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DEVELOPING AND VALIDATING A QUALITY OF DELIVERY SCALE AND ASSESSING ADULT-TRAINEES' COGNITIVE LOAD, MOTIVATION, AND COMPLIANCE

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DEVELOPING AND VALIDATING A QUALITY OF DELIVERY SCALE AND
ASSESSING ADULT-TRAINEES' COGNITIVE LOAD,
MOTIVATION, AND COMPLIANCE

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DISSERTATION
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A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Communication and Information
at the University of Kentucky

By
Kelsey Paige Moore
Lexington, Kentucky
Director: Dr. Brandi Frisby, Associate Professor, School of Information Science
Lexington, Kentucky
2019

ABSTRACT OF DISSERTATION

DEVELOPING AND VALIDATING A QUALITY OF DELIVERY SCALE AND
ASSESSING ADULT-TRAINEES' COGNITIVE LOAD,
MOTIVATION, AND COMPLIANCE

Effective communication is crucial for successful behavior change. However, despite much research in training and development, instructional communication, and public health surrounding communication, it is still unclear what constitutes such effective delivery behaviors, especially for an adult learner population (those over 25 years old). Using cognitive load theory and cognitive-affective theory of learning with media as theoretical frameworks, this dissertation proposes a quality of delivery scale for measuring effective communication across instructional settings with an adult learner audience. Informed by public health, training and organizational communication, as well as adult education and instructional communication, the final valid and reliable QD scale consists of seven communication characteristics that are associated with reduced cognitive load, increased motivation, and increased compliance. Ultimately, this three-phase study consisted of: (a) developing the QD scale, (b) confirming the factor structure, as well as convergent and predictive validity, and (c) testing a theoretical model of QD.

KEYWORDS: quality of delivery scale, communication effectiveness, training and development, cognitive load, adult learners

Kelsey Paige Moore

05/01/2019
Date

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Date

For Your glory.

"Do nothing out of selfish ambition or vain conceit. Rather, in humility value others above yourselves, not looking to your own interests but each of you to the interests of the others." – Philippians 2:3-4

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CHAPTER ONE: INTRODUCTION AND RATIONALE

Background

Central to the idea of learning are the concepts of behavior, attitude, motivation, belief, and knowledge change. For instance, in communication courses, instructors aim to improve students' knowledge, efficacy, and performance regarding public speaking. Such changes are the goals of many researchers and practitioners in a variety of disciplines beyond education, such as public health, faculty development, and workplace training. Indeed, public health practitioners may work to reduce smoking in a population, teaching centers may aim to get faculty to adopt inclusive teaching methods, and trainers may seek to improve employee efficiency. In other words, the key to successful outcomes in these contexts is changing behaviors, attitudes, or knowledge.

Additionally, communication scholars, practitioners, and instructors may agree that behavior change and learning largely occur through communication, and often only through *effective* communication. For instance, some training and development research would suggest that trainees learn most from trainers who answer their questions clearly and provide helpful feedback (Compeau, 2002). Similarly, instructional communication scholars argue that instructors must communicate credibility (Finn et al., 2009), clarity (Chesebro, 2003), and rapport (Frisby & Buckner, 2017) to support student learning (i.e., behavior, attitude, and knowledge change). Finally, public health scholarship indicates that although health intervention programs may have theoretically-driven -and empirically-tested content, the communication of such programs will also determine whether it will influence participants in the desired way (Shin, Miller-Day, Pettigrew, Hecht, & Krieger, 2014). These examples illustrate the complexity, ubiquity, and

importance of exploring the role of effective communication in behavior, attitude, and knowledge change. Knowing the predictors of such changes is crucial for supporting meaningful outcomes such as student learning, trainee satisfaction and productivity, faculty effectiveness, and a target population's health and well-being.

Although many presume communication to be indispensable, *effective* communication is not a well-defined concept as it relates to learning and behavior change. For instructional communication, no consistent and comprehensive term for effective communication has been presented; however, a combination of seven most prominent instructor-level characteristics (e.g., credibility, clarity, immediacy, humor, rapport, confirmation, and power) may be considered as effective communication behaviors (many of which were identified in Nussbaum, 1992).

Further, public health research uses the term *quality of delivery* to describe the element of implementing and delivering an intervention effectively; this concept has been inconsistently defined and has included elements such as enthusiasm and preparedness (Dane & Schneider, 1998). In contrast, the training and development literature refers to effective delivery as *quality of delivery* (NCA), *effective communication skills*, or *effective presentation skills* (Gauld & Miller, 2004), which have been defined in a variety of ways, such as presenting information in a concise manner (Jones, 1988), using supportive words, phrases, actions, and gestures, and being open and approachable (Thompson, 2001). Overall, despite the importance of effective communication in a training or learning context, the concept of effective communication lacks a strong definition across a variety of literature bases, which means that the associated measurement and resulting outcomes of effective communication remain difficult to

identify as well. The implications of these conceptual and operational problems influence theory and practice in three ways.

Implications

First, the theoretical link between effective communication or delivery behaviors and actual learning and behavior change is understudied. However, two theoretical frameworks that may provide the important and seemingly missing link between effective communication behaviors and change are cognitive load theory (Sweller, 1988) and cognitive-affective theory of multimedia learning (Park, Moreno, Seufert, & Brunken, 2011). These theories operate under the assumption that learning (i.e., behavior, attitude, knowledge change) and motivation only occur if information is effectively and accurately processed. Thus, if behavior change and motivation are goals in a training or intervention context, then it is crucial to ensure that speakers present information in a way that supports the audience's ability to process and understand the information. Approaching communication through these theoretical perspectives will contribute to instructional communication theory by providing a link between important communicative behaviors (e.g., clarity, credibility, and immediacy), and desired outcomes (e.g., learning, behavior change, motivation) beyond the seemingly variable analytic approach currently utilized.

Second, understanding what communicative behaviors influence behavior change and motivation would benefit practice in two areas: training and interventions. Training often seeks to equip participants with new skills, address knowledge gaps, and instill motivation. However, interventions are often done to intervene, or interfere to address an issue. Interventions may include training, but training is often done for reasons other than to intervene. Additionally, training and development is a 160-billion-dollar industry

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(Miller, 2013) with employees spending an average of 47.6 hours in training per year

("2017 Training Industry Report, 2017"). Further, face-to-face training is increasing

whereas online training is decreasing, with face-to-face accounting for 42% of all training

("2017 Training Industry Report, 2017").

Relatedly, the federal government spends around 25 billion on developing

intervention programs to improve health outcomes alongside state and local levels paying

between $40 and $200 per person per year (Leider, Resnick, Bishai, & Scutchfield,

2018). Although researchers suggest that effective communication skills can improve the

outcomes of training and interventions (e.g., Beebe, Mottet, Roach, 2012; Leduchowicz

& Bennett, 1983), it remains unclear what constitutes such skills. Agreeing on a common

definition and measure of effective communication would grant organizations and public

health initiatives the ability to identify, evaluate, and even train instructors, speakers, and

trainers on communication skills, and thereby improve program outcomes. Further, with

this measure, when interventions and trainings fail, researchers and practitioners will be

able to identify whether it is because of the delivery or the content. Consequently,

stakeholders could devote resources to the appropriate issue and rectify it quickly.

Finally, by knowing what leads to behavior change, programs will be able to

maintain greater levels of fidelity. In other words, when a training program is delivered at

multiple sites with several presenters, having a consistent definition and measurement of

delivery will allow the various audiences to experience similar trainings. Clearly, the

practical implications of this research apply to a variety of contexts such as employee

satisfaction with training and community health.

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Adult Learners

Finally, despite the importance of effective communication on behavior change, little extant research has identified specific communicative behaviors that make a statistically and socially significant difference in adult learners. Indeed, much research, especially in instructional communication and training and development, has utilized a college student population, rather than an adult learning one. According to Beebe and Frei (2016), adult learners are those over the age of 25. Although some have argued that college students ages 18-22 may be considered adult learners based on the experience and maturity that they bring (Beebe et al., 2012) and the legal definition of an adult (over 18), most universities consider full-time, on-campus students between 18 and 22 to be traditional students. In contrast, those who are over 25, financially independent from parents, possess a full-time job status, or have served in the military are considered nontraditional or often "adult learners" (MacDonald, 2018). Perhaps implicit in these requirements is that these learners have increased experience or responsibilities that allow for greater maturity in the classroom. Nevertheless, the traditional 18-22 college student used in many research samples is unlikely to be considered an adult learner by several standards.

As a result of these unique experiences or additional responsibilities, these individuals may also have distinct preferences, needs, and goals from traditional young adults. Based on these differences, adult learning theorists have identified at least three assumptions that influence adult learning. To summarize, adults bring more experience to the learning environment, possess greater intrinsic motivation, and have more self-awareness of strengths and weakness (Beebe & Frei, 2016). Further, education and

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training contexts are distinct in their goals, methods, and contexts. For instance, training often seeks to provide skills, whereas much of education provides knowledge. Even in courses that emphasize skills (e.g., public speaking), such courses may also emphasize foundational concepts of such skills in order to provide students with a holistic understanding of a subject area. Together, this indicates that communicative behaviors for facilitating behavior change in an adult learning population may not be extrapolated from research using a college student population. Thus, more work is needed to explore how training influences adult learner/trainee outcomes.

Summary

Taken together, this dissertation sought to answer this overarching research question:

RQ: What quality of delivery behaviors lead to positive training outcomes (e.g., reduced cognitive load, motivation to process, and compliance) for adult trainees?

To address this research question, and address critiques of the existing literature, the primary purposes of this dissertation were to:

a) apply a cognitive load framework to existing bodies of literature, including public health, training and development, and instructional communication in order to

b) develop and validate a *quality of delivery* scale in an

c) adult learner population that assesses the most important communication delivery behaviors that

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d) lead to reduced extraneous load, increased motivation to process, and increased

compliance

e) and contributes to both theory and practice.

Organization

The first chapter of this dissertation provided an introduction to, and rationale for, the topic of effective communication and behavior change in adult learners. The second chapter reviews relevant literature on training and development, public health, and instructional communication, to consider what currently comprises effective communication behaviors. Additionally, Chapter Two overviews a theoretical framework for understanding quality of delivery using cognitive load theory and cognitive-affective theory of multimedia learning. Chapter Two closes with a discussion of adult learners, which leads to the proposed hypotheses and research questions. The third chapter overviews the multiple phased methods for data collection, and the fourth chapter presents the results. Finally, the fifth chapter provides a discussion of the results, limitations of the findings, future directions, and recommendations.

CHAPTER TWO: REVIEW OF LITERATURE

The importance of effective communication on behavior change cannot be overstated. However, despite much research in training and development, instructional communication, and public health surrounding communication, it is still unclear what constitutes such delivery behaviors. Thus, in this section, I will overview the current definitions, measures, and outcomes of effective communication behaviors in training and development and public health intervention research. Then, I will propose a new conceptualization for effective communication behaviors (called *quality of delivery* in this dissertation). Once this is established, I will overview research that suggests college students and adult learners are distinct, which may influence which quality of delivery behaviors lead to desired outcomes in each population. Although these literature bases provide relevant concepts to the quality of delivery construct, no theoretical backing exists for quality of delivery. Subsequently, I propose cognitive load theory and cognitive affective theory of multimedia learning as two theoretical frameworks that may provide a foundation for both conceptualizing and operationalizing quality of delivery. Finally, I end with a rationale and model explicating the relationships between the presentation characteristics, theoretical framework, and training outcomes, such as intention to comply.

Training and Development

Defining quality of delivery. Despite the substantial research providing recommendations for training (e.g., Ghosh, Satyawadi, Joshi, Ranjan, & Singh, 2012; Arthur, Bennett, Edens, & Bell, 2003), the role of the trainer has largely been ignored (Towler & Dipboye, 2001). Indeed, in a meta-analysis of training effectiveness, attributes

of the trainer, quality of delivery, or presentation skills were not included as part of the

search criteria (Arthur et al., 2003). Although the reason for research neglecting the role

of the trainer is unclear, Burke and Hutchins (2008) suggested that organizations are

largely focused on and invest in design and development, rather than the characteristics

of the trainer. In addition, the American Society of Training and Development offers a

widely recognized certification that emphasizes design and development standards, which

may incentivize stakeholders to focus on these issues when improving training programs

(Burke & Hutchins, 2008). It is also possible that this gap in the training and

development literature arises because the effect, role, and best practices for trainers have

been informed by educational research, making it superfluous for training research to also

explore this role. Nevertheless, the neglect of the role of the trainer itself indicates that

studies understanding trainer delivery behaviors are also few. However, to know whether

a training program is effective, we must be able to identify the role of the trainer and his

or her delivery behaviors in a clear, accurate, and measureable way.

Further, no consistent term has been identified and applied; however, the National

Communication Association (2015) uses the term *communication proficiency* to include

presentation techniques, credibility, interpersonal communication, and group

communication strategies, which demonstrates how far-reaching communication skills

may be. However, although communication may touch all aspects of the preparation,

implementation, and assessment process in a training session, this section focuses on the

concept of effective delivery or communication behaviors in a face-to-face training

environment. In other words, a more aptly named term might be "quality of delivery

behaviors," which emphasizes low-inference, observable behaviors such as eye contact,

gestures, transitions, and smiling. Thus, to remain consistent and precise, this term will be utilized, though absent, from the training literature.

Defining quality of delivery behaviors in trainers is complicated because of the various elements of an effective training session. For instance, if a training program is meant to be lecture-based, then it will be important for the trainer to deliver the content in a way that is clear, organized, and possibly supplemented with visual aids and examples. However, if the training is meant to be interactive and skill-based, then it may be more important for the trainer to ask thoughtful questions and give quality feedback. It is for this reason, among others, that there are many different terms and definitions for the concept of communication in training. A sample of these terms and definitions are provided in Table 1.

Table 1: Sample Terms and Definitions for Quality of delivery or Related Concept

Author	Term	Definition
ATD	Training delivery	Manage the learning environment, prepare for training delivery, convey objectives, align learning solutions with course objectives and earner needs, establish credibility, create a positive learning climate, deliver various learning methodologies, facilitate learning, deliver constructive feedback, ensure learning outcomes, evaluate solutions.
ATD	Interpersonal skills	Build trust, communicate effectively, influence stakeholders, network and partner, and demonstrate emotional intelligence.
Chukwu (2016)	Training effectiveness	Facilitator disposition, real life examples, relevance to the work environment, and interaction with the participants (and encouraging participants to interact with each other)
Compeau (2002)	Communication	Clarity, focus on participants (listens to participants and gives feedback), speech (calm, clear, and slow speaking), and nonverbal communication (body language).

Table 1: Sample Terms and Definitions for Quality of delivery or Related Concept (continued)

Ghosh et al. (2012)	Interpersonal skills*	Knowing the subject, interactive sessions, clarity in responses to questions, keeping the session interesting, rapport with trainees.
Faylor et al. (2008)	Effective trainers/ training behaviors*	Nonverbal immediacy and clarity behaviors.
Jones (1988)	Presentation skills	Presents information in a concise manner.
Mclagan & Bedrick (1983, p. 4)	Presentation skill	Presenting information verbally such that the intended purpose is achieved.
Olson (1994, pp. 7-8)	Effective instruction delivery*	Employ oral questioning techniques, summarize and introduce a lesson, direct students in applying problem solving techniques, employ reinforcement techniques, use discussion techniques.
Seibold et al. (1993, p. 117)	Presentation skills*	Clarity of statements, organization of ideas, use of effective transitions between ideas, use of evidence to support assertions, use of illustrative material (e.g., examples, analogies, humor), ability to introduce ideas in ways which capture attention and orient, ability to conclude presentations effectively, use of appropriate vocabulary, diction, articulation, and pronunciation, rate of delivery, volume of voice, vocal variation, appropriate gestures, eye contact, dynamism, and use of visual aids.
NCA (2015, p. 2)	Quality of delivery	Presentation techniques for a range of speaking contexts and experiences, speaker credibility, design and assessment, interpersonal communication techniques and theories, organizational culture, group communication techniques and strategies, group decision making, problem solving, groups' advantages and disadvantages
Thompson (2001, p. 29)	Communication skills	Supportive words, phrases, actions, and gestures; being open and approachable, effective listeners.

* no formal definition provided; one was extrapolated through provided rationale and/or discussion

The sample terms and definitions provide a small review of the ways that communication in training is named and defined. Although some definitions are relatively low-inference (e.g., "…use of effective transitions between ideas, use of evidence to support assertions, use of illustrative material, ability to introduce ideas in ways which capture attention and orient;" Seibold, Kudsi, & Rude, 1993, p. 117), others are so broad that they become vague (e.g., "presenting information verbally such that the intended purpose is achieved;" McLagan & Bedrick 1983, p. 6). Additionally, some definitions focus on presentation delivery (e.g., "presentation techniques for a range of speaking contexts and experiences;" NCA, 2015, p. 2) whereas others emphasize the trainer-trainee relationship (e.g., rapport with trainees, Ghosh et al., 2012). Finally, some definitions imply a communicative element, but do not provide it. For instance, Leduchowicz and Bennett (1983) mention credibility and genuine interest in the subject; however, trainers may possess both and are simply not able to communicate them well. Thus, it is important to note that effective communication skills will include not only having such attributes, but being able to communicate them verbally and nonverbally. The various ways to conceptualize communication in training may lead to various definitions; however, a consistent and clear definition is needed.

Measuring quality of delivery. The definition of quality of delivery has been inconsistent, thus leading to a variety of ways to measure such skills in trainers. There have been a few broad ways researchers have measured communication skills: through self-reports of trainers, scales assessing trainee perceptions, instruments relying on observations of trainer evaluators, and interviews with trainers and trainees.

First, several studies rely on the ASTD competency list, or a similar industry-generated list of behaviors found in effective trainers. These are derived from self-reports of trainers and evaluators of trainers. For instance, Olson (1994) asked trainers to report on which competencies they used based on the ASTD competency list, which includes 31 items such as presentation skills, questioning skills, group process skills, industry understanding, and objectives preparation skills. Many of these terms are not well-defined, which may lead to variability in interpretations, responses, and applications of these competencies. For instance, presentation skills are defined as "verbally presenting information such that the intended purpose is achieved" (McLagan & Bedrick, 1983, p. 6). As a result, without having specific, observable behaviors as part of the measurement, it may be difficult to accurately assess trainers and trainee perception. Additionally, there have been more specific measures based upon trainee perceptions. For instance, Faylor, Beebe, Houser, and Mottet (2008) applied instructional communication variables to the concept of communication in training and measured specific elements of communication such as nonverbal and verbal immediacy and clarity. This allowed research participants to respond to specific behaviors, rather than to broad concepts that are open to interpretation. As a result, the variability in the responses may be based upon variability in experiences, rather than simply variability in the interpretation of the item.

Qualitative approaches have also been used. For instance, Compeau (2002) used an act-frequency methodology to identify important training behaviors, such as communication skills, from current trainers. After interviewing trainers and generating a list of characteristics of competent trainers, new trainers sorted them into categories. After analysis, these were reduced to four factors: clarity, communicating to participants

in an understandable way, speaking clearly, calmly, and slowly, and nonverbal body language. Similarly, Mathis (2010) conducted qualitative interviews and identified four themes that influenced a positive training experience: relevance and applicability communicated by the trainer, attitudes and preferences held by the trainer, organization, and trainee, immediacy of trainer, and making relationships to influence learning. This approach to measure development may allow for greater variability in responses, as well as more specific behaviors, which may provide more accurate results.

Finally, one study began developing a scale that would measure effective attributes of trainers (the MEAT scale; Boyd, Lewis, Scott, Krendl, & Lyon, 2017). Their final scale consisted of 33 items and two factors: charisma (e.g., caring, warm, considerate, motivation) and credibility (e.g., prepared, intelligent, expert, and organized). Although this scale is utilizing trainers, it neglected much of the training literature in its conceptualization, and used an undergraduate population rather than trainees to begin its testing. Therefore, overall, there is no consistent measure of quality of delivery or a related concept. Ineffective and inefficient measurement prevents a consistent knowledge base from being built; this means that with various definitions and measures of quality of delivery, it will be challenging to have a clear, streamlined literature base discussing quality of delivery.

Outcomes of quality of delivery. If definitions and measures are varied, then the outcomes will be hard to identify and compare due to such differences. Nevertheless, researchers have suggested that there is a strong association between educator/trainer behaviors and learning (e.g., Heimlich & Norland, 1994). For instance, Tight (1983) stated that "the behavior of the teacher probably influences the character of the learning

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climate more than any other single factor" (p. 57). Other research has argued that personality, skills, and characteristics can build a positive learning climate, reduce barriers, and improve motivation which may then influence learning (e.g., Hiemstra & Sisco, 1990; Knowles, 1984; Wlodksowski, 1993). However, few empirical studies have found concrete characteristics of educators or trainers and their effects on learning. Indeed, Thompson (2001) stated that researchers assume that positive characteristics of the trainer positively influence learning, but that "no research has been found to substantiate this assumption" (p. 29). As a result, several have called for greater research in this area.

In response to this call, several studies have explored the relationship between trainer characteristics and trainee outcomes. For instance, Towler and Dipboye (2001) found that trainer expressiveness (e.g., fluency and variation in voice) and lecture organization (clarifying content and structure) influenced recall immediately and several days after the training. This study provided evidence that trainers can influence levels of learning in trainees. Similarly, Thompson (2001) found that trainer characteristics can help predict the value and learning trainees perceive. Specifically, he found that 75% of the variance in perceived trainer effectiveness was explained by eight trainer characteristics: the participants feeling comfortable, the training being creative, enjoying training, communicating effectively, being sensitive to participant feelings, being organized, having humor, and being trustworthy. Characteristics deemed most important by participants included communication skills (45%), enthusiasm (44%), and interpersonal skills (25%). These studies demonstrate that trainers can influence trainee outcomes.

In another study, Faylor et al. (2008) explored the effect of nonverbal and verbal immediacy and clarity on perceptions of trainee learning. They found that nonverbal immediacy and clarity behaviors were associated with greater perceptions of affective learning. Finally, trainer clarity was the strongest predictor of trainee affective learning. In contrast, Berthelsen (2002) found that trainer smiling (a typical nonverbal immediacy behavior) was negatively correlated with perceived immediacy. In addition, findings revealed that there was no significant difference in learning, motivation, or satisfaction with the training between the high and moderate/low immediacy conditions. From these contradictory findings, more research is needed to understand the influence of delivery behaviors on motivation, learning, and satisfaction.

More recently, Leddin (2009) found that content relevance and trainer credibility either directly or indirectly influenced trainee state motivation, engagement, behavioral intentions, and behavioral outcomes. Both content relevance and credibility may be considered elements of quality of delivery or aspects of delivery. In another study, Ghosh et al. (2012) found that trainers' comfort level with the subject and trainer rapport with trainees were the primary characteristics that predicted trainee satisfaction. These two attributes may also be elements of effective communication skills. As Ghosh et al. (2012) stated, "mere possession of knowledge is not sufficient; the trainer must be articulate enough to reach out to the participants with the concepts being covered" (p. 198). Although trainee satisfaction is not the same as learning or skill improvement, satisfaction is often what training programs rely on to evaluate whether a training was effective (Kirkpatrick, 1983; Seibold, Kudsi, & Rude, 1993). Thus, when considering outcomes, for many programs, a successful training program is based upon the

satisfaction of the participations, not whether there was quality of delivery, improved learning, or changed behavior. Overall, these studies and associated findings illustrate the power of trainer characteristics and behaviors on trainee perceptions and outcomes. However, more research is needed to strengthen these associations.

Contexts of quality of delivery. Much of the research evaluating the effects of a trainer's quality of delivery on trainee's behavior change or satisfaction has come from the education or instructional communication research. It would be remiss to neglect these lines of research; thus, a brief overview of this literature and findings will be presented here.

First, adult education literature is rooted in work by John Dewey (1938) and Eduard Lindeman (1926), who began examining the educator beyond the traditional classroom. Since then, researchers have explored adult education by considering group leaders, counselors, facilitators, and even administrators as adult educators (Houle, 1996). Based on this exploration, numerous behaviors have been deemed important such as being encouraging (Knox, 1986), patient (Apps, 1996), caring, supportive, and helpful (Knowles, 1975). These often manifest in communication skills by educators using effective words, phrases, and actions. Educators should also communicate that they are approachable, effective listeners, and willing to communicate clearly (Eble, 1988; Draves, 1984). Further, effective educators demonstrate credibility and an ability to teach the subject matter well (Knowles, 1980), clarity (Eble, 1988), and confidence in their delivery (Knox, 1986). Finally, research states that adult educators and trainers should communicate a warm climate (Hiemstra & Sisco, 1990), establish rapport (Knox, 1986), and display enthusiasm (Knowles, 1980). Many of these behaviors recommended for

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adult educators and thus, trainers, are based upon observation and not empirical evidence. This means that they are assumed to have a positive effect on the learning process. More empirical work is needed to verify these behaviors for more accurate recommendations.

Second, instructional communication research has applied (in theory) many of their communication behaviors to the training context. This literature suggests that trainers should possess immediacy, utilize prosocial strategies, and demonstrate credibility (Beebe et al., 2012). Additionally, a trainer might reduce distance and build liking through affinity-seeking strategies in their delivery, such as being relaxed, having enthusiasm, and being cheerful and pleasant when interacting (Beebe et al., 2012). Finally, this body of literature suggests that trainers should demonstrate credibility, which means that trainers should communicate caring for trainees, competence in their expertise, and honesty in their content and delivery (Finn et al., 2009; McCroskey, Holdridge, & Toomb, 1974). These are some of the many behaviors that may comprise the terms quality of delivery or presentation skills that will be important for trainers to consider. However, few of these have been empirically tested in a training context.

Clearly, communication in a training context is powerful. However, it is unknown what comprises these quality of delivery behaviors. To know its actual power, it is important to identify a clear definition, measure, and associated outcomes of communication. Further, although training occurs in an organizational setting, training can also manifest in a health context. For instance, health interventions often include a trainer who is providing information about healthy or preventative behaviors with a goal to change participants. Thus, the next area of research considered for its work on delivery behaviors is the public health literature.

Public Health Interventions

When seeking behavior change in an individual or population, scholars and practitioners have often turned to public health programs and interventions. Public health has been defined as the "the science and art of preventing disease, prolonging life, and promoting health through the organized efforts and informed choices of society, organizations, public and private, communities, and individuals" (Windslow, 1920, p. 23). To achieve these goals, evidence-based public health practitioners use the best available evidence to make decisions, construct programs, and implement campaigns. One aspect of evidence-based public health includes interventions, which frequently manifest as education programs that are implemented to address a variety of health issues, such as reducing stroke risk by raising awareness and preventing breast cancer by encouraging early screenings (Eldredge et al., 2016). There are a variety of elements that can lead to an intervention program being successful in improving a population's health and quality of life. One such aspect includes whether the intervention is implemented effectively; even if the intervention's content, goals, and structure are sound, the program must also be delivered effectively to change behavior, attitudes, or beliefs.

Scholars have touted both implementation fidelity and quality of delivery as keys to the success of intervention programs because they strengthen the validity of the program by ensuring that outcomes are uniform across the different groups that are receiving the intervention (e.g., Beets et al., 2008; Dunsenbury, Brannigan, Falco, & Hansen, 2003). Indeed, Shin et al. (2014) argued that even evidence-based programs can have weak or null effects when the program is delivered poorly because it is as if participants are not receiving the full treatment. Additionally, Dunsenbury et al. (2003)

argued that studying fidelity and quality of delivery allows researchers to understand why interventions succeed or fail. If they fail because of the dose or information, this requires a different adjustment and solution than if they fail because of implementation. However, despite their practical and theoretical importance, defining, conceptualizing, measuring, and utilizing quality of delivery seems to be a difficult task for researchers and practitioners as no consistent, standardized definition or measure currently exists (Gearing et al., 2010). Thus, the purpose of this section is to review the research on quality of delivery in public health scholarship. Below, I overview the definition, contexts, measurement, and outcomes of quality of delivery.

Defining quality of delivery. Successful implementation includes a variety elements including implementation fidelity. Implementation fidelity (IF) is often defined as whether the intervention is delivered as intended; often, this means that planned instructional strategies are used appropriately (e.g., activities, discussion, or lecture), that the correct length and number of sessions are completed, or that facilitators do not add or remove content from the program (e.g., Breitenstein et al., 2010; Schinckus, Broucke, & Housianux, 2014). As shown in Table 2 (next page), implementation fidelity has been described in several different ways, and as consisting of distinct elements, despite the definitions remaining identical. However, one common element to fidelity is that it includes quality, competence, or effectiveness of the facilitator implementing the intervention. This is often referred to as the quality of delivery (QD) by scholars and it remains to be an underexplored, yet essential aspect of IF. QD refers to how an intervention program is taught, facilitated, or led, and often includes concepts such as enthusiasm and effectiveness (Dane & Schneider, 1998).

Table 2: Definitions and Components of Implementation Fidelity

Source	Term	Definition	Components
Breitenstein et al. (2010)	Implementation fidelity	Intervention being **delivered as intended**	Manuals and **training**
Campbell et al. (2013)	Treatment fidelity	**Delivery** of treatment as **intended**	Manuals, **training**, certification, evaluation, supervision
Gearing et al. (2011)	Intervention fidelity	Core components of interventions are **delivered as intended**	Design, **training**, monitoring delivery, monitoring receipt
Sanchez et al. (2007)	Fidelity of implementation	**Degree** to which a program is **implemented as intended**	Adherence, exposure, **quality of delivery**, participant responsiveness, and program differentiation
Schinckus et al. (2014)	Fidelity	Degree to which the intervention is **delivered as intended**	Intervention complexity, facilitation strategies, **quality of delivery**, participant responsiveness, recruitment, and context

However, as demonstrated in Table 3 (next page), QD has been conceptualized in a variety of ways. Early research on quality of delivery focused on the amount of curriculum that was covered by the presenter (e.g., Botvin, Baker, Dusenbury, Tortu, & Botvin, 1990; Pentz et al., 1990). Findings from this research demonstrated that greater portions of the curriculum covered in the implemented program led to greater outcomes. However, recent scholarship has included definitions referring to the facilitator, presenter, or teacher's quality or effectiveness (e.g., Horner, Rew, & Torres, 2006). Thus, the definition of quality of delivery remains unclear.

