institutional Review Board
North End Center, Suite 4120 (MC 0497)
300 Turner Street NW
Blacksburg, Virginia 24061
540/231-3732
irb@vt.edu
<http://www.research.vt.edu/sirchpp>

MEMORANDUM

DATE: December 4, 2019
TO: Barbara B Lockee, Carmalita Trotman
FROM: Virginia Tech Institutional Review Board (FWA00000572, expires October 29, 2024)
PROTOCOL TITLE: Using the Instructional Design Process to Maximize Training Outcomes: Implementing a Needs Identification Tool
IRB NUMBER: 19-503

Effective December 4, 2019, the Virginia Tech Human Research Protection Program (HRPP) and Institutional Review Board (IRB) determined that this protocol meets the criteria for exemption from IRB review under 45 CFR 46.104(d) category(ies) 2(ii).

Ongoing IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities impact the exempt determination, please submit a new request to the IRB for a determination.

This exempt determination does not apply to any collaborating institution(s). The Virginia Tech HRPP and IRB cannot provide an exemption that overrides the jurisdiction of a local IRB or other institutional mechanism for determining exemptions.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

<https://secure.research.vt.edu/external/irb/responsibilities.htm>

(Please review responsibilities before beginning your research.)

PROTOCOL INFORMATION:

Determined As: Exempt, under 45 CFR 46.104(d) category(ies) 2(ii)
Protocol Determination Date: December 4, 2019

ASSOCIATED FUNDING:

The table on the following page indicates whether grant proposals are related to this protocol, and which of the listed proposals, if any, have been compared to this protocol, if required.

Invent the Future

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
An equal opportunity, affirmative action institution

APPENDIX H

NEEDS ASSESSMENT TOOL REVISED

	Questions
Organizational Goals	<ol style="list-style-type: none"> 1. As it relates to the performance concerns/deficiencies, what are some goals and/or outcomes of training that you would like to see? 2. What are the requirements for reaching these goals and objectives? 3. How are these requirements determined? Are they predetermined based on job descriptions? Company policies? Job duties? 4. How will these requirements/outcomes impact the organization? 5. How will you know when these requirements have been obtained and/or goals and outcomes have been achieved? 6. What are some training solutions that have been used in the past to meet organizational goals? 7. What were the outcomes of previously used training methods? 8. How will this progress be measured/monitored? How often?
Current State	<ol style="list-style-type: none"> 1. As it relates to the performance concerns/deficiencies, describe the current knowledge, skills, and abilities (KSA) of the workforce? 2. How does the current state of KSAs impact organizational outcomes/shape organizational goals? 3. Are there currently requirements in place related to the training subject/employee performance? 4. Are the current requirements new? If so, what are the reasons for the new requirements? If not, how long have the requirements been in place?

	<p>5. What measures are taken to ensure employees meet the current requirements?</p>
Gaps	<p>1. What do you consider to be the reason for the deficiencies in KSAs related to the intended training/subject area?</p> <p>2. How are the KSAs related to the area measured? Observation? Tests? Sales numbers?</p> <p>3. Are there challenges that impede the progress of employees in this area? If so, what are the challenges?</p>
Priorities	<p>1. What are the specific areas where more attention should be given to improvement?</p> <p>2. How would you describe the importance of training within the organization?</p> <p>3. How does improvement in these areas impact organizational outcomes?</p> <p>4. What resources are available to support the areas of improvement that the organization is striving to achieve?</p> <p>5. How accessible are the resources for the targeted audience?</p> <p>6. Are there any obstacles that may impact resources for the target audience?</p> <p>7. What is the timeframe for which requirements should be met/organizational goals should be achieved?</p>