Table 3: Definitions of Quality of Delivery

Source	Definition
Abbott et al. (1998)	targeted **teaching** practices delivered with judged fidelity
Botvin et al. (1989)	qualitative measures of teacher **effectiveness** including teacher **effectiveness** and **enthusiasm**
Dane & Schneider (1998)	a measure of qualitative aspects of program delivery that are not directly related to the implementation of prescribed content, such as implementer **enthusiasm**, leader **preparedness**, global estimates of session **effectiveness**, and leader **attitudes** toward program.
Dunsenbury et al. (2005)	ratings of provider **effectiveness** which assess the extent to which a provider approaches a theoretical ideal in terms of delivering program content.
Hansen (1996)	assessed **quality** of the teacher, student **satisfaction** with the program and interaction with the teacher (rating)
Hansen et al. (1991)	ratings of: teachers' **enthusiasm** and extent to which instruction met the **goals** of the program
Harachi et al. (1999)	assessed whether teachers used strategies that contributed to (versus those that detracted from) **high-quality** implementation
Pentz et al., (1990)	how **well** the entire program was implemented
Schinckus et al. (2014)	refers to the **dedication** of the individuals who are responsible for delivering the intervention.
Sobol et al. (1989)	assessed global quality including how **well** the activity did and how well the instructor involved the class in discussion

Context influences definition. Defining QD becomes more complex when the context of the intervention changes what is meant by quality or effectiveness. Further, QD has not been explored widely to identify differences in context and consistent themes. When reviewing previous research regarding QD, it is important to note that some research includes quality of delivery as part of the general evaluation of implementation fidelity. For instance, Peterson, Homer, and Wonderlich (1982) found that out of 539

studies between 1968 and 1980, only 20% assessed fidelity. These numbers are echoed in other contexts as well; for instance, only 18% of clinical treatment studies assessed fidelity, 15% of behaviorally based interventions considered fidelity, and only 6% of studies regarding parenting training included measures of fidelity (Dunsenbury et al., 2003). Further, it is unknown whether quality of delivery was assessed in these reported inclusions of fidelity, but it is likely that quality of delivery has not been considered extensively. To illustrate, Dane and Schneider (1998), found that of 162 intervention studies, only 7% included quality of delivery in their studies. Without considering, measuring, and reporting the quality of delivery, it is difficult to assess whether program effects (or lack thereof) are due to the treatment or content, or the presenter. As Nezu and Nezu (2005) state, the "intervention does not equal the interventionist" (p. 80).

However, it is clear that many of the studies that have included quality of delivery have been in the education context, where intervention implementers are classroom teachers (Dunsenbury et al., 2003; Shin et al. 2014; Lee et al., 2008; Low, Ryzin, Brown, Smith, & Haggerty, 2014; Pettigrew et al., 2016). This context may influence the definition of quality of delivery. For instance, in a school-based intervention program, teachers often have a previous relationship with their students, which can adjust the way that competence, quality, and effectiveness are demonstrated. Or, if programs have discussion groups as part of an intervention, and a group member monopolizes the conversation, then this may prevent adequate engagement from all the group members, which is necessary for the intervention to be successful. Quality of delivery in this instance will differ from a teacher delivering the content. A group discussion method may require effective facilitators to speak less and moderate groups more. The diversity of

methods that are used in the wide array of intervention programs may prevent a clear

conceptualization of quality of delivery.

Additionally, these contexts lead to differences in effectiveness. In general, meta-

analytic reviews focusing on school-based interventions have found quality of delivery to

be a strong contributor to desired outcomes like behavior and attitude change (e.g.,

Wilson, Lipsey, & Derzon, 2003). However, other contexts and the associated effects are

not as clear. These include drug counseling (Barber, Sharpless, Klostermann, &

McCarthy, 2007), parent training (Forgatch, Patterson, & DeGarmo, 2005), and nursing

clinical trials (Stein, Sargent, & Rafaels, 2007). Some have found quality of delivery to

be valuable (Barber et al., 2007), whereas other studies have not found it to influence

outcomes (e.g., Forgatch et al., 2005). In sum, the role of quality of delivery in

intervention programs may depend upon the context and goal of the program. Thus, from

this review, it is possible that QD will vary based on the program.

Outcomes of quality of delivery. Within these contexts, outcomes of quality of

delivery have varied. Several studies have considered delivery more broadly, and have

found several outcomes associated with it. For instance, Wilson et al. (2003) found that

implementation was the second most important variable that contributed to strong effect

sizes, and the most important variable that influenced successful outcomes of school-

based intervention programs. Similarly, Derzon, Sale, Springer, and Brounstein (2005)

found that if problems related to implementation of the intervention were controlled, drug

prevention programs would be 12 times more effective. Other research has suggested that

quality of delivery has a more indirect role. For instance, James Bell Associates (2009)

argued that quality of delivery is a potential moderator between the intervention program

and its desired outcomes. Although all of the material may be covered, if it is delivered poorly, outcomes may also be poor. In contrast, Carroll et al. (2007) argued that quality of delivery enhances the fidelity of the program, which leads to better outcomes. Clearly, implementation can influence the magnitude of intervention programs' success. However, research is needed to confirm quality of delivery's role in implementation and related outcomes.

Measuring quality of delivery. Variation in definition and context means that there will also be diversity in operationalization and measurement. Further, quality of delivery and implementation are not always measured in studies, which makes it difficult to know how it has been measured (if at all). Studies may not measure quality of delivery because it does not seem important or relevant, because resources prevent additional measurement, or perhaps because it is not clearly measured and advocated across the literature. Additionally, the reported measurements of quality of delivery have varied. Two prominent studies offer unclear suggestions on measurement. First, Carroll et al. (2007) stated that measuring quality of delivery may be done through a benchmark, but there are no additional details or references on what such a benchmark means. Second, Durlak and Dupre (2008) suggested that presenters should be evaluated based upon whether they possess necessary skills. The nature of these skills is not reported, and no standard scale is provided. These studies indicate that perhaps researchers and practitioners expect facilitators to possess certain communication skills; these are recognized when seen in presenters, but it may be deemed as unnecessary or unable to be measured.

More specific measures are also varied. Specifically, two primary methods are used: independent observations and self-reports. Pettigrew et al. (2016) measured quality of delivery as a global teaching quality with a single 5-point Likert-type item completed by independent observers. To receive an excellent rating, teachers' overall content, objectives, engagement, and effectiveness were averaged across lessons. Another study asked coders to indicate whether the presenter used lecture, discussion, demonstration, or role play (Shin et al., 2014). This indicated whether quality of delivery influenced outcomes and what type of method was more effective. Pettigrew et al. (2016) argued that observations help decrease bias, have better accuracy, and result in greater variability. Hansen et al. (1991) confirmed this when they reported that the mean self-report from implementers was inflated. However, self-report methods are inexpensive and less time-consuming than observational methods. Additionally, Breitenstein et al. (2010) argued that self-report implementation measures can easily assess adherence, which may be an element of quality, because facilitators can check the activities and goals that they completed. Clearly, there are advantages and challenges to both types of methods for measuring quality of delivery.

Another challenge to measuring quality of delivery is that it may not emerge as a separate factor when combined with other aspects of implementation quality, such as teacher control of the class and student responsiveness (e.g., Hansen et al., 1991; Rohrbach, Graham, & Hansen, 1993). Other studies have found the opposite (e.g., Berkel, Mauricio, Schoenfelder, & Sandler, 2010; Pettigrew et al., 2016). Pettigrew et al. explained that delivery may not be emerging because these events are happening simultaneously. These challenges indicate why quality of delivery is not included as part

of intervention assessment. However, better measurement of quality of delivery is needed before strong conclusions can be made about the importance and influence of it on intervention outcomes. Thus, this research indicates that more work is needed to develop a clear conceptualization and operationalization of quality of delivery.

Summary and Proposed Conceptualization of QD

Taken together, these two literature bases display the challenges and inconsistencies of what, why, and how quality of delivery behaviors influence desired outcomes. As a result of inconsistent definitions, there are a variety of measures for communication behaviors from both lines of research. This also reflects the absence of a theoretical backing for the relationship between presenter characteristics and outcomes, which would provide greater insight into how these communication characteristics influence outcomes like behavior change. To begin addressing this need, the first step is to provide a clear conceptualization of quality of delivery:

> *specific, low-inference presentation characteristics that support depth of information processing by reducing trainees' extraneous load and increasing their motivation to process the information.*

To operationalize QD based on this conceptualization, a scale will be developed using the training and development scholarship, public health literature, and instructional communication research. A review of the instructional communication research will be provided next.

Instructional Communication

To begin, instructional communication is defined as "the process by which teachers and students stimulate meanings in the minds of each other using verbal and

nonverbal messages" (Mottet & Beebe, 2006, p. 5). This definition means that teaching

and learning are communicatively based and are transactional; a transactional perspective

emphasizes the mutual influence of instructors and students. Foundations of instructional

communication include interdisciplinary roots in educational psychology, pedagogy, and

communication (Mottet & Beebe, 2006). Together, these allow instructional

communication scholars to focus on the messages and relationship between teachers and

learners, and these influences on learning.

Although there are no formal constructs that encompass effective delivery

behaviors, there are numerous delivery-based variables that instructional communication

scholars have found to contribute to learning, motivation, and behavior change. I will

briefly describe the conceptualization, operationalization, and outcomes of each of the

following instructional communication variables that may comprise effective delivery:

credibility, immediacy, clarity, humor, rapport, and confirmation. A summary of these

variables can be found in Table 4.

Table 4: Summary of Instructional Communication Variables for Effective Delivery

Author	Construct	Definition
Richmond, Houser, & Hosek (2017)	Immediacy	the degree of perceived physical or psychological closeness between teachers and students and is expressed and perceived as both verbal and nonverbal.
McCroskey & Teven (1999)	Credibility	Perceptions of the believability of a source; consists of competence, caring, and goodwill
Titsworth & Mazer (2016)	Clarity	Low- and intermediate- inference behaviors that assist in selecting, understanding, and remembering the structure and details of information
Booth-Butterfield & Booth-Butterfield (1991)	Humor	Intentionally using verbal and nonverbal messages to elicit laughter, chuckling, or other forms of pleasure, delight, and surprise

Table 4: Summary of Instructional Communication Variables for Effective Delivery
(continued)

Frisby & Buckner (2017)	Rapport	A feeling of mutual trust, bonding, and personal connection derived from both verbal and nonverbal behaviors in the interaction
Ellis (2008)	Confirmation	The transactional process by which teachers communicate to their students that they are valuable, significant individuals.

Credibility. First, credibility is one of the oldest concepts to instructional

communication research. It is defined as the believability of a source, and consists of

three dimensions: competence, trustworthiness, and goodwill (Teven & Katt, 2016).

Competence, or intelligence, is whether a source possesses knowledge in a subject area.

Second, trustworthiness is known as whether the source possesses good character, is

moral, and earns the trust of the audience. Finally, goodwill illustrates the dimension of

whether the source has his or her audience's best interests at heart (Teven & Katt, 2016).

Credibility relies upon the perception of the audience; it is not something that a speaker

has, but something that an audience perceives as a result of what a speaker

communicates. This assumption is true of every instructional communication construct

and influences the way they are defined and measured.

In addition, instructor credibility has been measured in several ways. First, it was

measured as a single factor (Tucker, 1971), then as consisting of two factors, competence

and character (McCroskey & Young, 1981), and then it has been measured using

Aristotle's original conceptualization of ethos, which includes three dimensions

(competence, trustworthiness, and goodwill) (McCroskey & Teven, 1999). McCroskey

and Teven's credibility scale is the most prominent and used in the discipline, and it

consists of 18 items, six for each of the three dimensions. Participants report their

impressions of a person on 7-point semantic differential items (e.g., intelligent/unintelligent for competence, self-centered/not self-centered for goodwill, and honest/dishonest for trustworthiness). Lastly, credibility has been associated with cognitive and affective learning (Finn et al., 2009), and motivation (Frymier & Thompson, 1992) in a variety of cultures (Zhang, 2009). Additionally, credibility has been linked with perceived fairness (Chory, 2007), willingness to participate (Myers, 2004), and reduced learner misbehavior and incivility (Klebig, Goldonowicz, Mendes, Miller, & Katt, 2016). Clearly, credibility is important to include in the conceptualization of a quality of delivery construct.

Immediacy. Second, immediacy is known as one of the most influential teacher behaviors and is defined as "the degree of perceived physical or psychological closeness between teachers and students" (Richmond, Houser, & Hosek, 2017, p. 98). Immediacy is expressed and perceived verbally and nonverbally. Examples of nonverbal immediacy include varying pitch, smiling, speaking loudly and slowly, and having relaxed body movements. Examples of verbal immediacy include using inclusive pronouns, using students' names, and self-disclosing when relevant and appropriate. Immediacy has been measured through the Behavioral Indicants of Immediacy Scale (BII) and the Nonverbal Immediacy Scale Self-Report or Observer Report (NIS-SR/NIS-O) (Richmond et al., 2017). Some of the 28 items for the BII include "This instructor engages in more eye contact with me when teaching than most other instructors," and "This instructor stands in front of the classroom less than most other instructors while teaching." For the NIS-SR scale, some of the 26 items include, "I use my hands and arms to gesture while talking to my students," "I have a relaxed body position while talking to my students," and "I look

directly at my students while talking to them." If the scale is used for a teacher or other report, then the items are adjusted by replacing "I" with the trainer and "my" with "his/her." Finally, immediacy has been found to be associated with a host of positive outcomes, such as perceived credibility (Zhang, 2009), instructor-learner communication beyond the classroom (Zhang, 2006), increased compliance (Burroughs, 2007), reduced incivility (Miller, Katt, Brown, & Sivo, 2014), affective learning (Christophel, 1990), cognitive learning (Witt, Wheeless, & Allen, 2004), behavioral learning (Christensen & Menzel, 1998), and motivation to learn (Christophel, 1990). Thus, when considering what effective quality of delivery behaviors are likely to influence learning or training outcomes, immediacy will be important to include.

Clarity. Third, clarity has been advocated as the most important teacher behavior worth considering by some scholars (Rosenshine & Furst, 1971). One definition states that clarity is "a cluster of teaching behaviors that contributes to the fidelity of instructional messages" (Mazer, 2017, p. 25). Clarity consists of items such as explaining and providing understanding (Bush, Kennedy, Cruickshank, 1977), and vagueness terms, such as mazes, pauses, unexplained content, specification, and transitions (Land, 1979). Clarity has been measured in several ways, including using the Teacher Clarity Scale (TCS), the Teacher Clarity Short Inventory (TCSI) scale, and the Clarity Behaviors Inventory (CBI). The TCS is a one-factor, 15-item scale with no example items in Powell and Harville's (1990) unpublished manuscript. From this scale, Sidelinger and McCroskey (1997) created a scale with written and oral dimensions. In 1998, Chesebro and McCroskey revised TCS and presented the Teacher Clarity Short Inventory, which consisted of one dimension with ten items, such as "my teacher clearly defines major

concepts" and, "In general, I understand my teacher." Participants respond on a 7-point Likert scale ranging from strongly disagree to strongly agree. Finally, the CBI scale was developed for written and oral clarity (Titsworth, Novak, Hunt, & Myer, 2004). Some of the 12 items include, "the teacher explains when she/he is presenting something that is important for us to know" and "the teacher provides written explanations of how the ideas fit together." Participants respond on a 7-point Likert scale ranging from strongly disagree to strongly agree. Outcomes associated with clarity include affective learning and cognitive learning (e.g., Chesebro, 2003; Chesebro & McCroskey, 2001), as well as increased recall, decreased test anxiety (Schonwetter, Struthers, & Perry, 1995) and improved achievement (Chesebro & McCroskey, 1998). Thus, clarity is an important of delivery characteristic when considering outcomes in teaching and training.

Humor. Fourth, humor in the classroom has been studied since 1979 and has been conceptualized as "the intentional use of verbal and nonverbal messages which elicit laughter, chuckling, or other spontaneous behavior taken to mean pleasure, delight, or surprise in the targeted receiver" (Booth-Butterfield & Booth-Butterfield, 1991, p. 206). It has been operationalized as a predisposition or trait, a style, or something that is simply situational and must be both intentional and communicated to an audience (Booth-Butterfield & Wanzer, 2016). Humor, when used appropriately, effectively, and conversationally can lead to learning due to its ability to bring clarity, improve processing, and facilitate motivation through attention getting and positive violations (Wanzer, Frymier, & Irwin, 2010). In addition, humor has been found to positively impact the teacher-learner relationship (e.g., Aylor & Oppliger, 2003). Together, these mechanisms could lead to greater affective and cognitive learning (Booth-Butterfield &

Wanzer, 2016). Other effects of humor include a comfortable classroom environment (Booth-Butterfield & Wanzer, 2016), increased course evaluation ratings (Richmond, Berglund, Epelbaum, & Klein, 2015), and greater perceptions of rapport and immediacy (Aylor & Oppliger, 2003).

Humor has been measured in a variety of ways, including the Humor Orientation (HO) scale, which measures self-reported humor as a communication-based personality trait and includes 17 items such as frequency of humor, responses of others, and perceived effectiveness of the humor (e.g., "I regularly tell jokes when in a group," "People seldom ask me to tell stories," and, "People usually laugh when I tell jokes or funny stories;" Booth-Butterfield & Booth-Butterfield, 1991). Participants respond on a 5-point Likert scale ranging from strongly disagree to strongly agree. Another measure of humor includes the Teacher Humor Scale (THS), which assesses appropriate (e.g., "use humor related to course material," and "tell a joke related to course content") and inappropriate examples of humor (e.g., "uses critical, cynical, or sarcastic humor about general topics (not related to course)" and "makes references to drinking or getting drunk in a humorous way;" Frymier, Wanzer, & Wojtaszczyk, 2008). Participants respond to 41 items using a 5-point Likert scale ranging from very inappropriate to very appropriate. When considering quality of delivery behaviors, humor may be one construct to consider because of its ability to enhance the training/learning experience.

Rapport. Fifth, because learning is often enhanced through a positive instructor-student relationship (e.g., Frymier & Houser, 2000; Nussbaum & Scott, 1980), rapport is one such construct that has emerged to describe this interaction. Rapport has been identified as "an overall feeling between two people encompassing a mutual, trusting, and

pro-social bond" (Frisby & Martin, 2010, p. 147) and consists of enjoyable interaction

(e.g., liking) and personal connection (e.g., unique connection between individuals

beyond functional roles) (Gremler & Gwinner, 2000). Rapport is distinct from

immediacy, credibility, self-disclosure, humor, and liking (Frisby & Buckner, 2017) and

manifests as behaviors such as using names, being personable, communicating courtesy,

using humor, and being credible (Webb & Barrett, 2014).

Further, rapport has been found to positively influence the instructor, the student,

and even the classroom environment (Frisby et al., 2016). Additionally, rapport seems to

influence students' perceptions of teacher credibility (Frisby, Limperos, Record, Downs,

& Kercsmar, 2013) and justice (Young, Horan, & Frisby, 2013). It may also lead to

greater affective learning (Frisby & Martin, 2010), cognitive learning (Frisby & Gaffney,

2015), and motivation (Frisby & Myers, 2008) in students. Finally, rapport has been

measured using the adapted version of the Gremler and Gwinner (2000) Perceptual

Measure scale (PM) and the Professor-Student Rapport (PSR) scale (Wilson, Ryan, &

Pugh, 2010) and includes 11 items such "I enjoy interacting with the professor," and "I

strongly are about my instructor" (PM, Gremler & Gwinner, 2000), and 40 items "My

professor is understanding," and "My professor knows me by name" (PSR, Wilson et al.,

2010). Both of these scales ask participants to respond using a 5-point Likert scale

ranging from strongly disagree to strongly agree. Overall, rapport is an important quality

of delivery element to consider because of its impact on the interaction between the

teacher and student or trainer and trainee, and those effects on actual learning and

motivation in a learning or training context.

Confirmation. Finally, teacher confirmation is defined as "the process by which teachers communicate to students that those students are valuable, significant individuals" (Ellis, 2004, p. 2), and consists of responding to questions, demonstrating interest in learning, using interactive elements in teaching, and refraining from disconfirming behaviors (Ellis, 2000). Teacher confirmation behaviors influence cognitive learning, affective learning, and motivation because of their association with reduced student anxiety (e.g., Schrodt, Turman, & Soliz, 2006). In addition, students perceive confirming teachers as more credible, caring, and knowledgeable about the content (Schrodt & Finn, 2011). Finally, teacher confirmation can influence a positive classroom climate where students feel connected and engaged (Sidelinger & Booth-Butterfield, 2010); as a result, they are less likely to resist the teacher (Goodboy & Myers, 2008). Lastly, teacher confirmation has been measured with the Teacher Confirmation Scale (TCS) and consists of 16 items such as "communicates that she/he is interested in whether students are learning," "indicates that he/she appreciates students' questions or comments," and "makes and effect to get to know students" (Ellis, 2000). Participants respond using a 5-point Likert scale ranging from strongly disagree to strongly agree. From this brief review, rapport and confirmation may influence a variety of outcomes in learners because of its influence on the teacher-student relationship, which may be analogous to the trainer-trainee relationship.

Summary

In sum, these instructional communication variables influence learning and motivation in students and thus, may be considered effective communication characteristics for a teacher or trainer. However, in addition to the issues of definition and

measurement throughout several of these lines of research surrounding quality of

delivery, many of the recommendations about communication strategies that should be

used in training sessions are rooted in a pedagogical framework rather than in an adult

learning framework (i.e., andragogy). For instance, Beebe et al. (2012) described several

delivery characteristics for trainer effectiveness, such as immediacy, nonverbal

communication, and appearance. However, much of the research that supports these

recommendations comes from college student populations rather than adult learners in a

training context. It may not be correct to assume that effective communication skills in an

education setting will still be effective in a training setting. Additionally, little is known

about adult learner's perceptions of trainer communication in a training context. This

means that these lines of research, which make up a substantial foundation of the

recommendations for trainers in multiple settings, may not be the most accurate and

helpful in an adult-trainee context. To give justification for why this research on the

characteristics of trainers may not be extrapolated to adult learners, I will overview the

differences between adult and college student learners.

Adult Learners

When investigating trainer characteristics that influence trainee behavior, it is

important to consider the sample in which such characteristics are explored. For instance,

much research utilizes college student samples because of accessibility and convenience.

However, a traditional college student (often 18-22) is unlikely to be considered an adult

learner by several standards (Beebe et al., 2012. First, most universities denote students

over 25 as adult learners (MacDonald, 2018). Additionally, some students who are

financially independent, work full-time, are a veteran, or have children are also often

considered nontraditional, or an "adult learner" (MacDonald, 2018). Implied in these

expectations may be cognitive development or life experience that distinguishes an adult

from a child, adolescent, or young adult.

Neuroscience seems to support this delineation between adults and young adults

around age 25 by suggesting that the brain is not fully developed until then. Indeed, The

American College of Pediatricians (2016) stated that an individual's brain is still

developing until 23-25 years old, and some neuroscientists have argued that this

continues until 30 years of age (Somerville, 2016). Additionally, most scholars and

physicians agree that the prefrontal cortex is the part of the brain that is still developing;

this aspect analyzes potential decisions, makes plans, regulates impulses, reflects on

behavior, and allows individuals to assume others' perspectives (Somerville, 2016). Thus,

when evaluating whether someone is an "adult" learners it is important to not only

consider age (most legal definitions provide that 18-year-old individuals are considered

adults), but also life experience and development, especially as it relates to learning.

From this brief review, it is unlikely that the average, traditional student will be

considered an adult learner and therefore, when understanding what communication

behaviors are effective in a training setting, it is important to utilize adult learners.

Training and education. In addition to the characteristics of the learners

themselves, it is also important to note that the contexts of training and education are also

distinct. Training emphasizes skill development for the purpose of greater efficiency or

effectiveness (e.g., it focuses on the behavioral domain of learning), whereas education

focuses on knowledge and information transfer (e.g., it emphasizes the cognitive

domain). As a result, training contexts emphasize performing specific skills and tasks and

education centers around broader information with a variety of paths to knowing and broader goals for learning. Additional differences include the length and frequency of interaction between the instructor and learners (Compeau, 2002). In a traditional classroom, students interact with instructors for several hours each week (or every day) for as little as a short 4-week course to as long as several years in college and primary/secondary education settings. In contrast, training sessions are often shorter in length, and sometimes directed by multiple instructors or individuals not part of the organization. The difference in duration affects the presented content as well; training settings are not able to be as theoretical, whereas classroom settings can be. Thus, research generalizing teacher behaviors to the training context may not be as valid and reliable due to these differences.

Some extant research has compared training and education in order to identify similarities and application. For instance, Faylor et al. (2008) found that several instructional variables including clarity and nonverbal immediacy influenced trainees' affective learning. However, verbal immediacy did not influence affective learning. One limitation of this research is that pedagogically-based scales were used to assess whether such variables existed in a training context. If such contexts are distinct, it is possible that new scales need to be developed. Another study by Olson (1994) compared technical trainers with community college instructors. They found that 119 competences were shared by both groups of educators. However, about 65 competences were unique. The scales used to identify similarities and differences were based on training competencies. Thus, if a community college instructor is limited to responding to a measure constructed

for trainers, it could alter the results. This research demonstrates the possibility of application between education and training, but more work is needed.

Moreover, there has not been a lot of research that looks at adult learners specifically. However, one exception is Houser (2004, 2005, & 2006) who found that many of the well-established constructs in the instructional communication field (immediacy, affinity seeking, and clarity) are not perceived in the same way between these groups. These findings support the claim that adult and traditional students may be distinct, and will not respond to teaching behaviors, methods, and strategies in the same way. Additionally, some research has suggested that student samples are not generalizable to the general public because of their early adult life stage and lack of life experience (Peterson, 2001). This is relevant to much of social science research that assesses responses, feelings, and perceptions regarding love, relationships, workplace experiences, and more. Peterson (2001) argued that these early experiences contribute to more flexible attitudes, greater proclivities to comply with authority, and more unstable networks and peer groups. As a result, college student populations are likely to be distinct from adult populations.

Another study found that out of 537 comparisons on basic measures of personality traits, college student samples and the general public were similar on only 23 of them (4%) (Hanel & Vione, 2016). Further, Peterson (2001) conducted a meta-analysis of studies comparing students with adults and found that these groups differed on several constructs such as gender, behavior and attitudes, aggressive behavior as a result of watching television, social desirability, and others. Carefully evaluating whether the student sample may be generalized will ensure that the recommendations and practices

derived from the research are accurate, valid, and reliable for a training or related context. Thus, based on the presented differences between adult learners and traditional students, it is important to include adult learners in the sample.

Phase One Summary and Research Question

Taken together, because there is no clear conceptualization and operationalization of QD, exploring quality of delivery is needed and may improve various intervention outcomes such as quality of life and training outcomes such as compliance. To begin this research, a scale will be developed using the items from the presented literature bases in alignment with the presented conceptualization. Additionally, based on the aforementioned differences between adult- and student-trainees, student-trainees will be included to explore whether findings are comparable. Specifically, to include the most important training behaviors in the scale:

RQ$_1$:   What do adult- and student-trainees perceive to be important behaviors in quality of delivery in face-to-face training?

In addition to unclear conceptualization and operationalization, there is no theoretical framework that links QD behaviors with outcomes such as compliance and motivation. Thus, in the next section I propose cognitive load theory (CLT) and cognitive-affective theory of multimedia learning (CATML) as theoretical frameworks that may provide this explanation.

Cognitive Load Theory

Educational psychologists, instructional communication scholars, training and development experts, and public health practitioners are all interested in how to improve education and training. Several theories, models, and principles have been derived from

these disciplines to provide practical and theoretical insight into training and resulting change. One such theory, cognitive load theory, was developed from a cognitive psychology perspective in 1988 and has been used to understand how information is processed (Sweller, 1988). Now, decades later, this theory has been used to explore learning from an information processing and memory perspective. A summary of CLT and its associated will now be overviewed.

Summary of CLT. Cognitive load theory was developed by cognitive psychologist John Sweller (1988, 1989) in order to understand how individuals use cognitive resources to learn and solve problems. Specifically, CLT posits that individuals must process information and store it in their working memory before it reaches (or does not reach) their long-term memory. In other words, deeply processing the information in working memory must occur before learning happens in the long-term memory.

Additionally, working memory is limited and only small amounts of information can be stored there. Long-term memory is virtually infinite (Sweller, 1988). Whether the information reaches long-term memory depends upon the cognitive load that the individual experiences when processing the information in the working memory. There are three dimensions of cognitive load that may prevent or assist individuals' learning: information difficulty (intrinsic load), how the information is presented (extraneous load), and/or how much effort it takes individuals to process the information (germane load) (Deleeuw & Mayer, 2008). These three loads have either a positive or negative direction that influences whether the information is processed. For instance, intrinsic and extran1eous loads work against the individual; when these loads increase (i.e., when information is difficult and/or not presented effectively), the ability to process and learn

decreases (Jong, 2010). Comparatively, germane load assists the individual to process; the higher the effort to process, the more effective such processing and learning becomes (Jong, 2010). These three dimensions of cognitive load are crucial to understanding the learning process from the CLT perspective; thus, they will be further explored prior to reviewing the theory's applications in research.

Intrinsic load. There are three elements to intrinsic load: the difficulty of the information, the prior experience of the learner, and then based on these items, the resulting element interactivity (Pass, Renkl, & Sweller, 2003; Pass, Tuoveinen, Tabbers, & Van Gerven, 2003). In general, the greater the complexity of the information, the harder it will be for learners to process. However, this may be mitigated based on the prior knowledge or experience of the learner. For instance, if the learner has had previous experience in a difficult subject matter, then the complex information will not be as challenging to process as compared to a learner who has had no prior experience in the subject. Further, these are also influenced by element interactivity. An element is a concept that needs to be learned, and interactivity is how much or how many additional elements are needed to understand the concept (Sweller, 2010). Low element interactivity means that a concept can be learned in isolation, or with little reference to other concepts.

For instance, learning the periodic table requires low element interactivity because each element can be learned independently. Low interactivity imposes a low cognitive load. However, high element interactivity requires that the concept be learned with other elements. An example may include an algebraic formula. Each symbol in the formula may be learned separately, but they will need to be combined together in the formula in order to solve the problem. This would impose a greater cognitive load,

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depending upon the number of elements, the prior experience of the learner, and the complexity of the information (Sweller, 2010). Clearly, intrinsic load is crucial to information processing and learning.

However, it is unknown whether intrinsic load is able to be altered. Sweller (1988, 1989) originally conceptualized intrinsic load as stable and not adjustable. Decades later, Jong (2010) confirmed this notion. However, some researchers argued that this can be adjusted by sequencing or chunking the information presented (Van Merrienboer, Kirschner, & Kester, 2003) or by introducing high element interactivity information in isolated form first before presenting the interacting elements (Sweller, 2007). However, critics have responded by saying that these strategies would constitute extraneous load, or how the information is presented to learners. Currently, there is still debate around whether intrinsic load is fixed or not; however, researchers agree that it is an important element to cognitive load, which can then influence learning.

Extraneous load. As critics suggested, if intrinsic load can be adjusted, it is possible that presenters are actually influencing extraneous load, which is determined by the way that information is presented (Jong, 2010). Presenters have control of this domain and can reduce it by structuring the information, making the goal nonspecific, and avoiding the split-attention effect, which requires learners to read visuals while listening to the presenter, for instance (e.g., Ayres, 1993). Even though Sweller (1988) argued that reducing extraneous load would not improve learning, he did state that reducing this load could free cognitive effort toward processing and learning. Thus, identifying ways for presenters to reduce extraneous load is important for learning.

Additionally, extraneous load can interfere with learning, but only if the material does not impose a heavy intrinsic load (e.g., material is not complex or difficult). If the material is basic, ineffective presenting or instruction will not be as harmful (Sweller, 1989). In addition, Sweller stated that extraneous and intrinsic load combine to influence learner's overall cognitive load. If they are high, then working memory may be overloaded, processing will not be effective, and learning will not occur. If these loads are low, then they may relieve the working memory to better process and learn. Further, extraneous load has been well-explored in research, presumably because it is the easiest to manipulate and adjust.

Educational psychology research has developed instructional strategies that have been shown to reduce extraneous load (e.g., Jong, 2010). Some of these strategies include avoiding redundancy in materials and content, using both auditory and visual elements when introducing an idea, and segmenting course content. Also, instructional communication scholars have recently identified communication strategies that may influence extraneous load. For instance, teacher clarity has emerged as an important predictor of extraneous load decrease (Bolkan, Goodboy, & Kelsey, 2016), and content relevance has been found to influence similar constructs such as motivation to learn and affective learning (Cayanus, Martin, & Goodboy, 2009). Other instructional communication constructs are likely to affect extraneous load, but they remain untested.

Germane load. Germane load consists of what resources and effort are left after the intrinsic and extraneous cognitive loads. It has been conceptualized as a dimension of working memory, and refers to the effort that learners devote to information processing. Specifically, germane load allows learners to develop schema for long-term memory,

which means that germane load is where learning occurs. Contrary to the previous two loads, germane should be promoted and increased rather than minimized. Further, intrinsic and extraneous loads will affect the nature of the germane. If intrinsic and extraneous loads are low, then the germane load will be plentiful, whereas the germane load will be scarce when the other loads are high. Thus, germane load is not independent of the other sources of load.

In addition, the effort of learners is not without motivation, which is why CLT has been used to advocate that too little load is as ineffective as too much cognitive load (Park et al., 2011). Germane load can be influenced by the presenter, but not the same way as extraneous load. For instance, Jong (2010) found that instructors can lead students toward such schema development to increase germane load and subsequent learning. Paas and van Gog (2006) offered several strategies that can increase germane load, such as having students provide an explanation of how they solved a problem, increasing the number and variety of example problems, and randomizing the order of the types of problems given. These strategies require students to use critical thinking skills and retrieve the newly presented information in repeated and different ways.

Taken together, intrinsic load is concerned with aspects of the information, extraneous load emphasizes the presenter of the information and related materials, and germane load focuses on student processing. Instructional practices should seek to manage intrinsic load, minimize extraneous load, and maximize germane load.

Applications and findings of CLT. CLT's unique proposition is that learning is best supported when instruction align with individuals' cognitive architecture. Several strategies have been suggested in light of the theory's application to the learning

environment (for review, see Artino, 2008). Most of these strategies are related to how information is presented: visually, through examples, and with certain goals. These strategies lead to greater learning, engagement, motivation, student satisfaction, and critical thinking (e.g., Artino, 2008; Meissner & Bogner, 2012). In addition, CLT has been applied to medical education to improve performance and prevent medical errors (Young & Sewell, 2015), military tactical teams to improve teamwork (Johnston, Fiore, Paris, & Smith, 2013), and teaching the aging population, which often experiences a cognitive decline (Van Gerven, Paas, Van Merriënboer, & Schmidt, 2002).

Finally, CLT has been applied in training settings, especially simulated training (e.g., Andersen, Mikkelsen, Konge, Cayé-Thomasen, & Sorensen, 2016; Naismith & Cavalcanti, 2015; Sun, Anand, & Snell, 2017), military training (Hutchins, Wickens, Carolan, & Cumming, 2013), police training (Mugford, Corey, Bennel, 2013), and skills-training for physicians (Sewell, Boscardin, Young, Cate, & O'Sullivan, 2017). Overall, CLT's application and findings have led to greater understanding of learning. Implications of using CLT to design and deliver training include greater transfer of training, better recall, and reduced medical error rates.

Phase Two Summary, Research Questions, and Hypotheses

Cognitive load theory, especially the concept of extraneous load, provides a foundation for understanding how communication behaviors or presenter characteristics can influence learning. For instance, CLT would posit that a trainer's quality of delivery behaviors may either increase or decrease extraneous load, which would then affect whether the information is accurately and thoroughly processed. To illustrate, currently, research suggests that credibility increases learning (Finn et al., 2009) and decreased

cognitive load increases learning (Jong, 2010). However, it is unknown how or why

credibility increases learning, but it is possible that credibility increases learning because

it decreases extraneous load. If a presenter is credible, then participants perceive them as

believable, honest, and trustworthy. If an audience is listening to a credible presenter,

then it is reasonable that they would devote fewer cognitive resources than an audience

listening to a noncredible presenter. In addition to understanding the content, the

audience would also be considering whether the information is good, beneficial, or

accurate. This would increase the cognitive resources devoted to reducing extraneous

load, which would then reduce the amount and depth of the information processed. When

exploring the theoretical mechanism that explains how and why a characteristic such as

credibility can influence outcomes such as behavior change or learning, it is possible that

the explanation is provided by CLT, which indicates that delivery behaviors can ease

extraneous load for trainees.

To test CLT as a potential theoretical mechanism explaining the link between

quality of delivery and training outcomes, a reliable and valid measure is needed. Using

the quality of delivery conceptualization, developed scale, and student and adult views on

behaviors discussed previously (RQ_1), the following research question is posed:

RQ$_2$:   Can a reliable and valid scale of adult trainees' perceptions of quality of

delivery for trainers be created?

When developing a scale, it is important to consider whether it measures the

desired variable in an accurate or valid way (DeVellis, 2017). For instance, validity

emphasizes whether the scale measures one specific construct. In this study, the proposed

scale seeks to measure quality of delivery behaviors. One form of validity is construct

validity (DeVellis, 2017). Construct validity is concerned with "the theoretical relationship of a variable to other variables" (DeVellis, 2017, p. 95). To establish this type of validity, tests of convergent validity are often utilized. This requires that the proposed measure should be positively associated with prior measures of similar constructs (Campbell & Fiske, 1959). In the present study, the concept of quality of delivery behaviors is conceptualized as those that reduce the level of cognitive load on learners based on cognitive load theory. Thus, based upon this theoretical framework, and to confirm construct and convergent validity, the first hypothesis and next research question are provided:

H_1:   Effective quality of delivery behaviors will be inversely related to adult trainees' self-reported extraneous load.

RQ_3:   What is the most important perceived quality of delivery factor that influences adult trainees' self-reported extraneous load?

Additionally, in accordance with the theoretical conceptualization of cognitive load, it is unclear whether intrinsic and germane load can be influenced by presenter characteristics. Thus, the next two research questions are posed:

RQ_4:   Are perceived effective quality of delivery behaviors related to adult trainees' self-reported intrinsic load?

RQ_5:   Are perceived effective quality of delivery behaviors related to adult trainees' self-reported germane load?

In sum, CLT provides a possible theoretical link between quality of delivery behaviors and desired outcomes. However, there is another component that explains whether information gets processed: motivation to process the information. The theory

associated with motivation to process, cognitive-affective theory of multimedia learning, will now be overviewed.

Cognitive-Affective Theory of Multimedia Learning

CLT posits that extraneous load should be reduced whereas germane load should be increased. Germane load is defined as the effort it takes to process the information (Jong, 2010). Even if receivers are capable of processing the information because there are few distractions, it does not mean that their extra cognitive resources will be devoted to the information at hand. In other words, it is important to explore presentation characteristics that provide the ability *and* the motivation for learners and trainees to process information. CLT emphasizes presenting information in a way that allows individuals to process it, whereas cognitive-affective theory of multimedia learning (CATML) posits that learning also requires the learner to be *engaged* and *motivated* to process the information. Indeed, "freeing the working memory capacity by designing low load learning environments" does not "necessarily lead to spending the available resources in a productive way" (Park et al., 2011, p. 9). Hence, individuals must feel motivated to use their resources for learning even after these cognitive resources are freed by an effective presenter.

CATML is an extension of Mayer's (2001) cognitive theory of multimedia learning (CTML), which emphasizes the effective use of information to support processing and deep learning. CTML states that people learn more from words and pictures than from words alone. However, pictures must be strategically provided so that they are informative of the content and not distracting, which allows learners to build mental representations of the information (Mayer, 2001). Having relevant visuals and text

allows greater processing in the working memory and integration with prior knowledge; then, the information is able to be stored in the long-term memory. Thus, deep, meaningful learning occurs when information is presented in a way that supports processing of learners' dual channels: visual and auditory (Mayer, 2001).

When researchers felt that the CTML did not sufficiently include motivation as an aspect of learning, the CATML was presented. This theory emphasizes the role of virtual reality, agent-based, and case-based learning, which target a learner's sense of motivation to process the information by making the information appealing and engaging (Moreno, 2006). It possesses several assumptions, which are also shared by other cognitive and motivational theories. Moreno (2006) summarized these seven assumptions as follows.

First, individuals have separate channels of processing visual and auditory information. Second, limited amounts of information can be actively processed because of the limited working memory within each of the visual and auditory channels. This means that when too many visuals and audio components are used, listeners will not be able to process all of it (e.g., lots of text and visuals on PowerPoint slides in addition to narration). Third, true learning occurs when there is a conscious effort spent on selecting, organizing, and integrating information with existing knowledge. In other words, learning requires processing. Fourth, the long-term memory holds both past information and the ability for new knowledge in a dynamic and fluid way. Fifth, motivational factors are crucial to learning by determining levels of cognitive engagement. This means that cognitive engagement to process information is influenced by motivation. Sixth, metacognition mediates learning by controlling cognitive processing and affect. Finally, learners may differ in their prior knowledge, which affects new learning with different

media types. Together, these assumptions provide an explanation for the role of accurate,

thorough processing, and the motivation to do so as an important role in learning. Visuals

of both of these theories are displayed in Figure 1 and 2.

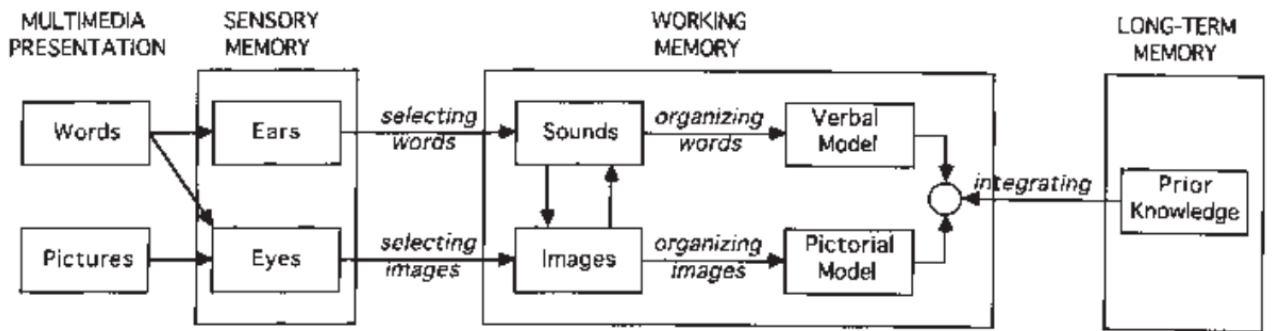Figure 1: Cognitive theory of multimedia learning (CTML, Mayer & Moreno, 2003).
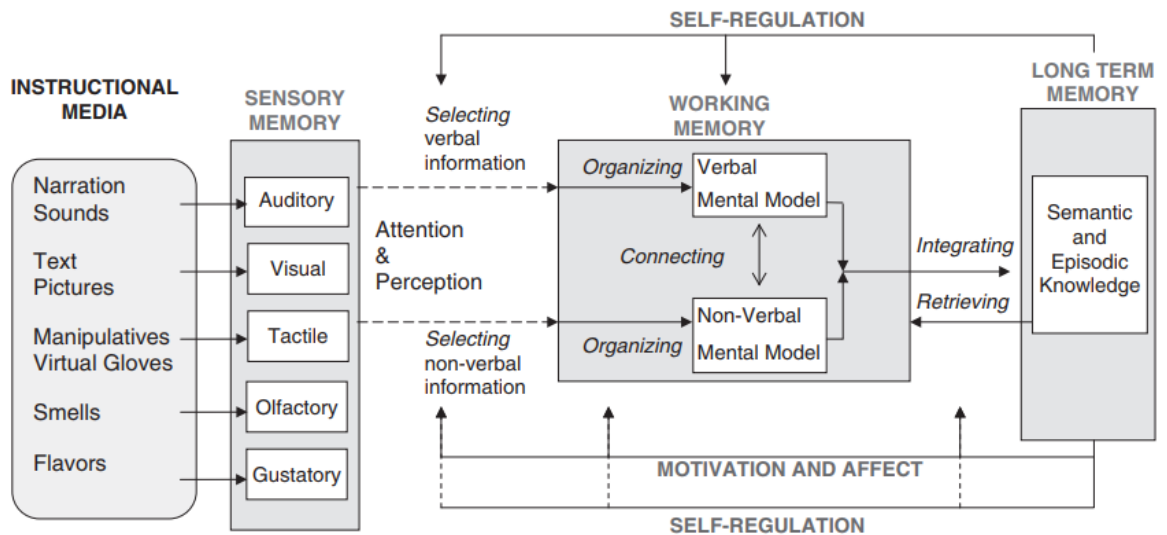

Figure 2: Cognitive-affective theory of multimedia learning (CATML, Moreno, 2006).

Although CATML theory has not been tested substantially since its inception in

2006 (Moreno, 2006), other scholars support the role of motivation in processing and

learning. For instance, Mayer and Estrella (2014) found that using emotional design

principles (e.g., personifying elements with human-like features and using appealing color) in instructional design can increase motivation to process material, which increases retention and performance. Plass, Heidig, Hayward, Homer, and Um (2013) found similar results when they discovered that using emotional design principles influence the way that learners perceive the task, their motivation, and their actual comprehension.

In another study, D'Mello, Lehman, Pekrun, and Graesser (2013) found that inducing confusion effectively, along with interactive elements and emotional design may lead to greater performance and achievement because confusion can inspire learners to better process a concept. Further, theories of elaboration, such as the elaboration likelihood model, support the notion of motivation being a necessary but insufficient element to the likelihood and depth in which information is processed and then, learned, recalled, and applied (Petty & Cacioppo, 1986). Finally, Bolkan et al. (2016) incorporated CATML in their study and found that teacher clarity interacted with motivation to increase test scores. Indeed, clarity alone did not necessarily improve learning, but when students' motivation to process was also present, test scores differed by 22%. Implications of this research may be summarized as: enhancing instruction by enacting quality of delivery behaviors could lead to greater learning by targeting learners' *ability* to process, but quality of delivery characteristics that target their motivation to process are also important because they provide learners with the energy and interest to process the information, which then leads to greater learning.

Thus, to test CATML as a secondary theoretical framework that explains the link between QD and training outcomes, a reliable and valid measure will be constructed (RQ$_1$). To further validate this scale, convergent validity will be established (DeVellis,

2017). This requires that the QD measure be positively associated with measures of similar constructs (Campbell & Fiske, 1959). Specifically, the concept of QD is conceptualized as characteristics that increase motivation to process based on CATML. Thus, based upon this framework, and to confirm convergent validity, the next hypothesis is posited:

H_2: Perceived effective quality of delivery behaviors will be positively related to adult trainees' self-reported motivation to process the information.

Summary. Taken together, CLT and CATML are rooted in a cognitive processing framework and illustrate the importance of source characteristics and their influence on both reduced distraction and increased motivation for enhanced processing. Both theories suggest that the source of a training or intervention influences the ability and motivation of a receiver to process and learn the information. To begin investigating whether these theories will provide a theoretical link between delivery behaviors and desired outcomes, a reliable and valid scale will be constructed. These findings, together with a developed QD scale, will lead to these theories being tested as an explanation for how and why QD influences outcomes in adult learners. To further explicate these relationships, the proposed model will now be presented.

Phase Three: Scale Validation and a Proposed Model of QD

Thus far, various quality of delivery behaviors from a variety of literature bases have been presented along with expected relationships between these behaviors and individuals' cognitive load and motivation to process as described by CLT and CATML. Exploring behaviors that may increase motivation and decrease distraction, and thus, support information processing, may provide theoretical support for why such presenter

characteristics are effective in training contexts. These proposed associations between quality of delivery and cognitive processing provide a framework for these theories to be tested as part of a model of QD; they also establish greater validity for the QD scale.

Another aspect of scale validation is predictive validity, which tests whether a scale can accurately predict outcomes for another construct (DeVellis, 2017). In the current study, predictive validity of the QD scale will establish that the developed QD scale is able to predict outcomes such as compliance, motivation, and satisfaction. Thus, to further test whether CLT and CATML provide the theoretical link between quality of delivery behaviors and outcomes and to establish predictive validity, I will discuss the desired outcomes and expected relationships, and present the complete model of QD below.

Intention to comply. When considering training and intervention contexts, compliance with the proposed information is often a goal. Compliance may be conceptualized as a desired change in observable behavior in response to an influence attempt. For instance, if a presenter attempts to direct a group of people to increase their water intake, any increase in water intake is a sign of compliance. Compliance-gaining has been explored since Aristotle's conceptualization of persuasion (ethos, pathos, and logos). It has been considered in the context of health (e.g., Song, Stockwell, Floyd, Short, & Singh, 2013), the classroom (e.g., Goodboy & Goldman, 2016), and organizational communication (e.g., Hellweg, Geist, Jorgensen, & White-Mills, 1990). Understanding how to gain compliance may be important for reducing the spread of disease, improving a classroom climate, and maintaining organizational safety through

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workplace training. In other words, compliance is a crucial outcome for training and intervention contexts.

Current research has presented a variety of elements that have been known to improve compliance, such as presenter characteristics, liking for the source, similarity, and physical attractiveness (O'Keefe, 2016). Additionally, extant research has considered extraneous load and learning (Jong, 2010), but not extraneous load and compliance. However, if both learning and compliance require behavior change, then it is reasonable that extraneous load may influence compliance as well. Like learning, behavior change or compliance often begins with cognitive processing and storing of information. Then, actual behavior may change. If an individual is distracted by the presenter, or does not have the affective or motivational drive to utilize cognitive resources effectively, then it is unlikely that compliance will be an outcome. In other words, people cannot comply with information they cannot process, which can be made more difficult by how it is presented. Thus:

H_3:   Perceived quality of delivery behaviors will be positively related to adult trainees' self-reported intention to comply.

H_4:   Adult trainees' self-reported extraneous load will be inversely related to their intention to comply.

H_5:   Adult trainees' self-reported motivation to process will be positively related to intention to comply.

RQ_6:   What is the most important perceived quality of delivery factor that influences adult trainees' self-reported intention to comply?

RQ7: Do adult trainees' self-reported intrinsic or germane load influence

intention to comply?

Figure 3 below depicts these predicted relationships and research questions:
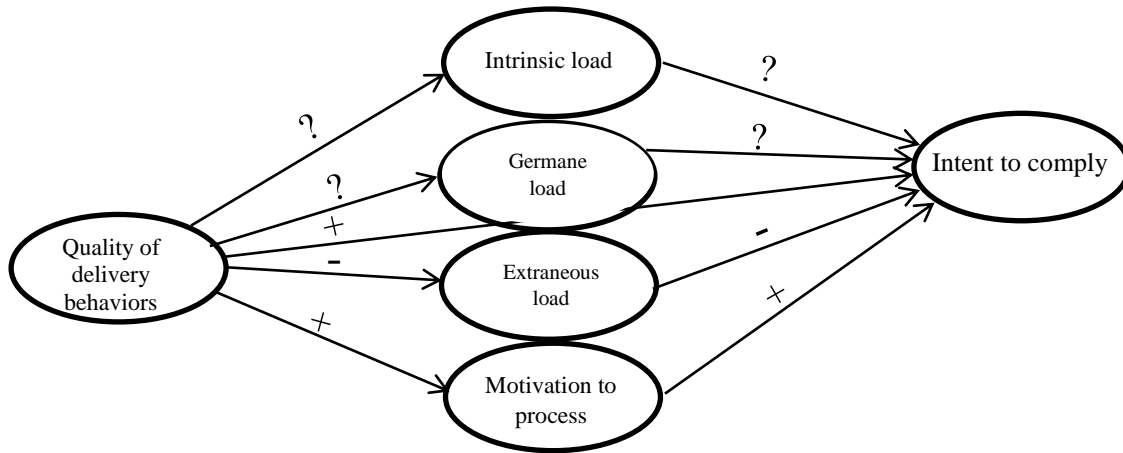
Figure 3: Proposed model of QD behaviors, cognitive load, and intent to comply.

Summary. In sum, there were three phases of data collection. The first phase

sought to begin the scale development process by identifying what trainer delivery

behaviors are most important to student- and adult-trainees. Based upon the established

differences in students and adults, and the necessity to include adults in the current study

for external validity, the second phase continued QD scale development and validation

procedures with adult-trainees only. Specifically, an exploratory factor analysis was

conducted using the newly developed scale of quality of delivery behaviors. In addition,

this phase established construct and convergent validity by testing predicted associations

between, and research questions about, quality of delivery behaviors, extraneous load,

and motivation to process. The third phase included a confirmatory factor analysis on the

scale, established predictive validity for the QD scale, and tested a theoretically derived

QD model. Methods for each of these phases are presented next.

CHAPTER THREE: METHODS

Phase One: QDS Development and Item Generation

To answer RQ$_1$ regarding what students and adults perceive to be important quality of delivery behaviors in face-to-face training and to begin scale development, the first phase developed an initial item pool. In accordance with DeVellis' (2017) suggested scale development procedures, item generation should begin after a clear, theoretically-driven, and specific concept is first identified (in this case, quality of delivery). This was done in chapter two when QD was conceptualized as "specific, low-inference presentation characteristics that support depth of information processing by reducing trainees' extraneous load and increasing their motivation to process the information." Then, items should be generated to fit this conceptualization. To ensure valid and reliable items, the items should reflect the scale's purpose, have strategic redundancy without becoming extraneous, and be numerous enough to include all necessary elements without fatiguing participants (DeVellis, 2017). Hence, an initial item pool should be a "rich source from which a scale can emerge" (DeVellis, 2017, p. 118). Details of the item generation procedures are provided below.

Item generation. The initial item pool was generated from first reviewing research from instructional communication, training and development, educational psychology, and public health. Because the conceptualization of quality of delivery is based upon trainee or participant perceptions of the trainer, only constructs using such perceptions were reviewed (i.e., no self-report scales from the presenter/trainer/implementer perspective were selected). Additionally, constructs had to emphasize low-inference delivery behaviors, not instructional strategies or content of the

intervention. Low-inference delivery behaviors are those that can be objectively quantified, observed, and measured to reduce interpretation and increase accuracy (e.g., the trainer clearly previewed the main points of the training; Titsworth & Mazer, 2016). These are in contrast to intermediate or high inference behaviors, which are often vague and open to subjectivity (e.g., the trainer was clear; Titsworth & Mazer, 2016). The following outlines the process by which items were selected.

First, the quality of delivery literature referenced characteristics such as preparation, enthusiasm, and effectiveness (e.g., Botvin et al., 1989; Dane & Schneider, 1998). Because there was no theoretical framework or reliable and valid scale in this literature, I first looked for similar themes in the training literature. This literature emphasized credibility, immediacy, clarity, and appearance as part of what makes effective trainers (e.g., Beebe et al., 2012). Conceptually, credibility is similar to the concept of preparation, enthusiasm is similar to immediacy, and effectiveness might be seen as clarity. However, the training research did not possess any theoretical framework or valid scales, so the next step was to assess the instructional communication literature for these same attributes. In this research, there were several scales that validated the characteristics mentioned in both the quality of delivery and training and development scholarship: immediacy, credibility, and clarity. Thus, Richmond, McCroskey, and Johnson's (2003) measure of other-perceived nonverbal immediacy scale, McCroskey and Teven's (1999) credibility scale, and Chesebro and Martin (1998) and Titsworth, Novak, Hunt, and Myer's (2004) clarity scales were selected. Each of these scales emphasize low-inference behaviors of a presenter and have been used in studies assessing learning as the outcome. Thus, they fit the purpose of the study.

Additionally, the quality of delivery and training and development research both cited education research, so a thorough review of low-inference teaching behavior scales in education was conducted. As a result, Murray's (1983) low-inference classroom teaching behaviors was selected. This scale has been used to understand college teaching effectiveness, which is similar to the role of a trainer or presenter in an intervention context. It includes factors such as clarity, enthusiasm, interaction, organization, pacing, speech, and rapport. Some of these provided some overlap to the previous items, but were kept to identify which item best fit the context (e.g., Murray's teaching behaviors emphasized clarity through giving examples, whereas Chesebro & Martin's measure of clarity focused on previewing, transitioning, and reviewing). Thus, this scale was complementary as it assessed enthusiasm, which is mentioned in both the quality of delivery and training literature.

Finally, the training research emphasized trainer appearance (Beebe et al., 2012), suggesting that trainers be dressed professionally, have a well-kept and clean appearance, and be attractive. These were not in the form of valid and reliable scales, so these items were constructed for this study (e.g. "it is important that the trainer to: 1) be dressed professionally, 2) have a well-kept and clean appearance, and 3) be attractive").

Because quality of delivery behaviors are those that improve learning by reducing the level of effort to process information, and because such constructs as clarity (Bolkan et al., 2016), immediacy (e.g., Chesebro, 2003), and credibility (Finn et al., 2009) have been found to improve learning in classroom contexts, these items demonstrate conceptual and operational fit for the study. Further, because quality of delivery is often

manifested in a trainer or educator, the teacher behaviors inventory scale and the

professional appearance items appropriately fit the context and purpose of the study.

  Modifications. The primary modification was that any reference to presenter or

instructor was replaced with the word "trainer." Additionally, in accordance with RQ_1,

scales were adjusted to be consistent by including the stem "it is important for the trainer

to." For instance, the original credibility scale asks participants to report whether their

instructor has the provided characteristics (e.g., intelligent/unintelligent). The proposed

scale was adjusted to ask participants how important it is for *trainers* to have these

characteristics (e.g., intelligent/unintelligent). However, later, in phase two and three, the

stem was changed to a 5-point Likert-type scale asking trainees to report levels of

frequency of the behaviors. This reflects the purpose of these phase to and three: to

establish convergent and predictive validity, and to test a model of QD. The final, initial

item pool is presented in Table 5.

Table 5: Initial Item Pool

Immediacy (Richmond, McCroskey, & Johnson, 2003)
It is important for the trainer to:
1. Use their hands and arms to gesture while talking.
2. Touch others on the shoulder or arm while talking to them.
3. Use a monotone or dull voice while talking.
4. Look over or away from others while talking to them.
5. Move away from others when others touch them while talking.
6. Have a relaxed body position when talking.
7. Frown while talking.
8. Avoid eye contact while talking (e.g., look at notes, the powerpoint, or away from trainees).

Table 5: Initial Item Pool (continued)

9. Have a tense body position while talking.
10. Sit close or stands close to people while talking.
11. Use gestures when they talk.
12. Haves a bland facial expression when they talk.
13. Move closer to people when they talk to them.
14. Look directly at people while talking to them.
15. Be stiff when they talk to people.
16. Have a lot of vocal variety when they talk.
17. Avoid gesturing while talking to people.
18. Lean toward people when they talk to them.
19. Maintain eye contact with people when they talk to them.
20. Try not to sit or stand close to people when they talk with them.
21. Lean away from people when they talk to them.
22. Smile when they talk.
23. Avoid touching people when the trainer talk with others.
24. Use a conversational style when talking with trainees.
Credibility (McCroskey & Teven, 1999)
1. Be intelligent
2. Be trained
3. Care about me
4. Be honest
5. Have my interests at heart
6. Trustworthy
7. Be an expert
8. Be not self-centered
9. Be concerned with me

Table 5: Initial Item Pool (continued)

10. Be honorable
11. Be informed
12. Be moral
13. Be competent
14. Be ethical
15. Be sensitive
16. Be genuine
17. Be understanding
Clarity (Chesebro & McCroskey, 1998)
1. Clearly define major concepts (explicitly states definitions, corrects partial or incorrect student responses, refines terms to make definitions more clear).
2. Clearly answer the trainee's questions.
3. In general, I understand the trainer.
4. Projects or activities assigned for the training session have unclear guidelines.
5. Provide clear objectives for the training session.
6. Be straightforward in his or her training.
7. Give clear defining guidelines for activities or assignments outside of the training.
8. Use clear examples (he/she uses interesting, challenging examples that clearly illustrate the point. He/she refines unclear trainee examples. He/she does not accept incorrect trainee examples).
9. Use clear communication.
10. Use explicit instruction.
CBI (Titsworth)
1. Verbally stress important issues presented in the lecture.
2. Provide written examples of topics covered in the training session in the form of handouts or visual materials (e.g., powerpoint, overheads, or chalkboard).
3. Give an organization of the training in written form, either on paper or as part of a visual aid like an overhead or the whiteboard.

Table 5: Initial Item Pool (continued)

4. Tell us what definitions, explanations, or conclusions are important to make note of.
5. Explain how we are supposed to see relationships between topics covered in the training.
6. Provide us with written descriptions of the most important things in the training.
7. Explain when she/he is presenting something that is important for us to know.
8. Provide us with written or visual definitions, explanations, or conclusions of topics covered in the lecture.
9. Verbally identify examples that illustrate concepts that we are supposed to learn from the training.
10. Present written explanations of how ideas in the training fit together on the chalkboard, overhead, powerpoint, or in handouts.
11. Explain when he/she is providing an important definition or explanation of a concept.
Teacher Behaviors Inventory (Murray, 1983)
1. Give several examples of each concept
2. Use concrete everyday examples to explain concepts and principles
3. Define new or unfamiliar terms
4. Repeat difficult ideas several times
5. Stress the most important points by pausing, speaking slowly, raising voice, and so on
6. Use graphs or diagrams to facilitate explanation
7. Point out practical applications of concepts
8. Answer trainees' questions thoroughly
9. Suggest ways of memorizing complicated ideas
10. Write key terms on whiteboard
11. Explain subject matter in familiar colloquial language
12. Speak in an expressive way
13. Move about while training
14. Walk up aisles beside trainees

Table 5: Initial Item Pool (continued)

15. Gesture with head or body.
16. Tell jokes or humorous anecdotes
17. Avoid reading training verbatim from prepared notes or text
18. Smile or laughs while training
19. Avoiding showing distracting mannerisms
20. Encourage trainees to ask questions or make comments during training
21. Criticize trainees when they make errors
22. Praise trainees for good ideas
23. Ask questions of individual trainees
24. Ask questions of trainees as a whole
25. Incorporate trainees' ideas into training
26. Present challenging, thought-provoking ideas
27. Use a variety of media and activities in training
28. Ask rhetorical questions
29. Use headings and subheadings to organize training
30. Put outline of training on blackboard or overhead screen
31. Clearly indicate transition from one topic to the next
35. Give preliminary overview of training at beginning of session
36. Explain how each topic fits into the training as a whole
37. Review topics covered in previous training at beginning of each session
38. Periodically summarize points previously made
39. Avoid dwelling excessively on obvious points
40. Avoid digressing from major theme of training
41. Avoid covering very little material in training sessions
42. Ask if trainees understand before proceeding to next topic
43. Stick to the point in answering trainees' questions

Table 5: Initial Item Pool (continued)

50. Avoid stutters, mumbles, or slurring
51. Speak at appropriate volume
52. Speak clearly
53. Speak at appropriate pace
54. Avoid saying "um" or "ah"
56. Address individual trainees by name
57. Announce availability for consultation outside of session
58. Offer to help trainees with problems
59. Show tolerance of other points of view
60. Talk with trainees before or after class
Trainer Appearance (Beebe, Mottet, & Roach, 2012)
1. Be dressed professionally.
2. Have a well-kept and clean appearance.
3. Be attractive.

Phase One Method

Procedures. After receiving IRB approval, student-trainees and adult-trainees were recruited through snowball sampling. First, my professional contacts received an IRB-approved email requesting participation or assistance in recruitment. Eligibility criteria for students included being a traditional student (18-22 years old) and having attended a face-to-face training. Eligibility criteria for adult-trainees included being a nontraditional student or non-student adult (e.g., over 25 years old, faculty member, staff member, or industry employee) that attended a face-to-face training. Through the contacts, approximately 200 students and 25 adult-trainees were contacted; however, only 8 students and 12 adult-trainees agreed to participate.

Participants. A total of eight student-trainees and 12 adult-trainees participated in three focus groups that lasted for an average of 60 minutes each. The first group had six adult-trainees, the second group had eight student-trainees, and the last group had six adult-trainees. The student participants ranged in age from 18 to 20 ($M = 18.88$, $SD = .83$), and identified as male (25%) or female (75%). The average length of the training they reported on was 2.3 hours, with 87.5% of them reporting the training was mandatory (e.g., required for their position, such as a diversity training). All trainings used visual aids, which mostly consisted of PowerPoint (83%) and handouts (50%); the average length of time elapsing between the attended training and the focus group was 7 months.

The adult-trainee participants ranged in age from 25 to 68 ($M = 36.7$, $SD = 13.79$) and identified as male (50%) and female (50%). Adult-trainees reported being faculty (42%), staff (42%), and instructors (16%). The average length of their training was 8 hours, with 25% of them reporting the training was mandatory (e.g., training for a job). All trainings used visual aids, which mostly consisted of PowerPoint (83%) and some handouts (50%); the average length of time elapsing between the attended training and the focus group was 5.8 months. There was no incentive for participation, but refreshments were provided.

Data Collection. Cognitive interviews or focus groups are used to assess individuals' thoughts and feelings toward a stimulus, with the intention of understanding how future respondents will interpret the same stimulus (Knafl et al., 2006). For instance, when developing scales, is important to consider how participants will read, process, and respond to items. Using cognitive interviews allows researchers to ensure that scale items are being read and completed in the way that they were designed. Hence, this method is

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increasingly being used to improve measurement design because of its usefulness in ensuring that items are well-designed with the population in mind (Knafl et al., 2006). Better designed measures will only ensure that participant responses are more valid and accurate, which will boost the validity and utility of the findings. A focus group typically includes a group of 5 to 12 people who are invited to participate in a facilitated discussion about a particular topic (Kreuger & Casey, 2009). Focus groups are best for common experiences, topics that are not sensitive, and ideas that are best discussed in a group format where participants can interact as they provide responses. Because organizational and institutional training is not a sensitive topic and is often experienced by a group, focus group cognitive interviews were the best method for the proposed study.

After participants were recruited, a neutral, private conference room on the author's campus was selected to conduct the focus groups. The author created a packet for participants, which included the consent form, a demographics questionnaire, and the set of selected scales for discussion (see Appendix A). Semi-structured cognitive interview protocols around the selected scales were used for each focus group (see Appendix B). Semi-structured cognitive interviews allow for themes to emerge and participants to interact over similarities and differences in responses (Fowler, 2009; Lindlof & Taylor, 2002). In addition, cognitive interviews seek to deeply understand the perceptions, thoughts, feelings, and responses to a stimulus, such as questionnaire items, which is important for the current topic of quality of delivery (Knafl et al., 2007). The author took notes and recorded the focus group session for analysis.

Once all participants arrived and were welcomed, the author turned on the recorder, introduced herself, and provided information about the purpose of the study.

Then, the participants were asked to complete consent forms and demographics. Once this was complete, the author provided the sample scales for the participants and followed the interview guide. At the conclusion of the session, the author asked if the participants had any questions, and thanked them for their participation. The audio recorder was turned off.

Revisions were made to the QD scale based on the cognitive interviews. These results are reported in Chapter Four.

Phase Two: Exploratory Factor Analysis and Convergent Validity

The primary purpose of this phase is to test H_1 and H_2 and to answer RQ_2-RQ_5 (p. 57). In doing so, convergent validity for the QD scale will be established using the scale described and revised during Phase One. To do this, an exploratory factor analysis (EFA) will be conducted; EFA is an approach to consider the internal validity of an instrument (Tabachnick & Fidell, 2000). It can be used to explore theoretical constructs, factors, or dimensions that may be represented by a set of scale items. It is also used to evaluate the quality of scale items as they relate to the other items that seek to measure one overarching construct (Tabachnick & Fidell, 2000). Using EFA assists researchers in understanding what items and factors should remain in a measure and which should be removed; this can further refine an instrument. Additionally, this phase seeks to establish convergent validity for the QD scale. Establishing convergent validity will strengthen the proposed scale because it will confirm that the targeted construct (QD) is being measured in an accurate way. The method for phase two will be presented next.

Phase Two Method

     Procedures. After receiving IRB approval, participants were recruited through

snowball and convenience samples. The author had three methods of data collection.

First, the author's professional contacts received an email or social media post inviting

them to participate and requesting assistance with recruitment. Second, the author utilized

the ResearchMatch.org website, which is a free tool for researchers to advertise their

studies for volunteer participants. Third, a departmental research pool was used; students

over 25 were invited to participate for a small amount of grade points (<5% of the overall

grade). Together, approximately 50,000 people were contacted.

     Eligibility criteria required that adult-trainees be 25 years or older and have

completed a face-to-face training in the past 6 months. The survey was administered from

the beginning of September to the beginning of October (4 weeks). Participants accessed

the online survey via a Qualtrics link in the IRB-approved email. After providing online

consent and completing demographics, participants responded to the revised pilot version

of the QD scale and several measures of cognitive load and motivation to process (see

Appendix C). Upon completion, they were thanked. No incentives were offered, except

for those students who went through the departmental research pool. Per departmental

policy and as approved by IRB, they fulfilled required research credit for participating.

     Data cleaning. The final sample ($N = 378$) is a result of cleaning the data from 455

original participants. Participants that did not complete at least 70% of the survey ($n =$

77) were removed from the sample. Next, Z-scores, 3.29 standard deviations beyond the

mean, were calculated for each scale used in the survey in order to identify participant

responses that were deemed outliers. Seven participants were removed due to consistent Z-scores lower than -3.29. None of the participants had Z-scores above 3.29.

Participants. A total of 378 adult-trainees participated in the survey. Previous research testing new scales (with 50-90 items) using EFA and CFA had sample sizes ranging from 230 to 400 (e.g., Bolkan, 2015; Kaufmann, Sellnow, & Frisby, 2016; LaBelle & Johnson, 2018). Thus, this sample is sufficient for scale development procedures. The adult-trainees ranged in age from 25 to 82 ($M = 48.69$, $SD = 14.48$), identified as male (24.3%), female (71.7%), or other (.8%), as well as White/Caucasian (86.3%), African-American (3.5%), Hispanic (3%), Asian (1.3%), and other (2.8%). Twelve participants (.03%) chose not to disclose their demographic information. The average length of training was 10.93 hours, with 52.0% of them reporting that the training was mandatory. Nearly all trainings used visual aids (99.96%), which mostly consisted of PowerPoint (76%). Finally, the length of time elapsing between the attended training and the survey was under one month (41.4%), one to three months (33.7%), and four to six months (24.8%).

Measures

Quality of delivery behaviors. The QD scale is discussed in the phase one results on pages 95-98, and in more detail, including α, M, and SD, in Table 9 on pages 100-102.

Extraneous load. Based upon Cierniak, Scheiter, and Gerjets (2009) and Klepsch, Florian, Schmitz, and Seufert's (2017) measures of extraneous load, four items were developed. The first item asked, "How difficult was it for you to understand the training?" Participants responded on a 5-point Likert scale ranging from not at all difficult to extremely difficult. The second item stated, "During this training, it was hard

to identify the important information." The third item read, "The design of this training made it difficult for me to understand the content." Finally, the last item stated, "The delivery of this training made it difficult for me to understand the content." Participants responded on a 5-point Likert scale ranging from strongly disagree to strongly agree. The scale was reliable in this study ($\alpha = .76$, $M = 7.19$, $SD = 3.34$).

Germane load. Based upon Jong's (2010) review of germane load measures, and consistent with previous research (e.g., Cierniak et al., 2009; Gerjets et al., 2006; Jong et al., 1999), one item was used to measure germane load. The item asked, "How hard did you have to work to understand the training content?" Participants responded via a 5-point scale ranging from not at all hard to very hard ($M = 2.22$, $SD = 1.14$).

Intrinsic load. Intrinsic load was measured through one item based upon Bolkan et al. (2016) and Paas's (2010) use of the mental effort rating scale. The item read: "How difficult would the content have been to understand if it was delivered in an ideal manner (e.g., by an excellent trainer, in a way that was easy to understand, etc.)?" Participants responded on a 7-point Likert scale ranging from very easy to very difficult ($M = 2.47$, $SD = 1.6$).

Motivation to process. Four items were adapted for the current study based on Bolkan et al.'s (2016) measure of motivation to process, which has shown to be reliable ($\alpha = .94$). Participants responded on a five-point Likert scale ranging from not at all true to very true to the following items: "I was motivated to think deeply about what is being taught in this training," "I was motivated to thoroughly study the ideas being delivered in this training," "I was interested in concentrating meaningfully on this training," and "I cared about really learning the content in this training." Items were adapted by changing

the word "course" to "training." The scale was reliable in this study: $\alpha = .92$, $M = 16.75$,

$SD = 3.59$.

Phase Three: Confirmatory Factor Analysis, Model Testing, & Predictive Validity

The third and final phase seeks to conduct a confirmatory factor analysis,

establish predictive validity for the QD scale, and test a model of quality of delivery (i.e.,

answer H_3-H_5, and RQ_6 and RQ_7). First, confirmatory factor analysis (CFA), like EFA,

assists researchers in establishing the internal validity of a scale, helps investigate

theoretical constructs that are represented in the scale items, and improves the quality of

the scale items and overall instrument. However, in contrast to EFA, CFA seeks to

confirm a priori, theoretical, empirical predictions of the factors of a measure. Hence, in

this phase, the refined measure from phase two will be used to identify whether this

instrument continues to present similar factors. Doing this strengthens the utility and

validity of a scale by testing it in several samples.

Second, this phase will test a theoretical model of QD, which will provide insight

into whether cognitive load theory and cognitive affective theory of multimedia learning

explain the mechanism between quality of delivery behaviors and training outcomes.

Third, predictive validity is sometimes known as criterion validity, and establishes

validity by evaluating whether the scale has an empirical association with a criterion

(DeVellis, 2017). For instance, the QD scale would have predictive validity if it is found

to predict reduced extraneous load, greater motivation to process, and increased

compliance. These results would demonstrate further utility and accuracy of the scale.

Phase Three Method

      Procedures. After receiving IRB approval, participants were recruited through snowball and convenience samples. As in phase two, the author used two different methods to ensure a diverse and adequate sample. First, the author utilized her professional network through email and social media channels to invite participation and request assistance with recruitment. Next, the author utilized the ResearchMatch.org website to advertise the study. Together, approximately 48,000 people were contacted. Additionally, as in phase two, trainees had to be 25 years or older and must have completed a face-to-face training in the past six months. The survey was administered from the end of October to the beginning of November (2 weeks). Participants completed the survey via an online Qualtrics link. After providing consent, participants completed demographic questions related to their training experience, and then completed the final version of the QD scale and a variety of measures assessing intent to comply, cognitive load, and motivation (see Appendix D). Upon completion, they were thanked. Participants did not receive an incentive for their participation.

      Data cleaning. The final sample ($N = 313$) is a result of cleaning the data from 330 original participants. Participants that did not complete 100% of the survey ($n = 17$) were removed from the sample because AMOS cannot produce a model for any missing cases in the data. Next, Z-scores and 3.29 standard deviations beyond the mean were calculated for each scale used in the survey in order to identify participant responses that were deemed outliers. None of the participants had consistent Z-scores above 3.29 or below -3.29.

Participants. Three-hundred thirteen ($N = 313$) adult-trainees participated in the phase three survey. A sample size of 200 reflects the mean sample size in structural equation modeling studies (Kline, 2016); thus, this sample is sufficient for modelling. Adult-trainees ranged in age from 25 to 81 ($M = 51.59$, $SD = 13.72$) identified as male (21.3%), female (77.3%), or other (1.4%). They also identified as White/Caucasian (90%), African-American (3.8%), and other (6.2%). The average length of their reported training was 12.03 hours, with 47.8% of them reporting that the training was mandatory. Almost all trainings used visual aids, (99.5%) which consisted of PowerPoint and handouts (84.4%). Finally, the length of time elapsing between the attended training and the survey was under one month (45.9%), one to three months (30.3%), and four to six months (23.8%).

Measures

For full descriptions of extraneous load, germane load, intrinsic load, and motivation to process measures, please refer to phase two measures section (pp. 79-80). Scale descriptive statistics for each are reported below. Intention to comply, a new measure included in Phase 3, is described below.

Extraneous load. The scale was reliable in this study: $\alpha = .75$, $M = 1.86$, $SD = .85$.

Germane load. Consistent with previous research, only one item was used, $M = 2.29$, $SD = 1.15$.

Intrinsic load. Consistent with previous research, only one item was used, $M = 2.79$, $SD = 1.57$.

Motivation to process. The scale was reliable in this study (α = .90, *M*= 4.19, *SD* = .88).

Intention to comply. Ajzen's (1991) behavioral intention measure was adapted to assess intent to comply with the presentation's information (specificity of context was added for clarity). Participants responded to four, 7-point semantic-differential items, rating their intent to comply with the training by stating the likelihood of using/applying the information or performing the promoted behavior (e.g., unlikely/likely, possible/impossible, would/would not). The scale was reliable in this study: α = .95, *M*= 6.29, *SD* = 1.12.

Data Analysis Plan

Phase one. Data analysis procedures were described in phase one method (pp. 74-75).

Phase two. To answer RQ$_2$ (can a reliable and valid scale of quality of delivery for trainers be created?), an EFA was conducted and convergent validity will be established using SPSS. Prior to conducting the exploratory factor analysis (EFA), a Kaiser-Meyer-Olkin test of sampling adequacy and Bartlett's test of sphericity were conducted. These indicated whether there was an adequate sample size for conducting a factor analysis (KMO) and whether the variables are correlated and are therefore suitable for identifying factor structure (Bartlett's). Next, exploratory factor analysis (EFA) using principal axis factoring (standard method for extracting factors, Tabachnick & Fidell, 2000) and promax rotation (standard for when factors are assumed to be correlated with one another, Tabachnick & Fidell, 2000) were used to answer research question two. To identify which items will be kept and which will be deleted, the following criteria were

used: eigenvalues must be greater than 1.0 for retained factors, the primary factor loadings must be .60 or greater, no secondary factor can exceed .40, a loading on a factor must consist of a minimum of two items, and there must be theoretical interpretability of the loadings (e.g., Comrey & Lee, 1992; McCroskey & Young, 1979). Additionally, using Cronbach's alpha, reliabilities will be calculated for each factor (if multiple factors emerge).

To establish convergent validity for the QD scale and to test H_1 (Effective quality of delivery behaviors will be inversely related to extraneous load), and H_2 (Effective quality of delivery behaviors will be positively related to motivation to process the information), bivariate correlations were used. Further, a multiple linear regression was conducted to answer RQ_3 (What is the most important quality of delivery factor that influences extraneous load?) Next, correlations were conducted to answer RQ_4 (Are effective quality of delivery behaviors related to intrinsic load?) and RQ_5 (Are effective quality of delivery behaviors related to germane load?). These tests established convergent validity and assessed the influence of various loads and factors on motivation.

Phase three. To test H_3-H_5, several tests were conducted. First, a correlation matrix of all relevant variables was constructed. Next, CFA was conducted using AMOS version 25. To identify whether the data fit the model, chi-square, CFI, NFI, SRMR, and RMSEA combinations were evaluated. Cutoff criteria for measurement fit indexes are as follows: for χ^2 the ratio of $\chi2$ to df must be ≤ 2 or 3, the CFI index must be $\geq$ .90, the NFI index must be $\geq$ .90, the SRMR index must be $\leq$ .08, and the RMSEA index must be $<$ .06 to .08 (Schreiber, Nora, Stage, Barlow, & King, 2006). Hooper, Coughlan, and Mullen (2008) identified various combinations of these statistics that suggest good model

fit. These will be used to interpret the presented model(s). Then, SEM was conducted in AMOS to test the proposed model with the data; the same chi-square, CFI, NFI, SRMR, and RMSEA statistics were evaluated to assess theoretical model fit. Further, to establish predictive validity, SEM in AMOS demonstrated whether QD had direct effects on compliance. Finally, to answer RQ_6 (What is the most important quality of delivery factor that influences intention to comply?) and RQ_7 (Do intrinsic or germane load influence intention to comply?), multiple linear regressions were conducted.

CHAPTER FOUR: RESULTS

Phase One Results

Tables 6 and 7 display the effective and ineffective communication behaviors of trainers, as reported by adult- and student-trainees. Then, details about items that were removed, adjusted, or added are overviewed.

Table 6: Student-Trainee Reports of Effective and Ineffective Communication Behaviors of Trainers

Effective	**Ineffective**
Humbled themselves and put himself on our level	Looking down
Positive and believed in what they were talking about	Lecture/no participation
Attitude and passion for the topic	Reading and not putting information in context
Personal background being brought into the topic	Fidgeting, clapping hands together, stuttering, going backwards in presentation
Speaking clearly and loudly	Pacing back and forth
Entertaining questions and inviting them	Body language being sluggish, hunched over, standing in one place
Being enthusiastic	Body being turned away from the audience
Nonverbal clues: smiling, confidence	Tone and not faltering toward end of sentence or training
Inflection in voice	Mumbling
Eye contact with the audience	Like, okay, um are distracting
Moving around	
Summarize preview the topics	
Restating the main point	

Table 7: Adult-Trainee Reports of Effective and Ineffective Communication Behaviors of Trainers

Effective	Ineffective
Credentials	Insensitive or poor audience analysis
So what? Who cares? Relevance	Talking above or below the audience
Empathy	Lecture instead of participation
Respect time, be concise, precise	Not being aware of surroundings – time of day
Timing/pace	Reading slides – unprepared and offensive
Style and personality	Reading hurts relevance and interest
Inclusive/ build environment of questions	Not managing discussion well
Comfortable environment of questions	Unprepared and uncoordinated team lead
Being prepared and showing/having data	Stern, closed off, folded arms
Body language	Monotone
Asked about trainees and build rapport	Tangents
Get to know audience	Lack of preparation and organization
Credibility	Poor visual aid (not enough text to be helpful)
Clear objectives and accomplishing them	Chewing gum
Applying feedback	Shuffling papers
Speaking clearly and loudly	Phone going off
Humor that is natural, appropriate	Poor use of A/V, technology, accessibility
Eye contact	Soft spoken
Smiling	Poor social skills
Enthusiasm/care about being there	Using jargon
Management of questions	

Table 7: Adult-Trainee Reports of Effective and Ineffective Communication Behaviors of Trainers

Staying on track	
Attire – appropriate to context	
Providing context/why am I here	
Awareness of abilities/accessibility	
Follow up	

Items Removed

As a result of all three focus groups, a total of 41 items were removed.

Immediacy items. Every participant in both the adult-trainee and student-trainee groups reported that the immediacy items regarding touch (items 2 and 24) were not only unnecessary, but sometimes harmful to the training context. Specifically, items that read, "it is important for the trainer to touch others on the shoulder or arm while talking" and "avoid touching people when the trainer talks with others" were removed. Additionally, several adult trainees voiced concerns about the item "it is important for the trainer to be animated when they talk" because "animation" could be based upon personality. Because most participants preferred the word "expressive" in the TBI scale, this item was removed. Several items related to proximity were removed after participants expressed confusion about what this meant and whether it was important (items 4, 5, 10, 13, 18, and 20). Finally, to prevent redundancy and reduce participant fatigue, several reverse coded and repetitive items were removed (e.g., 1, 7, 9, and 15). In sum, a total of 17 items were removed.

Credibility items. Both adult-trainees and student-trainees expressed hesitation toward the credibility items of "be honorable," "be ethical," and "be moral" (items 10,

12, 14) Adult-trainees were unsure whether this was relevant and/or evident in training, and student-trainees felt these words were confusing and redundant. In order to clarify items and further explore whether this makes a difference in trainers' effectiveness, participants agreed on the word moral over ethical and honorable. Thus, the items "it is important for the trainer to be ethical" and "be honorable" were removed. Additionally, adult-trainees felt that "be intelligent," "be an expert," and be bright" were redundant and felt that being bright is less precise than expertise, training, preparation, and knowledge of the topic. Thus, "be bright" was removed. In sum, a total of 4 items were removed.

Clarity items. Student-trainees reported confusion over item number 10, which says "it is important for the trainer to use explicit instruction" and felt it was redundant from other items such as "it is important for the trainer to be straightforward in his or her training." As a result, this item was removed. Additionally, several items seemed to be too high inference, as they led to multiple interpretations (e.g., items 3, 6, 9), so these were removed. In sum, a total of 6 items were removed.

Clear behaviors inventory (CBI) items. Adult-trainees expressed a concern over items such as "verbally stress important issues presented in lecture," "tell us what definitions, explanations, or conclusions are important to make note of," "explain when she/he is presenting something that is important for us to know," and "explain when he/she is providing an important definition or explanation of a concept," which are items 1, 4, 7, 11. Many adult-trainees felt that this was "babying the adults" or inhibited learning by being too explicit. In contrast, the student-trainees felt these were extremely important, although somewhat redundant. To further explore these items, the ones that were mentioned as important or potentially important by both groups were kept. Thus, "it

is important for the trainer to explain when he/she is providing an important definition or explanation of a concept" was removed because of redundancy and/or concern over relevance to the training context. Additionally, participants were unsure whether trainers were expected to provide written elements to aid their training. This was considered with the original conceptualization and removed because of poor fit as evidenced by focus group participants' confusion over the items. Overall, 11 items were removed.

Teacher behaviors inventory (TBI) items. Both adult-trainees and student-trainees felt several items were redundant with other items, such as clarity and immediacy. For example, number 14, which says, "it is important for the trainer to walk up aisles beside trainees" was similar to immediacy items. Others that were deemed redundant included items such as 2, 3, 10, 14, 15, 26, 27, 28, and 30. Together, 19 items were removed.

Teacher appearance items. Both student-trainees and adult-trainees expressed concern over item number 3, which read: "it is important for the trainer to be attractive." They felt that it was important to be presentable, but that attractiveness may conjure bias and negative responses. Because other items addressed the concept of appropriate presentation more accurately, this item was removed.

Items Adjusted

Considering comments by all three groups, a total of nine items were revised or adjusted. Details of these revisions are described below.

Clear behaviors inventory (CBI) items. Adult-trainees provided suggestions for the item, "it is important for the trainer to use clear and relevant examples (he/she uses interesting, challenging examples that clearly illustrate the point. He/she refines unclear

student examples. He/she does not accept incorrect student responses).” Specifically, participants wondered whether this item is about clarity or relevance, and whether “student” should be changed to “trainee.” Thus, “relevant” was removed and reflected in the relevance scale, and “students” were changed to “trainees.”

Teacher behaviors inventory (TBI) items. Adult trainees suggested that the item “it is important for the trainer to use graphs or diagrams to facilitate explanation” be broader to include multiple visuals. Thus, this item was revised to say, “it is important for the trainer to use visuals (e.g., graphs, pictures, diagrams, and others) to facilitate explanation.” Next, an adult-trainee suggested that the wording for item number 9, which says “it is important for the trainer to suggest ways of memorizing complicated ideas” be changed to “it is important for the trainer to suggest ways of applying complicated ideas” to better fit the context. This change was made. Additionally, both student- and adult-trainees mentioned the importance of the trainer speaking in “common, everyday” language. In order to reflect these words more clearly, item number 11, which states “it is important for the trainer to explain subject matter in a familiar colloquial language” was adjusted to “it is important for the trainer to explain subject matter in common, everyday language.” Further, adult-trainees felt that the item “it is important for the trainer to tell jokes or humorous anecdotes” (number 16) should be done strategically and appropriately. Thus, this item was adjusted to “it is important for the trainer to tell appropriate, relevant jokes or humorous anecdotes.”

Next, both adult-trainees and student-trainees felt that the item “it is important for the trainer to criticize trainees when they make errors” (number 21) was not worded clearly because of the negative connotation with “criticize.” Instead, they emphasized the

ability to "educate," "inform," and "correct" wrong information. Thus, this item was adjusted to say "it is important for the trainer to correct trainees if they present inaccurate information." Another item that was adjusted was, "it is important for the trainer to use a variety of media and activities in training" to "it is important for the trainer to use a variety of media," because activities sounds more like an instructional strategy than a communication behavior. Another item that facilitated concerns was number 39, which read, "it is important for the trainer to avoid dwelling excessively on obvious points." Participants felt like the word "obvious" could be changed to "key" to avoid sounding condescending. Thus, the item was changed to say, "avoid dwelling excessively on key points." Finally, adult-trainees and student-trainees expressed that number 54 did not include other vocal fillers that are distracting. Thus, this item was adjusted to "it is important for the trainer to avoid saying vocal fillers such as um, ah, like, or you know."

Teacher appearance items. Both student-trainees and adult-trainees reported that the item "it is important for the trainer to be dressed professionally" (the first item) was too context-based. They stated that it depended upon the occasion whether the dress should be considered professional. Thus, the item was adjusted to "is important for the trainer to be dressed appropriately to the occasion."

Items Added

Based upon adult-trainee and student-trainee responses, the author evaluated possible themes of additional constructs to be added to the item pool. Specifically, there were two constructs and a total of seven items that were added.

Verbal immediacy. Some adult-trainees suggested adding verbal immediacy behaviors such as using names, using "we," inviting questions, and other aspects of

reducing the distance between trainer and trainee. After comparing Gorham's (1988) verbal immediacy scale with current items, it was concluded that many of these items overlapped with current items (e.g., "invites students to telephone or meet with him/her outside of class if they have questions or want to discuss something" and "announce availability for consultation outside of the session"). However, based on adult-trainee and student-trainee comments about the importance of feeling like the environment was inclusive, inviting questions, and emphasizing the training as a mutual experience, the items "refers to class as 'our' class or what 'we' are doing" was adjusted to "refers to the training as 'our' training session and what 'we' are doing" to reflect these comments.

Relevance. Both adult-trainees and student-trainees made comments about the relevance of the training being made clear by the trainer. For instance, one adult-trainee stated, "I want the so what? Who cares? Questions to be answered right away." Other comments included using "concrete," "recent," and "relevant" examples that are not only relevant to the audience, but beyond the trainer's narrow field or context. Some trainees mentioned the value of knowing the importance of the topic and why they are there. Thus, Frymier and Shulman's (1995) content relevance scale items were evaluated, adapted, and added to the secondary item pool. Specifically, the following items were added, "it is important for the trainer to use examples that make the content relevant to me," "explicitly state how the material relates to my career goals or to my life in general," "help me to understand the importance of the content," "use own experiences to introduce or demonstrate a concept," "use trainee's experiences to demonstrate or introduce a concept," and "use relevant, current events when training on a topic."

Table 8 summarizes the aforementioned adjustments and demonstrates the
secondary pool used in phase two.

Table 8: Secondary Item Pool

Immediacy (Richmond, McCroskey, & Johnson, 2003)
It is important for the trainer to:
1. Have a relaxed body position when talking.
2. Use gestures when they talk.
3.   Haves a bland facial expression when they talk.
4. Have a lot of vocal variety when they talk.
5. Maintain eye contact with trainees while training.
6. Smile while training.
7. Use a conversational style when talking with trainees.
Credibility (McCroskey & Teven, 1999)
1. Be intelligent
2. Be trained
3. Care about me
4. Be honest
5. Have my interests at heart
6. Trustworthy
7. Be an expert
8. Be not self-centered
9. Be concerned with me
10. Be informed
11. Be moral
12. Be competent
13. Be sensitive
14. Be genuine
15. Be understanding

Table 8: Secondary Item Pool

Clarity (Chesebro & McCroskey, 1998)
1. Clearly define major concepts (explicitly states definitions, corrects partial or incorrect student responses, refines terms to make definitions more clear).
2. Provide clear objectives for the training session.
3. Use clear examples (he/she uses interesting, challenging examples that clearly illustrate the point. He/she refines unclear trainee examples. He/she does not accept incorrect trainee examples).
CBI (Titsworth)
1.   Explain when she/he is presenting something that is important for us to know.
Teacher Behaviors Inventory (Murray, 1983)
1. Give several examples of each concept
2. Repeat difficult ideas several times
3. Stress the most important points by pausing, speaking slowly, raising voice, and so on
4. Use visuals (e.g., graphs, pictures, diagrams, and others) to facilitate explanation
5. Point out practical applications of concepts
6. Answer trainees' questions thoroughly
7. Suggest ways of applying complicated ideas
8. Explain subject matter in common, everyday language
9. Speak in an expressive way
10. Move about while training
11. Tell appropriate and relevant jokes or humorous anecdotes
12. Avoid reading training verbatim from prepared notes or text
14. Avoid showing distracting mannerisms
15. Encourage trainees to ask questions or make comments during training
16. Correct trainees if they present inaccurate information.
17. Praise trainees for good ideas
18. Ask questions of individual trainees

Table 8: Secondary Item Pool (continued)

19. Ask questions of trainees as a whole
20. Incorporate trainees' ideas into training
21. Use headings and subheadings to organize training
22. Put outline of training in written form (handout, visual aid, or whiteboard).
23. Clearly indicate transition from one topic to the next
23. Explain how each topic fits into the training as a whole
24. Review topics covered in previous training at beginning of each session
25. Periodically summarize points previously made
26. Avoid dwelling excessively on key points
27. Avoid digressing from major theme of training
28. Avoid covering very little material in training sessions
29. Ask if trainees understand before proceeding to next topic
30. Stick to the point in answering trainees' questions
32. Avoid stutters, mumbles or slurs words
33. Speak at appropriate volume
34. Speak clearly
35. Speak at appropriate pace
36. Avoid using vocal fillers such as um, ah, or like.
37. Address individual trainees by name
38. Announce availability for consultation outside of session
39. Offer to help trainees with problems
40. Show tolerance of other points of view
41. Talk with trainees before or after training
Trainer Appearance (Beebe, Mottet, & Roach, 2012)
1. Be dressed appropriately for the occasion
2. Have a well-kept and clean appearance.

Table 8: Secondary Item Pool (continued)

Verbal Immediacy (Gorham, 1988)
1. Refers to the training as "our" training session and what "we" are doing

Relevance Scale (Frymier and Shulman, 1995)
1. Use examples that make the content relevant to me
2. Explicitly state how the material relates to my career goals or to my life in general
3. Help me to understand the importance of the content
4. Use own experiences to introduce or demonstrate a concept
5. Use trainee's experiences to demonstrate or introduce a concept
6. Use relevant, current events when training on a topic

Phase One Results Summary

Phase one consisted of conducting three focus groups to compare how adult- and student-trainees feel about communication delivery behaviors of trainers. Based on participant's comments, a total of 41 items were removed, nine were adjusted, and seven items were added. Student- and adult-trainees shared some similarities and differences in their perception of the importance of particular training behaviors. For instance, both students and adults agreed that touch as part of nonverbal immediacy was not appropriate. However, they seemed to disagree on the importance of animation and expression in training. Other differences included the importance of credibility and clarity as it related to motivation or learning. Finally, adults expressed a need for trainers to have verbal immediacy and relevance, which consisted of two items that were added. There were a total of 73 items in the secondary item pool for the QD scale. These items were used in phase two.

Phase Two Results

  RQ₂. To answer RQ$_2$ (can a reliable and valid scale of quality of delivery for trainers be created?), exploratory factor analyses were conducted. First, results from Kaiser-Meyer-Olkin's test of sampling adequacy (.93) demonstrated adequate sample size for the EFA, and Bartlett's test of sphericity ($p < .001$) indicated that variables are related and are thus suitable for structure detection. The initial EFA on 73 items revealed 15 factors with eigenvalues above 1.0 that accounted for 67.41% of the variance. However, upon closer inspection and with the appropriate criteria (eigenvalues must be greater than 1.0 for retained factors, the primary factor loadings must be .60 or greater, no secondary factor can exceed .40, a loading on a factor must consist of a minimum of two items, and there must be theoretical interpretability of the loadings, Comrey & Lee, 1992), six factors were cut for having less than two items. Thus, there were only 9 factors with a total of 29 items retained accounting for 56.92% of the variance.

  Following procedures by Comrey and Lee (1992), the retained 29 items and nine factors were subjected to a second factor analysis and resulted in seven factors that accounted for 69.13% of the variance. The 29 items and seven factors were examined with the aforementioned criteria, and two items did not meet the .60 factor loading cut-off. Thus, a third and final EFA produced a 27-item multidimensional scale with seven factors that accounts for 70.23% of the variance. See Table 9 for means, standard deviations, eigenvalues, and reliabilities for factors, as well as means, standard deviations, and loadings for items. Because items primarily loaded on factors consistent with the original scales they were derived from, each factor was named using the original scale/concept that they were intended to measure.

Table 9: Quality of Delivery Scale with Subscale and Item Results

	M (*SD*) factor	E. value factor	Variance factor	α factor	*M*(*SD*) item	Item loadings
Factor One: Goodwill/Caring	32.72(6.47)	10.80	37.24%	.93		
The trainer: -cared about me					3.85(1.04)	.95
The trainer: -had my best interests at heart					4.09(.97)	.84
The trainer: -was honest					4.32(.86)	.65
The trainer: -was not self-centered					4.08(1.08)	.70
The trainer: -was concerned with me					3.82(1.03)	.95
The trainer: -was sensitive					3.92(1.06)	.80
The trainer: -was genuine					4.34(.86)	.69
The trainer: -was understanding					4.20(.96)	.77
Factor Two: Competence	18.33(2.31)	2.43	8.37%	.87		
The trainer: -was trained					4.64(.64)	.85
The trainer: -was an expert					4.42(.83)	.85
The trainer: -was informed					4.63(.62)	.84
The trainer: -was competent					4.62(.63)	.76

Table 9: Quality of Delivery Scale with Subscale and Item Results (continued)

	M (*SD*) factor	E. value factor	Variance factor	α factor	*M*(*SD*) item	Item loadings
Factor Three: Clarity	17.01(2.80)	1.99	6.87%	.80		
The trainer: -used clear examples (he/she used interesting, challenging examples that clearly illustrated the point. he/she refined unclear trainee examples. he/she did not accept incorrect trainee examples)					4.31(.94)	.62
The trainer: -explained when she/he is presenting something that is important for us to know					4.48(.79)	.70
The trainer: -repeated difficult ideas several times					3.82(1.02)	.81
The trainer: -pointed out practical applications of concepts					3.88(.94)	.73
Factor Four: Speech	18.40(2.36)	1.82	6.29%	.86		
The trainer: -avoided stutters, mumbles or slurring words					4.57(.71)	.84
The trainer: -spoke at appropriate volume					4.56(.77)	.85

Table 9: Quality of Delivery Scale with Subscale and Item Results (continued)

	M (SD) factor	E. value factor	Variance factor	α factor	M(SD) item	Item loadings
Factor Five: Relevance	12.10(2.74)	1.26	4.33%	.75		
The trainer: -used own experiences to introduce or demonstrate a concept					4.23(1.05)	.86
The trainer: -used trainee's experiences to demonstrate or introduce a concept					3.76(1.26)	.69
The trainer: -used relevant, current events when training on a topic					4.08(1.05)	.69
Factor Six: Appearance	9.39(1.14)	1.07	3.67%	.78		
The trainer: -was dressed appropriately for the occasion					4.66(.68)	.87
The trainer -had a well-kept and clean appearance					4.71(.06)	.82
Factor Seven: Rapport	7.73(2.43)	1.01	3.45%	.84		
The trainer: -announced availability for consultation outside of session					3.73(1.40)	.92
The trainer: -offered to help trainees with problems					3.95(1.23)	.80

Thus, the answer to RQ2 is yes, a reliable and valid scale for quality of delivery can be created. Specifically, a scale with seven factors and 27 items was created. Each dimension had strong loadings and each sub-dimension had adequate reliability (see Table 9).

H1 and H2. To establish convergent validity of the scale, H1 posited an inverse relationship between effective quality delivery behaviors and extraneous load. This was confirmed, as each of the seven dimensions (goodwill, competence, clarity, speech, relevance, appearance, rapport) were negatively associated with extraneous load with correlations ranging from -.25 to -.47 ($p < .01$; see Table 10). H2 predicted that quality of delivery behaviors would be positively associated with motivation to process the information. This was confirmed as each of the seven dimensions (goodwill, competence, clarity, speech, relevance, appearance, rapport) were positively associated with motivation to process with correlations ranging from .23 to .47. ($p < .01$; see Table 10, next page). Thus, both H1 and H2 were supported, and convergent validity of the QDS scale was confirmed using both extraneous load and motivation to process.

Table 10: Convergent Validity Correlations

	Goodwill	Competence	Clarity	Speech	Relevance	Appearance	Rapport	Extraneous Load	Motivation	Germane Load
Competence	.57**									
Clarity	.47**	.44**								
Speech	.49**	.43**	.40**							
Relevance	.53**	.44**	.56**	.32**						
Appearance	.31**	.32**	.24**	.44**	.28**					
Rapport	.46**	.24**	.42**	.28**	.42**	.14**				
Extraneous Load	-.37**	-.35**	-.46**	-.47**	-.33**	-.26**	-.24**			
Motivation	.47**	.45**	.45**	.31**	.44**	.27**	.23**	-.29**		
Germane Load	-.12*	-.02	-.23**	-.24**	-.19**	-.11*	-.16**	.58**	.03	
Intrinsic Load	-.01	.15**	-.001	-.03	-.04	.01	-.06	.18**	.09	.54**

*. Correlation is significant at the .05 level (2-tailed). **. Correlation is significant at the .01 level (2-tailed).

RQ3, RQ4, and RQ5. To establish convergent and predictive validity for the quality of delivery scale and to identify which quality delivery factor(s) is most prominent, RQ3 asked which quality of delivery factor was most important in predicting extraneous load. To examine RQ3, a multiple linear regression was conducted with each of the seven factors serving as predictor variables (goodwill, competence, clarity, speech, relevance, appearance, rapport) and extraneous load as the outcome variable. The results indicated that two predictors, clarity and speech, explained 31% of the variance in extraneous load (F (2, 354) = 80.58, p = .001, R^2_{adj}= .31). Clarity (β = -.33, t (354) = -6.91, p = .001) and speech (β = -.34, t (354) = -6.96, p = .001) were significantly, negatively associated with extraneous load. However, when speech was entered as a single predictor (β = -.47, t (354) = -10.01, p = .001), it accounted for 21.9% of the variance (F (1, 354) = 100.17, p = .001, R^2_{adj} = .22). Thus, clarity and speech are the most important delivery behaviors that influence extraneous load, with speech accounting for the majority of the variance.

Finally, to continue establishing convergent validity, RQ4 and RQ5 asked whether effective quality delivery behaviors are related to intrinsic (RQ4) and germane (RQ5) loads. To answer RQ4, correlations were conducted between each of the seven factors and intrinsic load. Competence was the only factor that was significantly associated with intrinsic load (r = .15, p = .001). Conversely, and to answer RQ5, competence was the only factor that was not associated with germane load (r = -.02, p = .78). All other quality of delivery factors were significantly and negatively associated with germane load, including: goodwill (r = -.12, p = .02) clarity (r = -.23, p < .001), speech (r = -.24, p < .001), relevance (r = -.19, p < .001), appearance (r = -.11, p = .04), and rapport (r = -.16,

$p =.003$) (see Table 10 for all correlations). Thus, the answer to RQ4 is yes, competence is related to intrinsic load. The answer to RQ5 is yes, goodwill, clarity, speech, relevance, appearance, and rapport were significantly, negatively associated with germane load.

Phase Two Results Summary

Phase two demonstrated that a valid and reliable scale can be created to assess quality of delivery. Out of a total of 73 items, a 27-item scale with seven factors accounted for 70.23% of the variance. The seven factors included goodwill, competence, clarity, speech, relevance, rapport, and appearance, all of which were reliable. Additionally, convergent validity was established through significant associations between quality of delivery factors and extraneous (all seven factors), germane (all factors except competence), and intrinsic loads (competence only). Finally, clarity and speech were the most prominent factors influencing extraneous load, and comprised 31% of the variance in extraneous load.

Phase Three Results

     CFA and QD Validation. To further validate the QD scale, a CFA was conducted. All items were entered on their theoretically expected factor (see phase two results, p. 99) and goodness of fit indicators (e.g., $\chi2$, df, $\chi2/$ df, NFI, CFI, RMSEA, SRMR) were assessed to ensure factorial validity. Contingent with Hooper et al.'s (2008) criteria for model fit, results of the seven-factor confirmatory model demonstrated good fit with strong loadings for each item (see Table 11 and 12). Thus, the scale is valid and reliable.

Table 11: Goodness-of-Fit Indicators of the QD Scale Confirmatory Model & Factor/Item Information

	χ^2	*df*	χ^2/df	NFI	CFI	RMSEA	SRMR
Seven factor model	790.7	303	2.61	.87	.91	.07	.089

Table 12: QD Scale Factor & Item Information

	α	Factor M(SD)	Item Loadings (Standardized Regression Weights)
Factor One: Goodwill/Caring	.92	4.13(.74)	
The trainer: -cared about me			.80
The trainer: -had my best interests at heart			.80
The trainer: -was honest			.68
The trainer: -was not self-centered			.68
The trainer: -was concerned with me			.78
The trainer: -was sensitive			.80
The trainer: -was genuine			.80
The trainer: -was understanding			.85
Factor Two: Competence	.92	4.61(65)	
The trainer: -was trained			.84
The trainer: -was an expert			.83
The trainer: -was informed			.94
The trainer: -was competent			.92
Factor Three: Clarity	.82	4.33(.71)	
The trainer: -used clear examples			.80
The trainer: -explained when she/he is presenting something that is important for us to know			.69
The trainer: -repeated difficult ideas several times			.67
The trainer: -pointed out practical applications of concepts			.75
Factor Four: Speech	.82	4.61(.57)	
The trainer: -avoided stutters, mumbles or slurring words			.64
The trainer: -spoke at appropriate volume			.80
The trainer: -spoke clearly			.83
The trainer: -spoke at an appropriate pace			.70
Factor Five: Relevance	.79	4.16(.85)	
The trainer: -used own experiences to introduce or demonstrate a concept			.62
The trainer: -used trainee's experiences to demonstrate or introduce a concept			.66
The trainer: -used relevant, current events when training on a topic			.69

Table 12: QD Scale Factor & Item Information (continued)

	α	Factor M(SD)	Item Loadings (Standardized Regression Weights)
Factor Six: Appearance	.84	4.78(.52)	
The trainer: -was dressed appropriately for the occasion			.95
The trainer -had a well-kept and clean appearance			.79
Factor Seven: Rapport	.70	3.93(1.16)	
The trainer: -announced availability for consultation outside of session			.77
The trainer: -offered to help trainees with problems			.88

H₃, H₄, and H₅. To test H₃ (perceived quality of delivery behaviors will be positively related to adult trainees' self-reported intention to comply), bivariate correlations were conducted. Results in Table 13 (see below on p. 109) demonstrated significant, positive associations between all seven quality of delivery behaviors and intention to comply (correlations range from $r = .18$ to $r = .42$, $p < .01$). Thus, H₃ was supported.

Table 13: Correlation Matrix of all Relevant Variables

	Goodwill	Competence	Clarity	Speech	Relevance	Appearance	Rapport	Extraneous Load	Motivation	Germane Load	Intrinsic Load
Competence	$.55^{**}$										
Clarity	$.55^{**}$	$.63^{**}$									
Speech	$.41^{**}$	$.39^{**}$	$.43^{**}$								
Relevance	$.47^{**}$	$.49^{**}$	$.57^{**}$	$.28^{**}$							
Appearance	$.26^{**}$	$.38^{**}$	$.27^{**}$	$.32^{**}$	$.30^{**}$						
Rapport	$.46^{**}$	$.32^{**}$	$.49^{**}$	$.29^{**}$	$.41^{**}$	$.18^{**}$					
Extraneous Load	$-.30^{**}$	$-.28^{**}$	$-.37^{**}$	$-.28^{**}$	$-.30^{**}$	$-.13^{*}$	$-.22^{**}$				
Motivation	$.48^{**}$	$.45^{**}$	$.50^{**}$	$.28^{**}$	$.46^{**}$	$.32^{**}$	$.27^{**}$	$-.26^{**}$			
Germane Load	$-.05$	$-.01$	$-.12^{*}$	$-.08$	$-.08$	$-.05$	$-.01$	$.49^{**}$	$.00$		
Intrinsic Load	$.08$	$.03$	$.06$	$.09$	$.03$	$-.04$	$.07$	$.20^{**}$	$.02$	$.60^{**}$	
Intent to Comply	$.36^{**}$	$.42^{**}$	$.37^{**}$	$.18^{**}$	$.26^{**}$	$.20^{**}$	$.25^{**}$	$-.18^{**}$	$.57^{**}$	$-.03$	$-.01$

*. Correlation is significant at the .05 level (2-tailed). **. Correlation is significant at the .01 level (2-tailed).

To test H_4 (adult trainees' self-reported extraneous load will be inversely related to their intention to comply), a bivariate correlation revealed a significant, negative association between extraneous load and intention to comply ($r = -.18$, $p = .01$). Thus, H_4 was supported.

To test H_5 (adult trainees' self-reported motivation to process will be positively related to intention to comply), a bivariate correlation revealed a significant, positive association between motivation to process and intention ($r = -.57$, $p = .01$). Thus, H_5 was supported.

QD model testing. To test the proposed model with the data, structural equation modeling was conducted; the same chi-square, CFI, NFI, SRMR, and RMSEA statistics were evaluated to identify model fit (Hooper et al., 2008). Further, to establish predictive validity, SEM demonstrated whether QD had direct effects on intent to comply. The initial model is depicted in Figure 3 (p. 56; copied below) with associated goodness-of-fit indicators in Table 14.
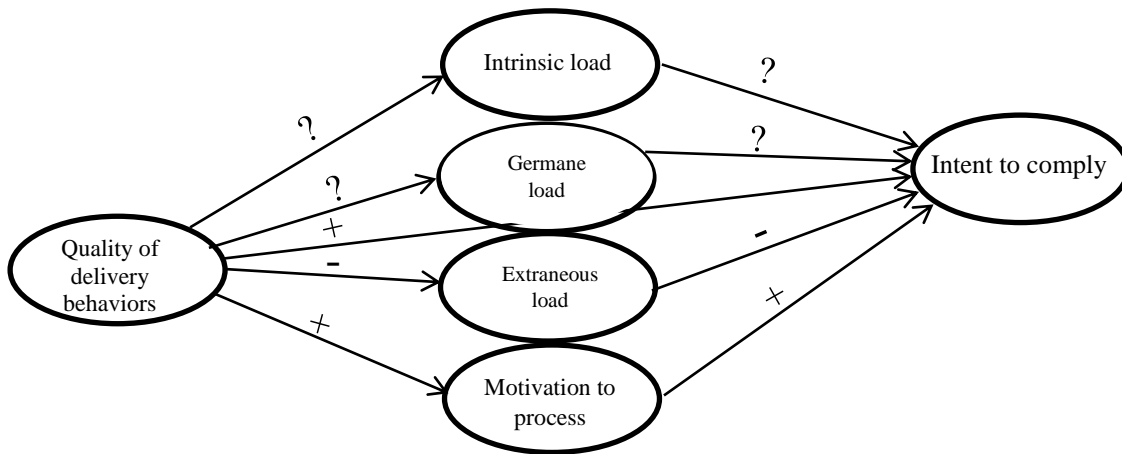

Table 14: Goodness-of-Fit Indicators of Initial Model

	χ^2	df	χ^2/df	NFI	CFI	RMSEA	SRMR
Hypothesized model	256.62	6	42.77	.82	.81	.36	.089

Based on Schreiber et al.'s (2006) criteria, Hooper et al.'s (2008) recommendations, and as described in phase three data analysis (p. 85), these results demonstrated poor model fit. Consequently, cognitive load theory and cognitive-affective theory of multimedia learning were consulted to identify which constructs may be contributing to the poor fit. The proposed model informed by these theories included RQ7, which asked whether germane and intrinsic load could be influenced by quality of

delivery factors and influence outcomes (p. 65). Thus, intrinsic and germane load were most unlikely to contribute to an effective model that reflected the data. This theoretical basis, along with a review of significant paths in the model, guided the author's decision to remove intrinsic load and t associated paths, and remove all of germane load, with the exception of clarity. Clarity was left in the model because of its previously demonstrated association with germane load (e.g., Bolkan et al., 2016).

Goodness-of-fit indicators are reported in Table 15 below, and the final model is depicted in Figure 4 (next page). Hooper et al. (2008) described acceptable ways of evaluating model fit with standard goodness-of-fit indicators (e.g., RMSEA, SRMR, CFI, and NFI). They stated that a combination of CFI of >.96 and a SRMR of <.09 is sufficient for a good model fit. In the current model, this combination is found. Additionally, the NFI is within suggested ranges (Hooper et al., 2008). Thus, the final model demonstrated good fit.

Table 15: Goodness of Fit Indicators for Final QD Model

	χ^2	df	χ^2/df	NFI	CFI	RMSEA	SRMR
Hypothesized model	22.95	3	7.65	.98	.98	.14	.03
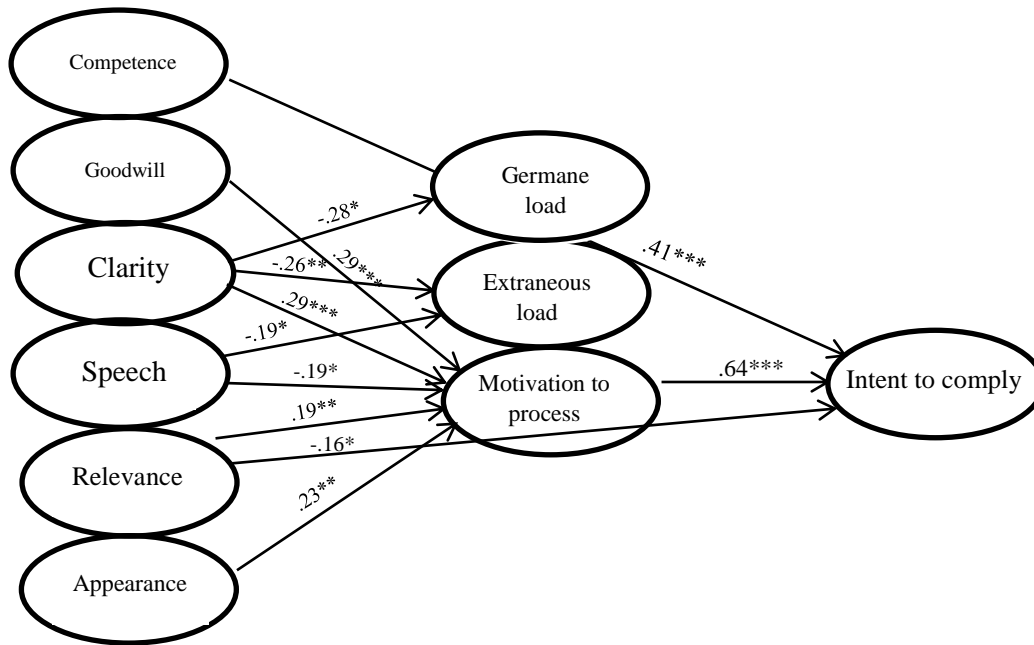
Figure 4: Final QD model. ***Correlation is significant at the .001 level (2-tailed); **correlation is significant at the .01 level (2-tailed). *correlation is significant at the .05 level (2-tailed). Associations are standardized beta weights (β).

RQ₆ and RQ₇. To answer RQ₆ (What is the most important quality of delivery factor that influences intention to comply?), a multiple linear regression was conducted with the seven factors of quality delivery entered as predictors (competence, goodwill, clarity, speech, relevance, appearance, and rapport), and intention to comply entered as the outcome. The results indicated a significant model with two predictors, caring and competence, which explained 20.1% of the variance in intention to comply (F (7, 330) = 12.84, p = .001, R^2_{adj}= .20). Caring (β = .15, t (330) = 2.30, p = .02) and competence (β = .26, t (330) = 3.72, p = .001) were significantly and positively associated with intention to comply. Thus, the answer to RQ₆ is that caring and competence are the most important quality of delivery behaviors that influence intention to comply.

Finally, to answer RQ₇ (do intrinsic or germane load influence intention to comply?), a multiple linear regression was conducted with the three loads (germane, intrinsic and extraneous load) entered as predictors and intention to comply as the

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outcome. The results indicated that extraneous load ($\beta = -.22$, t (330) = -3.52, $p < .001$,

$R^2_{adj} = .03$) does influence intention to comply, whereas germane ($\beta = -.09$, t (330) = 1.2,

$p = .23$) and intrinsic load ($\beta = -.03$, t (330) = -.38, $p = .71$) do not significantly influence

intention to comply. Thus, the answer to RQ7 is no, intrinsic and germane load do not

influence intention to comply.

Post-hoc analysis. The final QD model (Figure 4) illustrated a strong, positive

association between motivation to process and intention to comply. Consequently, a post-

hoc analysis was completed to include motivation to process. In this analysis, a

hierarchical regression was conducted with all seven quality of delivery behaviors

entered in the first step (competence, goodwill, clarity, speech, rapport, relevance,

appearance), then loads (i.e., extraneous, germane, and intrinsic loads) and motivation to

process in the second step of the hierarchical regression, and intention to comply as the

outcome.

Model one, only including the seven quality of delivery behaviors (competence,

goodwill, clarity, speech, rapport, relevance, appearance), was significant, F (330) =

12.84, $p < .001$, adjusted $R^2 = .20$. Including the three loads (extraneous, germane, and

intrinsic loads) and motivation to process in model two revealed a significant model, F

(330) = 17.46, $p < .001$, adjusted $R^2 = .35$. Including the loads and motivation

significantly improved the model: $\Delta R^2 = .16$, $p < .001$. Significant predictors of intention

to comply included competence ($\beta = .24$, t (330) = 3.74, $p < .001$), motivation to process

($\beta = .50$, t (330) = 8.92, $p < .001$), and relevance, which was negatively associated with

intention to comply ($\beta = -.12$, t (330) = -2.07, $p = .04$). Thus, when including motivation,

the results indicate that competence, motivation, and relevance are associated with intention to comply.

Phase Three Results Summary

Phase three results confirmed through CFA that the 27-item, seven-factor quality of delivery scale is valid and reliable in a new adult-trainee population. Additionally, predictions regarding the positive relationship between quality of delivery and intention to comply, the inverse association between extraneous load and intention to comply, and the positive correlation between motivation to process the information and intention to comply were all supported. Further, the finalized QD model included all the quality of delivery factors except rapport. Additionally, germane load was largely absent (except for the influence from clarity), and intrinsic load was not included in the model at all.

Finally, predictive validity was established in RQ_6 and RQ_7. Specifically, competence and clarity were the most important delivery factors that influenced intention to comply, and intrinsic and germane load did not influence intention to comply. Lastly, in the post-hoc analysis (that included motivation), competence, motivation, and relevance were associated with intention to comply.

CHAPTER FIVE: DISCUSSION

This three-phase study sought to develop and validate a measure of quality of delivery behaviors in trainers. Additionally, a proposed model of how these behaviors influence outcomes such as motivation and compliance was tested. Here, each phase is first discussed individually and then a general discussion is provided with implications, limitations, future directions, and recommendations.

Phase One Discussion

The purpose of the first phase was to begin the development of a QD scale to understand characteristics of effective communication in trainers (RQ$_1$). After reviewing several lines of research, items were developed and then presented to three focus groups of adult- and student-trainees. Items were revised, dropped, and added in light of these discussions. This phase contributes to the understanding of trainer communication behaviors in several ways: by a), beginning the process of conceptualizing and operationalizing quality of delivery through b), identifying low-inference behaviors that influence motivation to process, cognitive load, and compliance c), comparing perspectives between adult- and student-trainees.

Conceptualization and Operationalization

In the first phase, QD was conceptualized as low-inference behaviors that support information processing (ability and motivation to process), and operationalized as consisting of 107 low-inference communication items from three literature bases. It is important to note that the operationalization for the QD scale is not an entirely new concept or measure; rather, many of the initial items came from preexisting measures (e.g., credibility, clarity, and immediacy). As a result, the current scale is not meant to be

a truly novel one, but simply a more succinct, precise, and valid measure of a specific concept: quality of delivery. When conducting focus groups, it was important to reiterate this definition of "quality of delivery" to ensure conceptual and operational fit between QD and the QD scale. There were two overarching findings regarding this fit.

First, there was some nuance within the focus groups regarding whether the posited quality of delivery behaviors helped them to process the information better or simply capture interest and demonstrate public speaking skill. For instance, both adult- and student-trainees discussed how vocal fillers such as "um," "uh," "like," and "you know" interfere with their motivation to try to understand the information as well as their ability to actually understand and use the information. Indeed, trainees mentioned how they become so focused on "counting the fillers" that all other information gets lost. The same was reported for some immediacy items (e.g., moving around the room while training) and clarity items (e.g., previewing main ideas of the training). Trainees felt that these not only helped their motivation, but actually made them understand the material better. Thus, when considering quality of delivery behaviors, the participants identified behaviors that influenced information processing and motivation or interest. However, because of the initial stage in the process of this study, nature of time constraints, and desire to be objective, more emphasis on whether these characteristics are rooted in extraneous load and information processing was not able to be explored. Thus, it was difficult to assess whether these characteristics were based on processing and motivation or something else, such as feeling entertained.

Delineating between a presenter's effectiveness and learners' satisfaction with the training has been a topic of study since the 1970s. Ware and Williams (1975) found that

students reported learning more from an instructor that covered little content but had a lively, interactive, and humorous teaching style. This was termed the "Doctor Fox Effect," which has been used to explain how teacher course evaluations are often related to student satisfaction. The study was replicated in 2012 with better measures, and found that students still reported satisfaction from the more expressive instructor, but they did not necessarily perceive greater learning (Peer & Babad, 2012). Similarly, many training sessions utilize satisfaction ratings to assess the effectiveness of a training session (Beebe et al., 2012). However, previous research and current findings demonstrate the difficulty in conceptualizing and operationalizing "effectiveness" with an audience's perception, which is easily influenced by entertaining factors. Trainees may find that an engaging trainer creates more motivation to process, but if less content or clarity is given, trainees may not actually learn more or change as a result of the training. Hence, it is important to consider the definition of quality of delivery and how this will be perceived by actual trainees. The current focus groups provided some insight into this challenge; however, more research is needed to explore this perception and how it relates to defining effectiveness in training and instruction.

Second, perceived effective communication overlapped with instructional technique, which may pose some implications for operationalizing QD. For instance, the focus groups began by discussing effective characteristics of trainers that lead to both motivation and compliance. This discussion was conducted before the participants saw the scales. Although some of the behaviors on the scales were prematurely discussed, other items were also introduced by trainees and trainees, such as using lecture versus participation. All trainees stated that they prefer a participative style of training over a

lecture-based one. Extant research has found that adults enjoy interactive training styles that are interesting and engaging (Ghosh et al., 2012), and students benefit and prefer opportunities to participate in their learning (Lumpkin, Achen, & Dodd, 2015).

However, in other comments in the conversation, lecture-based training could still be effective, depending on how it was delivered. This is consistent with Beebe et al.'s (2012) recommendation to use effective presentation skills, such as visual aids, interaction, and clarity for lecture-based training. Thus, it is still important to identify low-inference communication behaviors as distinct from broad approaches or instructional strategies like lecture versus discussion techniques. However, instructional approaches can demonstrate effective communication, especially depending upon the appropriateness of the context and expectations of the trainees. For instance, if trainees are receiving a skills-based training and are expecting to be able to perform the skill upon conclusion of the session, a lecture-based training may not communicate quality of delivery. Further research may explore how instructional technique overlaps with QD.

Sample Selection: Adult-trainees versus Student-trainees

Not only did this study seek to conceptualize and operationalize QD for a valid and reliable QD scale, it also sought to compare two distinct populations that receive training: adult- and student-trainees. In the current study, adults and students differed in their responses to the training behaviors on three constructs: immediacy, credibility, and clarity. First, when viewing the immediacy items, adult-trainees expressed concern over whether these were part of a person's "personality," done naturally and "not weird," and not out of concern for an "entertainment culture." As one participant said "I don't need all the gestures and animation. I care more about whether you [the trainer] are prepared."

In contrast, the student-trainees emphasized the importance of these behaviors, and stated that they helped them to pay attention and be interested.

Second, when viewing the credibility items, adult-trainees felt less concerned about whether the trainer cared about them or had their best interests at heart, whereas student-trainees gravitated toward those items over competence and preparation. Finally, adult-trainees felt that several clarity items were not only unnecessary, but potentially distracting by providing terms, definitions, and ideas too explicitly for a well-educated audience. In contrast, student-trainees noted those as some of the most important items so that they can understand what to direct their attention toward during the training.

Some of these differences may reflect the differences in adult learners and students. For instance, one main difference between adult and student learners is their need to be directed (Beebe & Frei, 2016). Adults have a desire to be self-directed and make decisions without substantial oversight and guidance; in contrast, students often rely on this direction to know what, how, and when to learn. This might explain differences between responses to the credibility and the clarity items. For instance, adult learners prefer to be self-directed in their learning. This may manifest as not needing a trainer to "care" about them. Moreover, this may explain why some adult learners felt that the clarity items regarding the focus of main concepts and definitions were extraneous and "babying" the trainees. By explicitly telling adults what to focus on, a trainer might be interfering with adults' self-directed desires toward learning. In contrast, student-learners do have needs for their learning to be directed by another individual, such as a trainer. This might lead them to value the caring components of a trainer more so than an adult learner. In addition, because of this need to be directed, this may also

lead them to desire more explicit instruction on what concepts, definitions, and examples are most important.

Other research has also found differences in these populations. For instance, Berthelsen (2002) found that when a trainer smiled (a common immediacy behavior), it was negatively correlated with adult-trainee's perception of immediacy. In addition, he found that immediacy did not predict learning, satisfaction, or motivation of adult-trainees. In contrast, research suggests these factors to be important for student-trainees (Faylor et al., 2008). The current study used a small population to evaluate items such as immediacy, credibility and clarity and found some potential differences between adults and students. Thus, more work is needed to identify how adult learners may view QD behaviors in training, which is why only adult learners (those over 25 years old) were selected for participation in the following phases.

Summary of Phase One Discussion

In sum, findings in phase one demonstrate conceptual and operational fit for QD and the QD scale. This contributes to construct validity, which seeks to establish that a given measure actually assesses the stated construct (in this case, quality of delivery). One difficulty to conceptualizing QD is that trainees also reported communication behaviors that were entertaining and instructional strategies that they felt were appropriate. Additionally, adult and student-trainees reported distinct perceptions of effective communication on items such as immediacy, credibility, and clarity. This finding provided justification for utilizing an exclusively adult-trainee population in phase two and three. Continued research is needed to understand communication

effectiveness as it relates to instructional strategy, as well as differences between adult- and student- trainees.

Phase Two Discussion

The purpose of the second phase was to further the development of a valid and reliable QD scale that identifies communication behaviors that lead to reduced extraneous load and increased motivation in adult trainees. There are several conclusions that can be drawn from this phase, which will be discussed in order of the hypotheses and research questions, beginning with RQ_2.

RQ_2: Characteristics of the Scale Factors and Items

The seven-factor QD scale demonstrated reliability and validity for several reasons. First, the original conceptualization of quality of delivery was "specific, low- inference presentation characteristics that support depth of information processing by reducing trainees' extraneous load and increasing their motivation to process the information." The developed scale started with 73 low-inference items that were reduced through EFA to 27 items and seven factors that each had between two and eight items. One potential reason that each factor had items that loaded well and were reliable was because the original scale development procedures included using previously validated and reliable scales. For instance, the credibility items (goodwill and competence) were taken from McCroskey and Teven (1999), which has been found to be valid and reliable across many studies. Hence, using previously tested scales that were found to be reliable contributed to the overall validity and reliability of the proposed QD measure.

H$_1$ and RQ$_3$: Extraneous Load

Additionally, all seven factors included low-inference behaviors associated with lower extraneous load and greater motivation (see Table 10). As predicted by cognitive load theory (and H$_1$), all seven QD factors likely eased the cognitive load that trainees experience because they reduce distractions, which prevent trainees from processing extraneous or unnecessary information. These findings align with the few studies that have explored cognitive load as associated with an instructor communication behavior (e.g., Bolkan, 2015); however, these studies considered a student population in a traditional education setting, rather than an adult-trainee setting. Further, cognitive load theory has not been used to understand the influence of the trainer's communication on the trainee's cognitive load. However, the present findings suggest that extraneous load can be influenced by the delivery of a trainer (in addition to other elements of a training environment, such as visuals, other trainees, or the instructional strategy). This contributes to construct validity for the QD scale because the scale is associated with other theoretically relevant variables (DeVellis, 2017); in this case, QD is related to extraneous load.

Further, findings demonstrated that speech and clarity were the strongest predictors of extraneous load, accounting for 31% of the variance (RQ$_3$). Extraneous load refers to the difficulty in understanding the information, so it is reasonable that factors that directly contribute to the processing and understanding of information are most likely to influence extraneous load. Of all the factors, speech and clarity are the ones that most relate to processing information because they include elements such as speaking clearly, loudly, and slowly, breaking down difficult ideas, alerting listeners to when something is

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important, and identifying practical applications of concepts. These directly contribute to the amount of processing for a trainee to understand the information at a basic level. Other research (e.g., Bolkan, 2015; Bolkan et al., 2016) supports the influence of clarity on extraneous load, but only in an undergraduate population. Thus, this finding is consistent with previous work and the theoretical framework presented, but extends this work in a new context and audience by considering adult learners and training.

RQ₄ & RQ₅: Germane and Intrinsic Loads

In contrast to extraneous load, none of the delivery behaviors were related to intrinsic load, except competence, which was *positively* related to intrinsic load (RQ₄). Conversely, all of the quality of delivery behaviors were negatively associated with germane load, except for competence (RQ₅). Two conclusions may be drawn from these findings. First, there is a debate in the cognitive load literature regarding whether the instructor can influence germane and intrinsic loads (Jong, 2010). Because they are described as innate to the person or the information, they are rarely tested in conjunction with an instructor or trainer's delivery. However, the current study suggests that they may be associated with the trainer's communication. One possible explanation is that trainees are simply perceiving less load based on the trainer's communication behavior, but an actual experiment may demonstrate otherwise. As Jong (2010) argued, instructors cannot influence germane or intrinsic load, but this does not mean that trainees are not perceiving and reporting their own load as influenced by the trainer.

Additionally, germane and intrinsic loads were positively associated with extraneous load. It is possible that when trainers' delivery behaviors reduce extraneous load, they may also indirectly reduce germane and intrinsic loads. Indeed, cognitive load

theory suggests that intrinsic load and extraneous load determine how much germane load is left to be used for processing information. Thus, perhaps trainers are indirectly influencing germane and intrinsic loads through behaviors which reduce extraneous load.

Intrinsic load. A second conclusion is that not all quality of delivery behaviors influence these loads similarly. For instance, only competence was associated with intrinsic load, and it was a positive relationship, which is unexpected because greater quality of delivery behaviors were associated with lower levels of load in all other examples (see Table 10). It is important to note that the sample generally reported low intrinsic load ($M = 2.47/5$), which may explain why many of the quality of delivery factors were not found to be associated with it. However, one explanation for why only competence may be associated with intrinsic load is that perhaps when trainees are receiving highly complex information or content, they perceive the trainer as possessing greater competence because they are training on a more difficult topic. Assuming that a trainer is competent based on the content may be rooted in an initial, superficial evaluation of expertise, but it may also be an accurate portrayal of how quickly competence is assessed.

For instance, a training on a highly complex surgical procedure versus how to check a car's oil level may lead to differing perceptions of competence of the trainer because of the differences in complexity of training content. Additionally, it is important to note that a low amount of cognitive load is not always desirable (Park et al., 2011) because trainees may then become uninterested and distracted because of boredom. Thus, this positive relationship might be displaying when an appropriate amount of load is desirable, which is when the load is coming from the complexity of the content, not in the

cognitive effort of the trainees or in the delivery of the trainer. As a result, trainees may also have perceptions of greater trainer competence.

Germane load. Conversely, the level of effort to understand the training (germane load) was not related to a trainer's competence. One explanation for this finding is that this sample generally had very competent trainers (means for the competence items ranged from 4.42-4.64/5), and generally low germane load ($M = 2.2/5$), which may indicate that there were not a lot of trainers who lacked competence in order to negatively influence germane load. Indeed, perhaps trainers were chosen based upon their competence in a given subject area, which would contribute to high levels of competence. Additionally, as described previously, competence was associated with greater intrinsic load, which may give insight into why it fails to affect germane load: perhaps it is potentially influencing the perceptions of the content, not the perceived effort of the trainee. This may also provide insight into why other the QD factors influenced germane load, but not intrinsic: they are acting as influencers of complementary cognitive forces (competence for intrinsic, and the other factors for germane). However, more work is needed to identify the relationship between trainer delivery behaviors and trainees' germane and intrinsic loads.

Finally, it is important to note that both intrinsic and germane loads were measured using only one item for each concept. Although this is consistent with previous research using CLT, it is possible that the measure is insufficient, which would lead to different results than if the measure possessed adequate items. Future research may consider exploring these measures to strengthen them. Consequently, we may have a

better understanding of germane and intrinsic loads, their role in cognitive load, as well as their association with other relevant variables.

H2: Motivation

As discussed, reduced cognitive load is not sufficient to ensure change because trainees' freed cognitive resources (because of the reduced extraneous load) should be used in a meaningful way. To ensure that these cognitive resources are applied to the training information, trainees must feel motivated to process the information. Thus, motivation is an important element to understanding behavior change and compliance. Results of H2 revealed that all quality of delivery behaviors were positively associated with motivation to process the information. This aligns with some extant research that found both cogitive load and motivation to influence learning (e.g., Bolkan, 2015; Bolkan et al., 2016). Thus, these findings confirm that communication delivery behaviors can influence both the ability and the desire to receive the information in the training.

Further, motivation to process may also be related to an individual's affect toward other elements of the training. For instance, if an individual is interested in processing the training, then they may also possess interest, motivation, or engagement with the trainer, content, and training. Some research has suggested that affect toward the content or instructor can lead to greater learning (Beebe et al., 2012). Comparatively, if adult trainees experience greater motivation toward understanding the content, it is possible that they may also possess favorable attitudes toward the training and trainer. Consequently, they may be more open, less distracted, and more willing to learn and comply with the information. Hence, motivation and affect may indirectly support learning and compliance through attitudes toward content, training, and trainer.

Additionally, other research has demonstrated the effect of a presenter's delivery characteristics on his or her audience's motivation (e.g., Kelly & Gorham, 1998). However, how and why these factors influence motivation is not as clear. The present findings contribute to the understanding that communication can influence motivation to process the information, and there are several explanations for this finding. First, several of these QD factors may contribute to attention. For instance, Kelly and Gorham (1998) argued that immediacy can influence learning because it attracts and maintains the attention of an audience. Similarly, quality of delivery factors may influence motivation because an effective presenter is able to maintain the attention of his or her listeners more so than an ineffective one. The ARCS (attention, relevance, confidence, and satisfaction) model also suggests that attention is an important element to learning because it creates arousal and curiosity, which can lead to greater focus and participation on a given task (Keller, 1987). In turn, this can create greater learning and understanding of information. Thus, when considering how and why communication delivery influences motivation, the current study provides insight into extant research by highlighting the cognitive processes, such as attention, that are affected during a training situation.

Another explanation of this finding is through the lens of expectancy violations theory. Pogue and AhYun (2006) argued that credibility and immediacy influence motivation because individuals may possess expectations of their presenters. In this case, it is possible that trainees expect their trainers to demonstrate rapport, be dressed professionally, and illustrate competence. When trainees' expectations are met or exceeded, they will feel motivated to process the information coming from that trainer. However, if these expectations are unmet, then they may not feel motivated because they

will be experiencing a negative reaction to a violated expectation. Hence, these behaviors may influence motivation because of expectations.

A final explanation of these results may be illustrated by the elaboration likelihood model, which is a theoretical framework that explains when individuals will process information thoroughly or just superficially. Two factors that contribute to the motivation to process include relevance and credibility, which are similar to the goodwill, competence, and relevance factors in the present study (O'Keefe, 2016). It is possible that, like in the ELM, these factors contribute to greater motivation to process because of an individual's personal attachment to the topic. In other words, if individuals feel that they are personally invested in a training or a trainer, they may feel greater motivation. However, more research is needed to explicate the relationship between source factors and motivation to process information.

Summary of Phase Two Discussion

Overall, conclusions in phase two demonstrate that a valid and reliable scale was developed and findings are generally consistent with extant research on cognitive load and instructional communication variables. Unique contributions of this phase include a potential explanation for how presenters can indirectly influence intrinsic and germane loads, a stronger explanation of the theoretical mechanism between communication and change, and an application of such communication variables in an adult-trainee population. Continued research is needed to understand how and why communication influences trainee load and motivation.

Phase Three Discussion

The purpose of the third and final phase was to confirm the validity and reliability of the proposed QD scale and to test a theoretical model of QD. Conclusions will be drawn from this phase in the order of the hypotheses and research questions. First, scale validation will be discussed (along with H_3-H_5), then the final QD model, and finally, intention to comply (RQ_6 and RQ_7).

Scale Validation and Theoretical Link (CFA and H_3-H_5)

As discussed, research demonstrates the need for an accurate and reliable measure of quality of delivery. Results of the third phase further establish that a valid and reliable QD measure can be developed. There are several reasons for this finding. First, Levine, Hullett, Turner, and Lapinski (2007) argued that CFA is a rigorous test that establishes validity because it requires theoretically informed factors to be specified prior to testing them with the data. Finding support for these proposed factors with CFA establishes validity because it further confirms the scale is theoretically supported and aligns well with data. Hence, the results of the CFA in phase three demonstrate validity for the QD scale.

Second, the QD scale was tested in two distinct samples between phases two and three and was found to be reliable and valid in both. Multiple, successful applications of a measure will strengthen its utility, reliability, and validity because it utilizes different samples, which allow for more opportunities for varying responses; this can reveal validity or reliability problems of a measure (Levine et al., 2007). Thus, finding support for the scale repeatedly contributes to its strength. Further research may continue to test the QD scale by utilizing it in various new samples.

Third, convergent and predictive validity were established by identifying the relationships between QD factors, extraneous load, motivation, and intention (H_3-H_5). Identifying these associations strengthens the application, usefulness, and theoretical grounding of the scale because it ensures that the presented QD behaviors influence the desired outcomes. Indeed, QD was originally conceptualized as behaviors that lead to lower extraneous cognitive load, increased motivation to process, and increased intention to comply. Additionally, it was posited that QD may have direct effects on motivation and intention, which would further establish predictive validity. Results of phase three support this conceptualization and operationalization of QD because several quality of delivery factors were found to have direct effects on intention to comply (e.g., competence and relevance), were associated with extraneous load (e.g., clarity and speech), and were found to influence motivation to process (e.g., goodwill, clarity, speech, relevance, and appearance). These associations establish convergent and predictive validity for the QD scale because it aligns with or predicts desired constructs. This offers strength in the QD scale's utility.

Fourth, H_3-H_5 also demonstrated a potential theoretical link that connects quality of delivery behaviors (i.e., communication), with outcomes such as intention to comply. This link, as posited by CLT and CATML, is that communication leads to behavior change by reducing cognitive load, which leads to a greater ability to process the information. Additionally, communication can help to increase trainees' *motivation* to process the information. Such processing must occur prior to understanding, using, or applying the information (e.g., trainees must be able to access the information before complying with it). Extant research on communication behaviors such as immediacy,

credibility, and clarity has offered few explanations for why such characteristics influence outcomes.

For instance, when instructors exercise immediacy (Christophel, 1990), credibility (Frymier & Thompson, 1992), and clarity (Chesebro & McCroskey, 2001), learners' motivation to learn increases, which may then increase their actual learning. These constructs have been applied to trainers and adult trainees as well (Beebe et al., 2012). However, research has not confirmed why communication may increase motivation. The current study suggests one explanation: motivation (as well as compliance) may be related to the cognitive load of the learner. Greater cognitive load may influence the trainees' motivation to process the information. Thus, when considering the theoretical link between communication and outcomes, this phase presents CLT and CATLM as two complementary mechanisms that provide insight into this relationship.

The QD Model

The final QD model was presented in Figure 4 (p. 103). Overall, only six QD factors remained in the final model (competence, goodwill, clarity, speech, relevance, and appearance; rapport did not remain in the model). Both competence and relevance had direct effects on intention to comply. Goodwill, clarity, speech, and relevance were associated with motivation, and clarity and speech were associated with extraneous load. Only clarity influenced germane load. Intrinsic load did not remain in the model. Overall, the final model aligned with and diverged from several theoretical concepts proposed in Chapter Two. These findings will be discussed here.

Communication and extraneous load. First, the model highlighted the role of effective communication on trainees' load and motivation. The associations found

between quality of delivery and intrinsic load, germane load, and extraneous load are largely supported by CLT. For instance, much of CLT research suggests that presentation characteristics (namely visual aids) could only *possibly* influence a receivers' extraneous load and is unlikely able to affect intrinsic and germane load (Sweller, 1988). However, this phase suggests that communication characteristics of a trainer can certainly influence a trainee's extraneous load. However, in the final model, only clarity and speech directly influenced extraneous load.

One explanation for this finding is that speech and clarity are the quality of delivery factors that most relate to processing ease, which is then needed to understand the information. For instance, if a trainer is well-dressed, competent, caring, and relevant (reflective of other QD factors), but is speaking too softly or too unclearly, trainees will experience greater mental strain when trying to access the information, prior to being able or interested in understanding it. In other words, before trainees can evaluate whether the trainer is competent, caring, or relevant, they will need to hear and understand the information. Thus, it is possible that extraneous load is influenced primarily by the physical aspects of speech (e.g., volume, clarity, fluency).

Research has demonstrated this effect of speech on cognitive load and understanding. For instance, Song and Iverson (2018) found that when individuals listen to non-native accents, they report greater effort and difficulty in processing when attempting to understand the information. This is likely because of the ease in which the information can be accessed. In other words, the elements of speech contribute to mental strain of a listener. Consequently, elements such as clarity and speech are most likely to influence cognitive load. Bolkan (2015) also found that clarity influences extraneous load

for this reason: clarity is one element of the presenter that most reduces mental strain and thus, leads to greater processing. Hence, this finding (clarity and speech directly influencing extraneous load) is consistent with previous research.

Another explanation is that extraneous load may still be indirectly influenced by the trainer. CLT posits that it is unlikely that presenters can directly influence germane and intrinsic load (Sweller, 1988), and little research has confirmed that presenters can influence receivers' motivation to process (one notable example is Bolkan, 2015). However, because intrinsic and extraneous load contribute to germane load, and because such loads are theoretically associated with motivation to process, it is logical for presenters to be able to indirectly influence several aspects of cognitive load and motivation to process. Thus, even though the model does not show direct effects, it may be possible for communication to influence extraneous load indirectly.

The final QD model demonstrated this complexity by illustrating the inability for communication to influence intrinsic load. Additionally, only clarity influenced germane load. These findings align with CLT; however, clarity may influence germane load for the same reason that it is associated with extraneous load: clarity may be most related to the cognitive effort that a trainee uses to access information. Indeed germane load is conceptualized by Sweller (1988) as the amount of effort that it takes individuals to process the information. Moreover, germane load is associated with extraneous load, so it is possible that trainers are influencing a trainee's reported germane load by first influencing extraneous load. CLT suggests that the subtraction of extraneous and intrinsic load (not influenced by the presenter) results in germane load (Sweller, 1988). Thus, it would be difficult for extraneous load to be affected without germane load also being

affected. In sum, the proposed model confirms previous research on CLT, but also proposes that presenters' clarity may be able to affect germane load, whether through extraneous load or via another channel. Further research may identify whether germane and intrinsic loads can be directly influenced by a presenter or trainer. Additionally, as mentioned in phase two, it is possible that the measure for intrinsic and germane loads were insufficient since they consist of only one item. As a result, the model may look slightly different with stronger measures. Researchers may explore the validation of better cognitive load measures to ensure that results are precise and accurate.

Motivation and intention. Second, the model illustrated that motivation is an important element of intention. Chapter Two proposed that CLT is an insufficient theoretical explanation for how communication influences intention because it neglects to include a person's motivation to process the information. In other words, CLT assumes that a person's ability to process will result in actual processing. However, CATLM suggests that motivation is another crucial element to intention and compliance, and the final QD model confirms this role of motivation. Specifically, motivation had a strong, positive association with intention to comply, and was influenced by five of the seven quality of delivery factors. Thus, the QD model extends CATLM by establishing that communication factors can influence motivation, and that motivation is an important element to ensure actual compliance with the information.

The motivation-intention-compliance link has been found in extant research. For instance, in the theory of reasoned action, motivation to comply is an important element to understanding whether a person will actually perform the desired behavior (Ajzen, 1991). Without the desire to pursue a goal, intention or compliance is not possible.

Additionally, motivation may be used as a proxy for intention or indicator of the likelihood of intention when it is not feasible to measure actual intention or compliance. This has been used in several health settings where behavior change is crucial for greater health outcomes. For instance, Norman (1998) found that motivation is a key element to older adults' adherence to an exercise program. Motivation can overcome barriers, increase enjoyment, and reduce anxiety about a training program. Thus, these studies illustrate the importance of motivation in the behavior change process, which was also demonstrated in the final QD model.

Additionally, phase three illustrated how communication may predict motivation, and how motivation requires the ability to process the information (reduced cognitive load). Future research may explore the role of motivation in the communication-compliance relationship, as well as how motivation interacts with cognitive load. For instance, the current study suggested that motivation is a mediator between communication and behavior change. It is also possible that motivation may be mediating the effect of extraneous load and compliance as well. For example, if extraneous load is low, it is likely that motivation is high. Thus, even though extraneous load may not be directly influencing compliance, it may be able to indirectly affect compliance through motivation. In sum, several findings in phase three that aligned with extant research; however, there were also results that were unexpected, and these are discussed next.

Unexpected finding #1: Rapport. One such finding was that rapport did not fit the proposed model. Rapport consisted of two items: whether the trainer announced availability after the session, and whether the trainer offered to help trainees with their problems. One explanation for why rapport was not found to be a predictor of either load

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or motivation is the nature of how rapport operates in a training setting. For instance, rapport is considered a feeling of mutual trust and liking (Frisby & Martin, 2010). Perhaps for a training context, and especially for adult learners, rapport may require time to develop and be effective. Additionally, it is possible that rapport occurs through communication characteristics such as goodwill, competence, and clarity. Indeed, Frisby et al. (2013) found that when students perceive rapport, they also perceive credibility. In both phases two and three, rapport was strongly, positively associated with several other communication characteristics. Thus, it is possible that other constructs (e.g., competence, goodwill, or relevance) may be influencing perceptions of rapport indirectly.

Another explanation is the improper labeling of rapport. Rapport was selected as the label for these two items because it was used in the original scale from which these items were derived (see Murray, 1983). The items in the scale included, "The trainer announced availability for consultation outside of session" and "The trainer offered to help trainees with problems." This factor may be more appropriately named "support" or "helpfulness" because of its emphasis on supporting trainees beyond the training. In this case, perhaps trainees attended trainings where the trainer's additional support was not necessary, appropriate, or desired, especially as they relate to adult-trainee's motivation and intention to comply. For instance, if a training was mandatory and trainees did not want to attend, then a trainer offering support would not have a positive effect on trainees. For many, mandatory training may undermine the motivation of the trainees to seek more information and support beyond the requirements (in phase two, 52% stated that the training was mandatory; in phase three, 47.8%).

One theoretical perspective that supports this concept is psychological reactance theory, which states that limiting freedom (i.e., making a training mandatory) can elicit reactance, or a motivational state of anger and failure to comply with the advocated behavior (Dillard & Shen, 2005). Reactant individuals are unlikely to feel motivated to do more than required. Relatedly, adult learning theory indicates that adult learners enjoy autonomy and may resist too much oversight or direction to their learning (Knowles, 1980). In this case, support would not be welcomed because trainees would not feel in control of their own learning or training. As a result, rapport, (or support) would not have an effect on trainees' load or motivation.

Unexpected finding #2: Relevance. Another unexpected finding is the weak, negative relationship between relevance and intention. One explanation for this finding is that trainees were currently performing the advocated behavior, which would indicate that too much relevance means that the training is not necessary. As a result, trainees would not comply with the advocated behavior because they are already doing it. In other words, relevance may have a curvilinear effect on intention; too little or too much relevance fails to elicit intention to comply because the content is not useful to the trainees. Further research may explore whether training can be "too relevant" for its participants and its effect on motivation, compliance, and load.

Another explanation for this finding may be that relevance is insufficient in changing behavior, especially if other elements are working against compliance. For example, Keller's (1983) ARCS model suggested that motivation to learn requires attention, relevance, confidence, and satisfaction. Although relevance is one aspect to motivation (and presumably, eventually behavior change), it may not be adequate if other

aspects are poor. If a trainee struggles to find confidence, satisfaction, and attention in a training, it is unlikely that relevance would lead to intention to comply.

A final explanation is that, like rapport, relevance may be perceived from other communication characteristics. For instance, Frymier, Shulman, and Houser (1996) argued that relevance can overlap with other constructs such as immediacy. In both phases, relevance was associated with a variety of other communication outcomes, such as clarity, goodwill, and rapport (see Table 10 and Table 13). Thus, it is possible that relevance did not positively influence intention because trainees were perceiving relevance derived from other communication behaviors. As discussed, too much relevance may lead to boredom, lack of motivation, and lack of compliance. This may explain why relevance had a negative relationship with intention.

Unexpected finding #3: Extraneous load and intention. Finally, the final QD model did not reveal the expected association between extraneous load and intention. There are several potential explanations for this finding. First, much of the data in phase two and three revealed trainings with low extraneous load. It is possible that this influenced the association between extraneous load and compliance, such that it allowed for other factors to contribute more prominently to compliance. Additionally, because extraneous load and motivation to process are related, perhaps extraneous load can influence intention to comply, indirectly through motivation. Indeed, if a trainee experiences lower extraneous load, they will likely report greater motivation to process. As discussed, motivation can often lead to greater compliance as well. A mediation analysis could confirm whether this relationship exists. Future research may explore

whether motivation is a mediator in the delivery-load-intention relationship. Finally, it is possible that intention to comply is influenced by other factors; this is discussed next.

Intention to Comply (RQ$_6$ and RQ$_7$)

Results of RQ$_6$ revealed that competence and caring explained 20.1% of the variance in intention to comply. Caring and competence are both elements of source credibility, which has been long established as a predictor of compliance (O'Keefe, 2016). However, little research has explored why trainees are more likely to comply with credible and caring trainers. There are several theoretical reasons for this association.

First, credibility has been found to be related to power, specifically expert power, which has been deemed as a prosocial strategy that is effective in gaining compliance (e.g., Goodboy & Bolkan, 2011). Expert power is derived from the knowledge and expertise of a source (French & Raven, 1959). This power from perceived authority leads individuals to comply because of rewards of obedience, avoidance of consequences of disobedience, or trust in the legitimacy of an authority's instructions. Stanley Milgram's experiments illustrated the powerful effect of credibility and power on compliance when participants administered painful shocks to peers at the direction of a pretend doctor (Jones & Milgram, 1974). In a training setting, when trainees perceive that their trainer has competence and caring, it is possible that they are also perceiving expert power and authority. As a result, they may be more likely to comply because of such power.

Additionally, trainer competence and caring may influence trainee motivation, which may then affect trainees' compliance. There are two potential theoretical explanations for how trainer credibility can lead to greater trainee motivation. One is through the lens of self-determination theory (SDT). SDT states that individuals have

competence, relatedness, and autonomy needs that must be met for them to feel motivated to perform a certain behavior (Deci & Ryan, 2000). It is possible that credibility, especially caring, may be fulfilling relatedness needs of trainees. By feeling that the trainer cares for them, trainees may feel connected to the training and the trainer. As a result, they may experience greater levels of motivation, and thus, be more likely to comply with the trainer.

Similarly, another motivational explanation for why competence and caring may lead to compliance is social cognitive theory (SCT), which suggests that motivation (and thus, compliance), may be informed by vicarious experiences from another person (Bandura, 1989). According to Bandura, these experiences from effective role models can boost trainee knowledge, self-efficacy, and action. In other words, when trainees are exposed to competent, caring, and expert trainers, they may feel more motivated because of their desire and ability to emulate these trainers. Hence, these motivation theories may explain how and why caring and competent trainers may facilitate greater motivation in trainees. Then, compliance may be a secondary outcome.

Finally, while RQ_6 found that only two QD factors influenced intention, RQ_7 revealed that none of the loads predicted intention to comply. One explanation is that external factors might have more of an influence on whether trainees comply with the training. For instance, a relevant concept in the training literature is known as the "transfer of training." This refers to the application of training information to the job; in other words, it refers to whether the trainees comply and do the advocated behavior. Research has found a variety of predictors to whether training gets transferred, such as job satisfaction and organizational support (Zumrah & Boyle, 2015). In these examples,

even if the trainee feels able and motivated to comply with the training, they may fail to comply because their peer or supervisors are not supportive of the application.

Other research suggests that trainee characteristics such as self-efficacy, training design (whether the focus is on modelling or simulation), and work environment (whether there is follow up or peer support) can influence whether training is transferred (Grossman & Salas, 2011). Thus, this research demonstrates that trainee compliance may be in part due to their motivation to process, cognitive load, or the trainer's communication, but there may also be interpersonal, organizational, and environmental factors that prevent or encourage compliance as well. Further research may explore the predictors of trainee intention to comply in a training context.

Summary of Phase Three Discussion

Overall, conclusions in phase three illustrate that the QD scale was valid and reliable in a new adult-trainee sample. Findings are generally consistent with extant research on CLT, with some unexpected results that demonstrate the complexity of understanding how to use communication to influence cognitive load, motivation to process, and intention to comply. Novel contributions of this phase include further establishment of the QD scale, a potential explanation for how presenter communication may lead to desired training outcomes, and a discussion of potential limitations of presenters' influence on desired training goals (e.g., trainee motivation and compliance). Future research may continue to test the reliability and validity of the QD scale, explore the role of rapport and relevance on adult trainee's cognitive load, motivation, and intention, and understand the predictors of adult-trainee's intention to comply.

General Discussion

Overall, this three-phase dissertation sought to develop and validate a quality of delivery scale that can be used across multiple training and intervention contexts. Additionally, a theoretical model of QD was tested to assess the relationship between quality of delivery, cognitive load, motivation, and intention to comply. Each phase had significant conclusions that were discussed in order of the presented research questions and hypotheses. Here, general theoretical and practical implications, limitations and future directions, and recommendations derived from the three-phase study are discussed.

Theoretical Implications

This three-phase study poses several theoretical implications for cognitive load theory, the communication and training fields, and adult learning theory. First, this study sought to pursue additional contexts to apply cognitive load theories, instructional constructs, and behavioral outcomes. Testing theory in a new population or setting improves its value, power, and scope (Littlejohn, 2009). By identifying whether theoretical constructs such as clarity or frameworks such as cognitive load provide explanation or make predictions in training, intervention, or education settings can be valuable to theory development. Indeed, this study found that cognitive load can be applied to trainers' communication behaviors, which is a new context for this construct.

Previously, cognitive load theories have been used to explain how media, visual aids, and graphics enhance or undermine learning through the effect on learners' cognitive load and motivation. However, the current study suggests that trainers or presenters can also influence levels of load and motivation by how they communicate the training. For instance, all three phases demonstrated that trainers' communication

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behaviors such as clarity, speech, goodwill, appearance, and relevance influence motivation to process, and are associated with reduced levels of cognitive load. These findings reveal further application of cognitive load theories to include communication and the trainer's behaviors. Consequently, these theories may be strengthened because they are able to explain more phenomena in several contexts regarding learning, motivation, cognitive load, adult learners, and communication.

Second, this study has implications for the communication and training fields. For example, this study pursued the theoretical links between established instructional communication variables and outcomes (e.g., competence and motivation), which lends greater understanding of these variables, more theoretical construction and testing, and potentially better subsequent research of these constructs. Consequently, this work may contribute to the theoretical development of the instructional communication field. For instance, this study suggested that there is one possible theoretical explanation for why a construct such as credibility (competence and goodwill) leads to learning and behavior change: its effect on extraneous load and motivation. As a result, scholars may better understand how credibility (and other theoretical constructs) occurs in other contexts, settings, and outcomes. Further research is needed to continue developing theory, the theoretical mechanism behind relevant variables, and the relationships between variables.

Additionally, the present research demonstrates the potential limitations in applying old scales to understand new contexts, populations, or relationships. For instance, in phase one, participants expressed concern over the touch items (part of immediacy). These items were developed in 2003 during a time in which touch was a normal element of instructor-student interactions (Richmond, McCroskey, & Johnson,

2003). However, in more recent times, teachers have been instructed to avoid physical

touch with students to maintain professionalism. Thus, the evolution of touch may

indicate that the conceptualization and operationalization of a construct such as

immediacy may need to be revisited.

One way to address the issue of utilizing potentially outdated scales is to conduct

a CFA every time a scale is used (Goodboy, Martin, & Bolkan, 2008). Additionally,

future research may seek to validate scales in the current landscape of teaching and

learning, which may include changes in demographics (e.g., increase of adult learners),

platforms (e.g., increase of online training), and issues (e.g., increase of trainings

surrounding unconscious bias). In doing this, we can ensure that our constructs and

resulting measures are precise, valid, and useful.

Finally, there are theoretical implications for training theory and adult learning

research. Beebe and Frei (2016) argued that there is virtually no communication theory

being utilized in training or adult learning contexts. Atheoretical research is common in

many applied and practitioner-based areas like training (as stated by Beebe & Frei, 2016)

because of its goal to generate recommendations for practice, rather than to develop

theory. The current three-phase study found that several theoretical frameworks can

provide insight into adult learners, which may contribute to further development of

training or adult learning theory. For instance, adult learning theory, or andragogy

describes how adults learn. However, very little about the theory describes *how to*

communicate so that adults can learn successfully. To illustrate, andragogy posits that

adult learn when there is a facilitator of their learning, when the content has a problem-

solution orientation, and when the course or training is connected to their personal goals.

The addition of the current three-phase study provides insight into how to communicate with adults to ensure such learning. Indeed, the trainer must not only consider andragogy when training adult learners, but also constructs such as relevance, appearance, competence, goodwill, clarity, motivation, and cognitive load.

Further, finding support for current theory in a new population allows the theory to increase in utility, predictive or explanatory power, and scope, which are important aspects of theory (Littlejohn, 2009). The current study applied cognitive load theories and instructional communication constructs to adult learners, who are learners over the age of 25. Understanding whether and how theories explain various phenomena is important for contributing to theoretical development in training and adult learning, which can contribute to better practice. These implications are discussed next.

Practical Implications

This study poses several practical implications for the instructional field, as well as for training, education, and interventions with an adult learner population. First, this study sought to push the boundaries of instructional communication by including training and intervention contexts. One benefit to doing this is that it may strengthen the instructional communication field to contribute to practice. To illustrate, because the field of communication, and especially instructional communication, is inherently interdisciplinary, interdisciplinary work would contribute to the value, power, and reach of the field. As Valenzano and Wallace (2017) stated, by expanding the applicability of instructional research, it allows for this work to be exported to other disciplines, which would boost visibility and practical impact of this scholarship.

This study incorporated interdisciplinary work by synthesizing several disciplines together (e.g., cognitive psychology, instructional communication, public health, adult learning, and training), which may improve the practical implications of the findings because they can be applied to multiple areas. For instance, a public health practitioner may benefit from this research by applying the QD scale to improve implementation of an intervention. Further, adult education may identify with these results to recommend changes to their trainers and instructors for greater motivation in their adult learners. These examples illustrate some of the many ways that this research can be used to enhance practice in multiple contexts.

Second, pursuing theoretical understanding for constructs gives support for why certain behaviors are important, which poses implications for practical application. For instance, having a theoretical understanding of characteristics can inform what, how, and why individuals may be trained to enact such characteristics. Indeed, several communication behaviors were found to be indispensable to motivation (e.g., goodwill, clarity, speech, relevance, and appearance). If trainers desire to improve learners' motivation, then knowing the mechanism behind how and why this leads to motivation can be helpful for training purposes. Further, pursuing this work can ensure that trainees perceive relevant traits. For example, in this study, findings showed that caring and competence influenced change because of reduced cognitive load and processing requirements. Trainers and practitioners may consider whether trainers are not only enacting credibility, but also reducing cognitive load in the process. However, without knowing how and why credibility leads to outcomes, it may be difficult to implement and assess this concept in practice. Thus, pursuing theoretical development between concepts

such as clarity and compliance will benefit practice by ensuring better application of such variables.

Third, pursuing the delivery of training can influence the effectiveness of training and interventions by improving trainers' presentation skills, and by ensuring consistency across trainers, which is also known as trainer fidelity. This study demonstrated that training effectiveness is influenced by the trainer's delivery. Thus, if organizations want to improve their training effectiveness, they should also consider the trainer delivery behaviors that lead to improved training outcomes. Improved training may also increase employees' satisfaction, support better transfer of skills, and increase organizational profit (Aguinis & Kraiger, 2009). However, trainers would need to be both effective as an individual, and consistent with other trainers (aiming for fidelity) for training to be effective.

Similarly, the study provides support for cultivating strong delivery practices in interventions as well. As discussed, public health organizations spend millions on interventions and do not always develop or assess the delivery component of such programs. Additionally, public health interventions often implement programs across several groups, institutions, and even states. Utilizing these findings may help practitioners to understand whether an evidence-based program has weak or no effect because of the content, design, or delivery of it. Further, this research may also help to ensure that all trainers are being consistent in their delivery across these trainings. This helps to improve program fidelity and ensures that every participant receives a similar training or intervention experience. Doing so can save time, money, and even lives.

Finally, advancing work with adult learners has practical implications for several contexts. For instance, including adult learners in the research adds an additional element of diversity to the field of instructional communication. Little instructional communication research has been devoted to understanding adult learners. Neglecting important elements (such as age and experience) that students bring with them to the classroom could lead to missed opportunities in ensuring that recommended teaching practices apply to adult learners, especially as they rise to exceed traditional students in the near future (MacDonald, 2018).

Additionally, if research does not provide theoretically and empirically-based tools to reach adults, then it is possible that education, training, and intervention efforts (which mostly comprise of adult learners) will not be as effective as possible. Indeed, understanding how adults learn can be helpful to contexts such as health, crisis, and organizational settings in which many of the goals include informing, persuading, or changing adults. If adults process, learn, and apply information differently than students (Knowles, 1980; as found in phase one results), and if much of the audience for health messages, crisis campaigns, and organizational training includes adults, then it is important to ensure that the research being conducted accurately applies to this population. Thus, there are multiple, practical implications of pursuing adult learners for a variety of contexts.

Limitations and Future Directions

These implications must be interpreted in light of several limitations, which may be addressed in future research. First, the focus groups in phase one consisted of 12 adult-trainees, which unlikely provided maximum variation in responses that represented all

training contexts and perspectives. Although some responses were consistent among nearly every participant, such as the touch, attractiveness, and criticism items, more diversity in perspectives would only strengthen this study by providing greater face validity and clearer items. Future research may utilize more diverse and extensive focus groups with a variety of training contexts so that maximum variation can be achieved. Further, phase two and three surveys did not probe the various training contexts participants experienced. However, it is possible that perceived QD could be influenced by the content, style, or surrounding factors of the training. For instance, mandatory job training may be distinct from an intervention to prevent sexual assault. Further, a one-time discussion-based training may influence QD differently than a multiple-day lecture-based training. Thus, future research may identify how training context can influence perceived quality of delivery.

In addition to the lack of variation in the focus groups, which provided the foundation for refined scales, the definition of adult learners (and consequently, andragogy) is complicated, leading to debate regarding when a person is considered an adult learner. Some scholars have argued that the traditional student can be considered an adult learner, both because of life experience and because of the legal definition of adulthood (Beebe et al., 2012). However, others have argued that the cognitive processes that influence learning, motivation, and compliance are different at age 18, 25, and even 30 (MacDonald, 2018); therefore, a traditional 18-year-old student may not be identical to the 30-year-old mature adult. One suggestion for future research is the development of a better definition of adult learners. This definition may be based on lived experience, which is often what leads to the visible changes in cognition, learning, and behavior.

Alternatively, scholars may consider creating a third category for the traditional 18-22-year-old student that neither assumes this group as children (assumption of pedagogy) or adults, but rather identifies this stage in life as young adulthood or emerging adulthood. This may create room for clearer definitions and more precise recommendations derived to support this group of learners. Therefore, more work is needed in understanding the impact of life development on learning, motivation, and compliance.

Second, it is important to note that while extensive, this QD scale may not be exhaustive. There are a variety of reasons why trainees may not be motivated or able to process information, beyond the trainer's quality of delivery. For instance, one participant in phase two told the author after completing the survey that, "some of my negatively scored items were because I was forced to be there, and the training was not relevant to my field." If trainees had other factors that contributed to their inability to process, feel motivated, or comply with the information, then these might have influenced the way that they answered the questions. In turn, this could change the association between perceived delivery behaviors and extraneous load. Additional research may explore the various reasons why trainees experience cognitive load or feel motivated during training. This may be done experimentally to ensure causal claims can be made. For instance, researchers may randomly assign training participants to groups of varying cognitive load within training. This way, they are able to identify whether the differences in load, motivation, or compliance are due to the training and not because of other variables. Consequently, this design may lend insight into how load affects trainees when other factors are controlled.

Additionally, for the sake of parsimony, researchers may consider exploring the factors in the scale that contributed to the greatest amount of variance. The current study found that competence, caring, clarity, speech, and relevance accounted for the greatest amount of variance in the QD scale, whereas rapport and appearance seemed to possess the least amount of variance. Thus, to simplify the QD scale further (which may boost its practical application), researchers may identify whether similar levels of validity, reliability, and theoretical support increase when reducing the factors.

Third, the current study only assessed intention to behave, comply with, or use the promoted information, rather than actual behavior. Although some models illustrate the intention-behavior connection (e.g., theory of reasoned action, Fishbein, 1979; theory of planned behavior, Ajzen, 1991), other research has shown that this relationship is not so strong (e.g., Rhodes & Dickau). Thus, this study is limited because it did not evaluate whether trainees actually used the information, just whether they intended to use it.

Although considering actual behavior may be more precise when understanding training, intention is a necessary but insufficient element to behavior change. Therefore, although this study may have slightly different results when actual behavior is measured, intention to behave can still provide insight into the behavior change process. Future research may experimentally and longitudinally identify whether trainees actually comply more with trainers that possess more quality of delivery behaviors. However, considering actual compliance may be challenging due to the latency of various trainings. Sometimes compliance occurs directly after a training, but loses its effect later, when the new behaviors are needed. Or, perhaps a training provides information long before it can be applied. For instance, in a bystander invention program, participates are trained to take

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action when they see a situation go awry. It would be difficult to assess actual behavior in this case, as bystander situations may occur within a week to within several years of the training (or they may never occur at all). Thus, researchers may need to find unique and creative ways to address actual behavior in training contexts.

Fourth, the current study did not assess the background of the trainers. For instance, it is not known whether the trainers were chosen or had volunteered for their role. A trainer that was selected may differ in their performance compared to a trainer that had volunteered to provide the training because chosen trainers may have a more rigorous process of ensuring quality delivery. Additionally, we do not know whether the trainers received training in delivery. This could affect whether trainers were aware of the best practices for delivering training, which would influence their effectiveness in trainee outcomes. Future research may assess how the trainers' background, training, and knowledge influence their delivery and trainee outcomes. Perhaps this may be done through extensive observations of trainers or a simple experiment to compare trained trainers and untrained trainers' effects on trainees.

Another aspect of the trainers may include whether they had an ongoing relationship with trainees, or if they were external trainers that delivered the training without previous interaction with the trainees. If a trainer has an established relationship with the trainees outside of the training, then it is possible that perceptions of credibility, rapport, and caring would be affected because trainees would have more information by which to evaluate the trainer. These and other factors of trainers may be explored more in future research. One approach may be to interview trainers about their background and perceptions of the training along with the experiences of their trainees. Then, the two

could be compared to understand how the trainer's background and relationship with trainees influences trainee perception.

Fifth, the current study measured motivation, compliance, and cognitive load at one time point, which prevents us from understanding how these outcomes may change over time. For instance, perhaps the trainees feel most motivated about processing the information at the beginning of the training, whereas toward the end, they are fatigued and unable to continue their level of motivation. Or, it is possible that trainees feel that they will comply with the information directly after the training, but then struggle to implement it days, weeks, or months after the training has concluded. Without a longitudinal design to assess the changes in motivation, compliance, or load, it is difficult to understand the long-term impacts of trainer communication delivery. Thus, researchers may consider assessing these outcomes at varying levels after the training has concluded. This will provide insight into the effects of communication on load and motivation as they change, as well as the influence on both short- and long-term change.

Sixth, the study chose not to evaluate presentational aids more closely because use of visual aids may have constrained the training style, and quality of delivery should transcend training technique. In other words, regardless of if a training is largely discussion based, lecture based, or hands-on, which vary in visual aid appropriateness, quality communication should appear similarly across these styles. Additionally, CLT and CATML both provide tested recommendations and strategies for developing visuals to support motivation, learning, and change. However, in all three phases of the current study, visual aids were prominent. They were mentioned in the focus groups, and nearly every trainee reported that their training used some kind of visual aid in both phases two

and three. Clearly, visual aids are heavily used throughout training, but it remains unknown how they may affect trainee motivation and compliance. Future research may assess the impact of visual aids by comparing trainings, manipulating the type of visual aid, or asking trainees their preferences regarding visual aids.

Finally, this research, associated findings, and resulting limitations are based upon participant trainings being strictly face-to-face. However, the growing prevalence of online training requires researchers and practitioners to consider how quality of delivery may appear in a mediated context as well. Based on current research regarding online learning, effective communication in online learning may include several constructs in the current study such as clarity, credibility, competence, and appearance. However, these variables may be applied differently in the online context. For instance, trainers can illustrate clarity in an online video or recording in the same way as a live session. Additionally, trainers may demonstrate knowledge of the topic, caring for the trainees' understanding, and professional appearance in the online videos. However, there may also be some constraints within the context of online learning. For instance, how do trainers ensure that they are communicating caring, relevance, and clarity without the richness of a live training session? How does the role of technology influence this interaction? Does it matter whether trainers are visible in the online training videos? These questions and others may be assessed to understand how the current study, and research on communication training, may be applied to online training contexts.

Overall, pursuing these limitations in future research will contribute to theory and practice by providing more empirical evidence of communication behaviors' effect on trainees; this would further the foundation for evaluating trainers effectively.

Recommendations

In light of these conclusions, implications, and limitations, there are several recommendations that can be made to trainers and those who are training, evaluating, or supporting trainers.

1) Strategies that work for student-trainees may not be effective for adult-trainees. In the current research, phase one demonstrated that student-trainees and adult-trainees do not have identical responses to trainers. Thus, if trainers are utilizing recommendations or experiences with a younger trainee population, there may not be a direct application to an adult-trainee population.

2) Recommendations to dress appropriately, speak clearly and loudly, and provide direction in the training on important concepts are common recommendations from other trainers (e.g., Beebe et al., 2012), and were all found to be important in this study. However, additional items that also contribute to quality of delivery include illustrating that the trainer cares about the trainees, using relevant experiences to illustrate concepts, and demonstrating expertise. Trainers should identify ways to accomplish this given their audience and context, which may vary. For instance, if a trainer is providing a session for well-educated faculty on an unpleasant new digital process, this will look different than a session for those who have yet to attain a GED and are receiving training on how to find a job. Based on this research demonstrating caring, utilizing trainee experiences, and establishing credibility will manifest differently, based on the assumed perception of the

audience, which can be influenced by education level, context, and cultural norms, among other things.

3) It is also important to note that in the current study, several concepts were not found to be important for effective quality of delivery. For instance, although almost all trainees reported that the trainer utilized rapport, this element did not show to be highly important to perceived quality of delivery or related outcomes. Thus, trainers are encouraged to place greater emphasis on items such as goodwill, competence, and clarity than in rapport or support, which may be less useful and effective.

4) As illustrated by the QD model, it is crucial for trainers to facilitate trainees' motivation to process the training information, especially if trainers are trying to encourage compliance. Some of the behaviors that directly influenced motivation include goodwill, clarity, speech, relevance, and appearance. However, trainers may consider pursuing additional factors that they believe would also appeal to trainee's motivation. For instance, motivation may be affected by whether the training is mandatory, the length of the training, or the relevance of the information. Because motivation is strongly linked to compliance, trainers should make this training aspect their priority.

5) Finally, trainers should be concerned with the cognitive load of their trainees. In the context of the current research, although extraneous load did not predict intention, it was associated with levels of motivation, as well as germane and intrinsic loads. Additionally, several of the trainer's delivery behaviors were able to influence the cognitive load of trainees. Thus, even if the content itself

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is complex (intrinsic load), the trainer may be able to influence this load by the way that they communicate the information. Additionally, they may be able to indirectly influence the perceived difficulty of the information by affecting extraneous load, which is an area of future research to confirm. This is also true for the effort of a trainee (germane load): trainers may both directly and indirectly reduce this load, which can then influence their ability to understand the information. Thus, although these loads may not directly predict intention to comply, they can contribute to perceptions of clarity, competence, speech, and difficulty of the information. These may then lead to compliance. Hence, trainers may use these techniques and others that identify ways of reducing their trainee's cognitive load.

Summary and Conclusion

Communication is a central aspect of behavior change across a variety of training and intervention settings. This three-phase study answered the broad research question: What quality of delivery behaviors lead to positive training outcomes (e.g., reduced cognitive load, motivation to process, and compliance) for adult-trainees? Specifically, this study found that a) a cognitive load framework transferred well to existing bodies of literature, including public health, training and development, and instructional communication and provided the basis for a b) developed and validated quality of delivery scale in an c) adult learner population that assessed the most important communication delivery behaviors (goodwill, competence, speech, clarity, appearance, relevance, and appearance) that d) led to reduced extraneous load, increased motivation

to process, and increased compliance e) and contributed to both theory and practice. Findings, conclusions, implications, limitations, and recommendations were discussed.

Whether instructors are seeking change in their adult students, public health practitioners are aiming for improved health outcomes, or corporate organizations are training for peak productivity, effective communication plays an indispensable role for successful learning, motivation, and compliance in adult trainees. Further, it is important that communication is measured in addition to the content of the training in order to identify the actual success of a given program. As researchers and practitioners implement best practices for delivering training and incorporate valid assessment of these strategies into their intervention, such programs can improve. As a result, adults can experience greater learning, more productivity, happier work environments, and better health for years to come.

APPENDICES

APPENDIX A: PHASE ONE PACKET FOR
FOCUS GROUP PARTICIPANTS

Demographics

What is your age?

What is your gender?

What is your position (e.g., student, faculty, staff, etc)?

When was the training that you attended?

Was the training mandatory or voluntary?

What was the title or overview of the training?

What strategy was predominantly used in the training (e.g., lecture, discussion, etc)?

Were there visuals (e.g., handouts, powerpoint) used?

If there were visuals used, what were they (e.g., handouts, powerpoint)?

How long was the training session?

Immediacy

DIRECTIONS: The following statements describe the ways some trainers behave while talking with or to others. Respond to the items with the following scale:

1 = Extremely unimportant

2 = unimportant

3 = neither unimportant nor important

4 = important

5 = extremely important

It is important for a trainer to:

1.   Use their hands and arms to gesture while talking.

2.   Touch others on the shoulder or arm while talking to them.

3.   Use a monotone or dull voice while talking.

4.   Look over or away from others while talking to them.

5.   Move away from others when others touch them while talking.

6.   Have a relaxed body position when talking.

7.   Frown while talking.

8.   Avoid eye contact while talking (e.g., look at notes, the powerpoint, or away from trainees).

9.   Have a tense body position while talking.

10.   Sit close or stands close to people while talking.

11.   Use gestures when they talk.

12.   Be animated when they talk.

13.   Haves a bland facial expression when they talk.

14.   Move closer to people when they talk to them.

15.   Look directly at people while talking to them.

16.   Be stiff when they talk to people.

17.   Have a lot of vocal variety when they talk.

18.   Avoid gesturing while talking to people.

19.   Lean toward people when they talk to them.

20.   Maintain eye contact with people when they talk to them.

21.   Try not to sit or stand close to people when they talk with them.

22.   Lean away from people when they talk to them.

23.   Smile when they talk.

24.   Avoid touching people when the trainer talk with others.

25.   Use a conversational style when talking with trainees.

Credibility

DIRECTIONS: The following statements describe the ways some trainers behave while talking with or to others. Respond to the items with the following scale:

1 = Extremely unimportant

2 = unimportant

3 = neither unimportant nor important

4 = important

5 = extremely important

It is important for a trainer to:

1.   Be intelligent

2.   Be trained

3.   Care about me

4.   Be honest

5.   Have my interests at heart

6.   Trustworthy

7.   Be an expert

8.   Be not self-centered

9.   Be concerned with me

10.   Be honorable

11.   Be informed

12.   Be moral

13.   Be competent

14.   Be ethical

15.   Be sensitive

16.   Be bright

17.   Be genuine

18.   Be understanding

Clarity (focuses on clear communication)

TCSI

DIRECTIONS: The following statements describe the ways some trainers behave while talking with or to others. Respond to the items with the following scale:

1 = extremely unimportant

2 = unimportant

3 = neither unimportant nor important

4 = important

5 = extremely important

It is important for a trainer to:

1.   Clearly define major concepts (explicitly states definitions, corrects partial or incorrect student responses, refines terms to make definitions more clear).

2.   Clearly answer the trainee's questions.

3.   In general, I understand the trainer.

4.   Projects or activities assigned for the training session have unclear guidelines.

5.   Provide clear objectives for the training session.

6.   Be straightforward in his or her training.

7.   Give clear defining guidelines for activities or assignments outside of the training.

8.   Use clear and relevant examples (he/she uses interesting, challenging examples that clearly illustrate the point. He/she refines unclear student examples. He/she does not accept incorrect student examples).

9.   Use clear communication.

10.   Use explicit instruction.

CBI (focuses on emphasizing major or important points)

DIRECTIONS: The following statements describe the ways some trainers behave while talking with or to others. Respond to the items with the following scale:

1 = extremely unimportant

2 = unimportant

3 = neither unimportant nor important

4 = important

5 = extremely important

It is important for the trainer to:

1.   Verbally stress important issues presented in the lecture.

2.   Provide written examples of topics covered in the training session in the form of handouts or visual materials (e.g., powerpoint, overheads, or chalkboard).

3.   Give an organization of the training in written form, either on paper or as part of a visual aid like an overhead or the whiteboard.

4.   Tell us what definitions, explanations, or conclusions are important to make note of.

5.   Explain how we are supposed to see relationships between topics covered in the training.

6.   Provide us with written descriptions of the most important things in the training.

7.   Explain when she/he is presenting something that is important for us to know.

8.   Provide us with written or visual definitions, explanations, or conclusions of topics covered in the lecture.

9.   Verbally identify examples that illustrate concepts that we are supposed to learn from the training.

10.   Present written explanations of how ideas in the training fit together on the chalkboard, overhead, powerpoint, or in handouts.

11.   Explain when he/she is providing an important definition or explanation of a concept.

12.   Use handouts, the chalkboard, overheads, or powerpoint to emphasize important issues addressed in the lecture.

Teaching Behaviors Inventory

DIRECTIONS: The following statements describe the ways some trainers behave while talking with or to others. Respond to the items with the following scale:

1 = extremely unimportant

2 = unimportant

3 = neither unimportant nor important

4 = important

5 = extremely important

It is important for the trainer to:

1. Give several examples of each concept

2. Use concrete everyday examples to explain concepts and principles

3. Define new or unfamiliar terms

4. Repeat difficult ideas several times

5. Stress the most important points by pausing, speaking slowly, raising voice, and so on

6. Use graphs or diagrams to facilitate explanation

7. Point out practical applications of concepts

8. Answer trainees' questions thoroughly

9. Suggest ways of memorizing complicated ideas

10. Write key terms on whiteboard

11. Explain subject matter in familiar colloquial language

12. Speak in an expressive way

13. Move about while training

14. Walk up aisles beside trainees

15. Gesture with head or body

16. Tell jokes or humorous anecdotes

17. Avoid reading training verbatim from prepared notes or text

18. Smile or laughs while training

19. Avoiding showing distracting mannerisms

20. Encourage trainees to ask questions or make comments during training

21. Criticize trainees when they make errors

22. Praise trainees for good ideas

23. Ask questions of individual trainees

24. Ask questions of trainees as a whole

25. Incorporate trainees' ideas into training

26. Present challenging, thought-provoking ideas

27. Use a variety of media and activities in training

28. Ask rhetorical questions

29. Use headings and subheadings to organize training

30. Put outline of training on blackboard or overhead screen

31. Clearly indicate transition from one topic to the next

35. Give preliminary overview of training at beginning of session

36. Explain how each topic fits into the training as a whole

37. Review topics covered in previous training at beginning of each session

38. Periodically summarize points previously made

39. Avoid dwelling excessively on obvious points

40. Avoid digressing from major theme of training

41. Avoid covering very little material in training sessions

42. Ask if trainees understand before proceeding to next topic

43. Stick to the point in answering trainees' questions

50. Avoid stutters, mumbles or slurs words

51. Speak at appropriate volume

52. Speak clearly

53. Speak at appropriate pace

54. Avoid saying "um" or "ah"

56. Address individual trainees by name

57. Announce availability for consultation outside of session

58. Offer to help trainees with problems

59. Show tolerance of other points of view

60. Talk with trainees before or after class

Trainer Appearance

DIRECTIONS: The following statements describe the ways some trainers behave while talking with or to others. Respond to the items with the following scale:

1 = extremely unimportant

2 = unimportant

3 = neither unimportant nor important

4 = important

5 = extremely important

It is important for the trainer to:

1.   Be dressed professionally

2.   Have a well-kept and clean appearance.

3.   Be attractive.

1.   Think about a trainer or professional development speaker you have encountered in the past three months. What were things about their delivery that were done well? What were aspects of their delivery that were not done well?

-

At this time, participants will be given the scales.

1.   Think about a trainer or professional development speaker you have encountered in the past three months. Focus on their delivery (not content).

2.   Think about your motivation during the session. Were you motivated to pay attention and understand the information?

3.   Were you motivated to apply and use the information?

4.   Did you think about how you would use the information?

5.   Have you used the information?

6.   Looking at this list, is there anything that does not seem to be relevant in describing this trainer and their effect on your motivation and compliance?

7.   Looking at this list, is there anything that is missing in describing this trainer and their effect on your motivation and compliance?

-

1.   Think about the best trainer or professional development speaker you have encountered. Focus on their delivery (not content).

2.   Think about your motivation during the session. Were you motivated to pay attention and understand the information?

3.   Were you motivated to apply and use the information?

4.   Did you think about how you would use the information?

5.   Have you used the information?

6.   Looking at this list, is there anything that does not seem to be relevant in describing this trainer and their effect on your motivation and compliance?

7.   Looking at this list, is there anything that is missing in describing this trainer and their effect on your motivation and compliance?

-

1.   Think about the worst trainer or professional development speaker you have encountered. Focus on their delivery (not content).

2.   Think about your motivation during the session. Were you motivated to pay attention and understand the information?

3.   Were you motivated to apply and use the information?

4.   Did you think about how you would use the information?

5.   Have you used the information?

6.   Looking at this list, is there anything that does not seem to be relevant in describing this trainer and their effect on your motivation and compliance?

7.   Looking at this list, is there anything that is missing in describing this trainer and their effect on your motivation and compliance?

-

Other possible probe questions:

-       What delivery aspects inspire your motivation?

-       What delivery aspects inspire your compliance?

-       Are these the same?

-       Do you expect trainers to build a relationship with you?

-       Do you expect trainers to care for you?

-       Do you expect trainers to use humor, self-disclosure, and affinity seeking?

Consent to Participate in a Research Study
Developing and Validating a Quality of Delivery Scale

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?

You are being invited to take part in a research study about quality of delivery in training settings. You are being invited to take part in this research study because you have been a trainee and we are interested in your experience. If you volunteer to take part in this study, you will be one of about 1000 people to do so.

WHO IS DOING THE STUDY?

The person in charge of this study is Kelsey Moore of University of Kentucky School of Information Science with faculty advisor Dr. Brandi Frisby. You may contact either at kelseymoore@uky.edu or brandi.frisby@uky.edu if you have questions.

WHAT IS THE PURPOSE OF THIS STUDY?

By doing this study, we hope to learn about the role of delivery in training settings so that trainers can be more effective in their sessions.

ARE THERE REASONS WHY YOU SHOULD NOT TAKE PART IN THIS STUDY?

You may not take part in this study if you are not 18 years of age or older and have not been to any face-to-face training session of any kind within the past six months.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The research procedures will be conducted using Qualtrics, an online survey system. There will be a series of questionnaires about your training experience to be completed online. The survey should take about 25 minutes of your time and can be completed at a time and place of your choosing on your personal electronic device.

WHAT WILL YOU BE ASKED TO DO?

You will be asked to answer some open ended and closed ended questions in a survey about your experiences in a face-to-face training using an online survey. You

will not discuss the location of the training or provide any personal information about the trainer. All responses are kept confidential and anonymous.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

To the best of our knowledge, the things you will be doing have no more risk of harm than you would experience in everyday life.

WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?

There is no guarantee that you will get any benefit from taking part in this study.

DO YOU HAVE TO TAKE PART IN THE STUDY?

If you decide to take part in the study, it should be because you want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can skip questions or stop at any time during the study and still keep the benefits and rights you had before volunteering. As a student, if you decide not to take part in this study, your choice will have no effect on your academic status or grade in the class.

IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?

If you do not want to take part in the study, you are not obligated to. There are no alternatives at this time.

WHAT WILL IT COST YOU TO PARTICIPATE?

There are no costs associated with taking part in the study.

WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?

No rewards will be given.

WHO WILL SEE THE INFORMATION THAT YOU GIVE?

We will make every effort to keep confidential all research records that identify you to the extent allowed by law.

Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write

about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is.

We will keep private all research records that identify you to the extent allowed by law. However, there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court. Also, we may be required to show information which identifies you to people who need to be sure we have done the research correctly; these would be people from such organizations as the University of Kentucky

CAN YOUR TAKING PART IN THE STUDY END EARLY?

If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue. You will not be treated differently if you decide to stop taking part in the study.

WHAT ELSE DO YOU NEED TO KNOW?

There is a possibility that the data collected from you may be shared with other investigators in the future. If that is the case the data will not contain information that can identify you unless you give your consent or the UK Institutional Review Board (IRB) approves the research. The IRB is a committee that reviews ethical issues, according to federal, state and local regulations on research with human subjects, to make sure the study complies with these before approval of a research study is issued.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?
Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Kelsey Moore, kelseymoore@uky.edu. If you have any questions about your rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the University of Kentucky between the business hours of 8am and 5pm EST, Mon-Fri. at 859-257-9428 or toll free at 1-866-400-9428. We will give you a signed copy of this consent form to take with you.

O I agree to participate

O I do not agree to participate

I acknowledge that I am over the age of 25 and have completed a face-to-face training (HR training, professional development, software training, orientation, or others are all sufficient) in the past 6 months.

○ Yes (1)

○ No (2)

Let's start with thinking about the training you attended. Please briefly describe the face-to-face training that you recently attended (within the past 6 months):

_____

How long ago was this training?

○ Less than one month (1)

○ One to three months ago (2)

○ Four to six months ago (3)

How long was your training (in hours)?

_____

Was your training mandatory?

Yes (1)

No (2)

Did your training use visual aids? Please select all that apply:

Slides (1)

Handouts (2)

Dry erase board/chalkboard/overhead (3)

Other visual aids (4) _____

My training did not use visual aids (5)

Great! Now let's think about the trainer for these questions.

The trainer...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Had a relaxed body position when talking. (1)	○	○	○	○	○
Used gestures when they talked. (2)	○	○	○	○	○
Had a bland facial expression when they talked. (3)	○	○	○	○	○
Had a lot of vocal variety when they talked. (4)	○	○	○	○	○
Maintained eye contact with trainees while training. (5)	○	○	○	○	○
Smiled while training. (6)	○	○	○	○	○
Use a conversational style when talking with trainees. (7)	○	○	○	○	○

The trainer...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Was intelligent (1)	○	○	○	○	○
Was trained (2)	○	○	○	○	○
Cared about me (3)	○	○	○	○	○
Was honest (4)	○	○	○	○	○
Had my best interests at heart (5)	○	○	○	○	○
Was trustworthy (6)	○	○	○	○	○
Was an expert (7)	○	○	○	○	○
Was not self-centered (8)	○	○	○	○	○
Was concerned with me (9)	○	○	○	○	○
Was informed (10)	○	○	○	○	○
Was competent (11)	○	○	○	○	○
Was sensitive (12)	○	○	○	○	○
Was genuine (13)	○	○	○	○	○
Was understanding (14)	○	○	○	○	○

Q10 The trainer...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Clearly defined major concepts (explicitly stated definitions, corrected partial or incorrect student responses, refined terms to make definitions more clear). (1)	○	○	○	○	○
Provided clear objectives for the training session. (2)	○	○	○	○	○
Used clear examples (he/she used interesting, challenging examples that clearly illustrated the point. He/she refined unclear trainee examples. He/she did not accept incorrect trainee examples). (3)	○	○	○	○	○
Explained when she/he is presenting something that is important for us to know. (4)	○	○	○	○	○

Nice work! Please continue thinking about the trainer.

The trainer...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Gave several examples of each concept. (1)	○	○	○	○	○
Repeated difficult ideas several times. (2)	○	○	○	○	○
Stressed the most important points by pausing, speaking slowly, raising voice, and so on. (3)	○	○	○	○	○
Used visuals (e.g., graphs, pictures, diagrams, and others) to facilitate explanation. (4)	○	○	○	○	○
Pointed out practical applications of concepts. (5)	○	○	○	○	○
Answered trainees' questions thoroughly. (6)	○	○	○	○	○
Suggested ways of applying complicated ideas. (7)	○	○	○	○	○
Explained subject matter in common, everyday language. (8)	○	○	○	○	○
Spoke in an expressive way. (9)	○	○	○	○	○
Moved about while training. (10)	○	○	○	○	○
Told appropriate and relevant jokes or humorous anecdotes. (11)	○	○	○	○	○

Avoided reading training verbatim from prepared notes or text. (12)	○	○	○	○	○
Avoided showing distracting mannerisms. (13)	○	○	○	○	○
Encouraged trainees to ask questions or make comments during training. (14)	○	○	○	○	○
Corrected trainees if they present inaccurate information. (15)	○	○	○	○	○
Praised trainees for good ideas. (16)	○	○	○	○	○
Asked questions of individual trainees. (17)	○	○	○	○	○
Asked questions of trainees as a whole. (18)	○	○	○	○	○
Incorporated trainees' ideas into training. (19)	○	○	○	○	○
Put outline of training in written form (handout, visual aid, or whiteboard). (20)	○	○	○	○	○
Clearly indicated transitions from one topic to the next. (21)	○	○	○	○	○
Explained how each topic fits into the training as a whole. (22)	○	○	○	○	○
Reviewed topics covered in previous training at beginning of each session. (23)	○	○	○	○	○

Periodically summarized points previously made. (24)	○	○	○	○	○
Avoided dwelling excessively on key points. (25)	○	○	○	○	○
Avoided digressing from major theme of training. (26)	○	○	○	○	○
Avoided covering very little material in training sessions. (27)	○	○	○	○	○
Asked if trainees understand before proceeding to next topic. (28)	○	○	○	○	○
Stayed to the point in answering trainees' questions. (29)	○	○	○	○	○
Avoided stutters, mumbles or slurring words. (30)	○	○	○	○	○
Spoke at appropriate volume. (31)	○	○	○	○	○
Spoke clearly. (32)	○	○	○	○	○
Spoke at appropriate pace. (33)	○	○	○	○	○
Avoided using vocal fillers such as um, ah, or like. (34)	○	○	○	○	○
Addressed individual trainees by name. (35)	○	○	○	○	○
Announced availability for consultation outside of session. (36)	○	○	○	○	○

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Offered to help trainees with problems. (37)	○	○	○	○	○
Showed tolerance of other points of view. (38)	○	○	○	○	○
Talked with trainees before or after training. (39)	○	○	○	○	○

Thank you! A few more about the trainer.

The trainer...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Was dressed appropriately for the occasion. (1)	○	○	○	○	○
Had a well-kept and clean appearance. (2)	○	○	○	○	○
Referred to the training as "our" training session and what "we" are doing. (3)	○	○	○	○	○
Used examples that make the content relevant to me. (4)	○	○	○	○	○
Explicitly stated how the material relates to my career goals or to my life in general. (5)	○	○	○	○	○
Used own experiences to introduce or demonstrate a concept. (7)	○	○	○	○	○
Used trainee's experiences to demonstrate or introduce a concept. (8	○	○	○	○	○
Used relevant, current events when training on a topic. (9)	○	○	○	○	○

Extraneous Load
Almost there! Please think about your own understanding and motivation in the training...

How difficult was it for you to understand the training?

○ Extremely easy (1)

○ Somewhat easy (2)

○ Neither easy nor difficult (3)

○ Somewhat difficult (4)

○ Extremely difficult (5)

During this training, it was hard to identify the important information.

○ Strongly agree (1)

○ Somewhat agree (2)

○ Neither agree nor disagree (3)

○ Somewhat disagree (4)

○ Strongly disagree (5)

The design of this training made it difficult for me to understand the content.

- ○ Strongly agree (1)

- ○ Somewhat agree (2)

- ○ Neither agree nor disagree (3)

- ○ Somewhat disagree (4)

- ○ Strongly disagree (5)

The delivery of this training made it difficult for me to understand the content.

- ○ Strongly agree (1)

- ○ Somewhat agree (2)

- ○ Neither agree nor disagree (3)

- ○ Somewhat disagree (4)

- ○ Strongly disagree (5)

Germane Load

How hard did you have to work to understand the training content?

- ○ Extremely hard (1)

- ○ Slightly hard (2)

- ○ Neither hard nor easy (3)

- ○ Slightly easy (4)

- ○ Extremely easy (5)

Intrinsic Load

How difficult would the content have been to understand if it was delivered in an ideal manner (e.g., by an excellent trainer, in a way that was easy to understand, etc.)?

○ Extremely easy (1)

○ Moderately easy (2)

○ Slightly easy (3)

○ Neither easy nor difficult (4)

○ Slightly difficult (5)

○ Moderately difficult (6)

○ Extremely difficult (7)

Motivation

Please think about your motivation during the training:

	Not at all true (1)	Somewhat untrue (2)	Neither true nor untrue (3)	Somewhat true (4)	Very true (5)
I was motivated to think deeply about what is being taught in this training. (1)	○	○	○	○	○
I was motivated to thoroughly study the ideas being delivered in this training. (2)	○	○	○	○	○
I was interested in concentrating meaningfully on this training. (3)	○	○	○	○	○
I cared about really learning the content in this training. (4)	○	○	○	○	○

Awesome! Last few questions on demographics:

What is your sex?

○ Male (1)

○ Female (2)

What is your ethnicity?

○ White (1)

○ Black or African American (2)

○ American Indian or Alaska Native (3)

○ Asian (4)

○ Native Hawaiian or Pacific Islander (5)

○ Hispanic (6)

○ Other (7)

What is your age (in years)?

_____

We thank you for your time spent taking this survey.
Your response has been recorded.

Consent to Participate in a Research Study
Developing and Validating a Quality of Delivery Scale

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?

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WHO IS DOING THE STUDY?

The person in charge of this study is Kelsey Moore of University of Kentucky School of Information Science with faculty advisor Dr. Brandi Frisby. You may contact either at kelseymoore@uky.edu or brandi.frisby@uky.edu if you have questions.

WHAT IS THE PURPOSE OF THIS STUDY?

By doing this study, we hope to learn about the role of delivery in training settings so that trainers can be more effective in their sessions.

ARE THERE REASONS WHY YOU SHOULD NOT TAKE PART IN THIS STUDY?

You may not take part in this study if you are not 18 years of age or older and have not been to any face-to-face training session of any kind within the past six months.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The research procedures will be conducted using Qualtrics, an online survey system. There will be a series of questionnaires about your training experience to be completed online. The survey should take about 15 minutes of your time and can be completed at a time and place of your choosing on your personal electronic device.

WHAT WILL YOU BE ASKED TO DO?

You will be asked to answer some open ended and closed ended questions in a survey about your experiences in a face-to-face training using an online survey. You

will not discuss the location of the training or provide any personal information about the trainer. All responses are kept confidential and anonymous.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

To the best of our knowledge, the things you will be doing have no more risk of harm than you would experience in everyday life.

WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?

There is no guarantee that you will get any benefit from taking part in this study.

DO YOU HAVE TO TAKE PART IN THE STUDY?

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IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?

If you do not want to take part in the study, you are not obligated to. There are no alternatives at this time.

WHAT WILL IT COST YOU TO PARTICIPATE?

There are no costs associated with taking part in the study.

WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?

No rewards will be given.

WHO WILL SEE THE INFORMATION THAT YOU GIVE?

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Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write

about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is.

We will keep private all research records that identify you to the extent allowed by law. However, there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court. Also, we may be required to show information which identifies you to people who need to be sure we have done the research correctly; these would be people from such organizations as the University of Kentucky

CAN YOUR TAKING PART IN THE STUDY END EARLY?

If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue. You will not be treated differently if you decide to stop taking part in the study.

WHAT ELSE DO YOU NEED TO KNOW?

There is a possibility that the data collected from you may be shared with other investigators in the future. If that is the case the data will not contain information that can identify you unless you give your consent or the UK Institutional Review Board (IRB) approves the research. The IRB is a committee that reviews ethical issues, according to federal, state and local regulations on research with human subjects, to make sure the study complies with these before approval of a research study is issued.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Kelsey Moore, kelseymoore@uky.edu. If you have any questions about your rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the University of Kentucky between the business hours of 8am and 5pm EST, Mon-Fri. at 859-257-9428 or toll free at 1-866-400-9428. We will give you a signed copy of this consent form to take with you.

O I agree to participate

O I do not agree to participate

I acknowledge that I am over the age of 25 and have completed a face-to-face training (HR training, professional development, software training, orientation, or others are all sufficient) in the past 6 months.

○ Yes (1)

○ No (2)

Let's start with thinking about the training you attended. Please briefly describe the face-to-face training that you recently attended (within the past 6 months):

_____

How long ago was this training?

○ Less than one month (1)

○ One to three months ago (2)

○ Four to six months ago (3)

How long was your training (in hours)?

_____

Was your training mandatory?

Yes (1)

No (2)

Did your training use visual aids? Please select all that apply:

Slides (1)

Handouts (2)

Dry erase board/chalkboard/overhead (3)

Other visual aids (4) _____

My training did not use visual aids (5)

Great! Now let's think about the trainer for these questions.

The trainer...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Was trained (2)	○	○	○	○	○
Cared about me (3)	○	○	○	○	○
Was honest (4)	○	○	○	○	○
Had my best interests at heart (5)	○	○	○	○	○
Was an expert (7)	○	○	○	○	○
Was not self-centered (8)	○	○	○	○	○
Was concerned with me (9)	○	○	○	○	○

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Was informed (10)	○	○	○	○	○
Was competent (11)	○	○	○	○	○
Was sensitive (12)	○	○	○	○	○
Was genuine (13)	○	○	○	○	○
Was understanding (14)	○	○	○	○	○

Nice work! Please continue thinking about the trainer.

The trainer...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Used clear examples (he/she used interesting, challenging examples that clearly illustrated the point. He/she refined unclear trainee examples. He/she did not accept incorrect trainee examples). (3)	○	○	○	○	○
Explained when she/he is presenting something that is important for us to know. (4)	○	○	○	○	○

Repeated difficult ideas several times. (2)	○	○	○	○	○
Pointed out practical applications of concepts. (5)	○	○	○	○	○
Avoided stutters, mumbles or slurring words. (30)	○	○	○	○	○
Spoke at appropriate volume. (31)	○	○	○	○	○
Spoke clearly. (32)	○	○	○	○	○
Spoke at appropriate pace. (33)	○	○	○	○	○
Announced availability for consultation outside of session. (36)	○	○	○	○	○
Offered to help trainees with problems. (37)	○	○	○	○	○

Thank you! A few more about the trainer.
The trainer...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Was dressed appropriately for the occasion. (1)	○	○	○	○	○
Had a well-kept and clean appearance. (2)	○	○	○	○	○
Used own experiences to introduce or demonstrate a concept. (7)	○	○	○	○	○
Used trainee's experiences to demonstrate or introduce a concept. (8	○	○	○	○	○
Used relevant, current events when training on a topic. (9)	○	○	○	○	○

Extraneous Load

Almost there! Please think about your own understanding and motivation in the training...

How difficult was it for you to understand the training?

○ Extremely easy (1)

○ Somewhat easy (2)

○ Neither easy nor difficult (3)

○ Somewhat difficult (4)

○ Extremely difficult (5)

During this training, it was hard to identify the important information.

○ Strongly agree (1)

○ Somewhat agree (2)

○ Neither agree nor disagree (3)

○ Somewhat disagree (4)

○ Strongly disagree (5)

The design of this training made it difficult for me to understand the content.

○ Strongly agree (1)

○ Somewhat agree (2)

○ Neither agree nor disagree (3)

○ Somewhat disagree (4)

○ Strongly disagree (5)

The delivery of this training made it difficult for me to understand the content.

○ Strongly agree (1)

○ Somewhat agree (2)

○ Neither agree nor disagree (3)

○ Somewhat disagree (4)

○ Strongly disagree (5)

Germane Load

How hard did you have to work to understand the training content?

    ◯ Extremely hard (1)

    ◯ Slightly hard (2)

    ◯ Neither hard nor easy (3)

    ◯ Slightly easy (4)

    ◯ Extremely easy (5)

Intrinsic Load

How difficult would the content have been to understand if it was delivered in an ideal manner (e.g., by an excellent trainer, in a way that was easy to understand, etc.)?

    ◯ Extremely easy (1)

    ◯ Moderately easy (2)

    ◯ Slightly easy (3)

    ◯ Neither easy nor difficult (4)

    ◯ Slightly difficult (5)

    ◯ Moderately difficult (6)

    ◯ Extremely difficult (7)

Motivation

Please think about your motivation during the training:

	Not at all true (1)	Somewhat untrue (2)	Neither true nor untrue (3)	Somewhat true (4)	Very true (5)
I was motivated to think deeply about what is being taught in this training. (1)	○	○	○	○	○
I was motivated to thoroughly study the ideas being delivered in this training. (2)	○	○	○	○	○
I was interested in concentrating meaningfully on this training. (3)	○	○	○	○	○
I cared about really learning the content in this training. (4)	○	○	○	○	○

Intention to Comply

Please state the likelihood that you would use/apply the information from the training or perform the promoted behavior discussed in the training (which applies to you).

Unlikely O O O O O O O Likely
Impossible O O O O O O O Possible
Would not O O O O O O O Would
Improbable O O O O O O O Probable

Awesome! Last few questions on demographics:

What is your sex?

○ Male (1)

○ Female (2)

What is your ethnicity?

○ White (1)

○ Black or African American (2)

○ American Indian or Alaska Native (3)

○ Asian (4)

○ Native Hawaiian or Pacific Islander (5)

○ Hispanic (6)

○ Other (7)

What is your age (in years)?

_____

We thank you for your time spent taking this survey.
Your response has been recorded.

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VITA

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EDUCATION

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ACADEMIC APPOINTMENTS

2016-present	Instructor, College of Communication, University of Kentucky
2018	Head Instructor, Curriculum Designer, and Assessment Coordinator, Public Speaking and Argumentation Camp, University of Kentucky
2017	Trainer, ConnectEd, University of Kentucky
2015	Instructor, Education Unlimited, Georgetown University
2014	Instructor, Speech and Debate, Tarrant County College

AWARDS & HONORS

2012-2014	Phi Theta Kappa Scholarship, Texas A&M University Commerce
2012	Texas All-State Academic Team, Weatherford College
2012	Commencement speaker, Weatherford College
2012	Phi Theta Kappa District II Hall of Honor, Weatherford College
2012	Dr. Molly Harris Award for Excellence in Leadership
2011 & 2012	Weatherford Rotary Club "Service Above Self" Scholarship
2011	WC Ex-Student Association Scholarship
2011	First recipient of the WC Brad Tibbitts Faculty Scholarship
2011	WC Joe Tison Speech Award for Outstanding Speech Student

PROFESSIONAL PUBLICATIONS & RESEARCH

Moore, K. (2018). eTools: Using Nearpod in the classroom. National Communication Association Website, Using Technology in the Classroom with NCA's eTools: https://www.natcom.org/eTools/

Moore, K. (2018). The limits of pedagogy. *Greater Faculties: A Review of Teaching and Learning,* 2, 14-20: https://uknowledge.uky.edu/greaterfaculties/vol2/iss1/4

Moore, K., & Richards, A. S. (in press at *Communication Studies*). Message framing, instructor credibility, and grade reward or punishment: The effects on student motivation to learn and intention to comply.

Pilny, A., McAninch, K. Slone, A., & **Moore, K.** (revise and resubmit at *Communication Methods and Measures*). Towards the development of a hybrid automated content analysis methodology.

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