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Examining Effective Collaboration in Instructional Design

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EXAMINING EFFECTIVE COLLABORATION IN INSTRUCTIONAL DESIGN

by

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ABSTRACT

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The purpose of this study was to examine the application of teamwork in instructional design to determine the frequency by which coordination, decision making, leadership, interpersonal skills, adaptability, and communication are applied in real-world instructional design teams. Instructional designers found on the social media network, LinkedIn, were asked to voluntarily complete the 36-item Teamwork Skills Questionnaire, which was distributed and returned electronically. Descriptive statistics of mean and standard deviation were calculated using Microsoft Excel.

The most frequently applied teamwork skills in instructional design teams were interpersonal skills ($M = 3.57$) and communication ($M = 3.26$). Each of the six skills examined, however, were found to be applicable at least some of the time with the lowest mean being in leadership ($M = 2.92$). These findings indicate that the majority of the skills examined were relevant in instructional design teams at least some of the time. The findings in this study build on the professional knowledge and understanding of instructional design, specifically in relation to the teamwork involved in a design project.

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CHAPTER I

INTRODUCTION

A greater emphasis is being placed on design teams as the field of instructional design changes over time. A project's success no longer lies in the hands of one individual but rather a team of professionals working together to accomplish an intended purpose (Koszalka et al., 2013). Examination of effective collaboration and teamwork in practice may help to demystify the skills used by working instructional designers.

As defined by Seels and Richey (1994), instructional design is the "science and art of creating detailed specifications for the development, evaluation, and maintenance of situations which facilitate learning and performance" (p. 129). Research and development of training materials during World War II and the programmed instruction movement were precursors of the instructional design field. As the theoretical foundations of learning gained support in the 1970s, a number of models based on information-processing were used to improve the quality of instruction. It was not until 1980 that the profession of instructional design was solidified with the introduction of the computer and has since expanded exponentially in the last 35 years (Reiser & Dempsey, 2012).

The principles of instructional design are infused into the learning and performance initiatives implemented within various sectors, to include business and

industry, government and military, healthcare, education, and nonprofit and community settings. In an effort to advance the trajectory of the discipline, an agreed upon set of standards is appropriate to serve as a catalyst for specialization and the progression toward professional certification. The Instructional Board of Standards for Training, Performance, and Instruction (ibstpi) published 22 instructional designer competencies that are clustered into five domains and supported by 105 performance statements, all of which are grounded in empirically-based research (Koszalka et al., 2013). The ibstpi standards create a shared language that "provide guidance for those entering the field, as well as for veterans seeking professional updating and improvement" (Richey, Fields, & Foxon, 2001, p. 92). The need to continually review the instructional design process in relation to an agreed upon set of standards will ensure proper preparation of respective graduates and offer continued support to those in practice.

Effective communication in visual, oral, and written form is the first of the ibspti competencies and is labeled as essential, a competency that every instructional designer is expected to master. Koszalka et al. (2013) outline the 10 performance statements in support of the first competency, to include:

1. Write and edit messages that are clear, concise, and grammatically correct.
2. Deliver presentations that effectively engage audiences and communicate clear messages.

3. Use active listening skills.
4. Solicit, accept, and provide constructive feedback.
5. Present written and oral messages that take into account the type of information being delivered and the diverse background, roles, and varied responsibilities of the audience.
6. Facilitate meetings effectively.
7. Use effective collaboration and consensus-building skills.
8. Use effective negotiation and conflict resolution skills.
9. Use effective questioning techniques.
10. Disseminate status, summary, or action-oriented reports (p. 24).

The focus of this study was to further examine the use of effective collaboration in instructional design to determine which skills are most effective in fostering teamwork. The six teamwork skills examined were (a) coordination – organizing team activities, (b) decision making – using available information to make decisions, (c) leadership – providing team direction, (d) interpersonal skills – interacting cooperatively with team members, (e) adaptability – recognizing problems and responding appropriately, and (f) communication – clear, accurate exchange of information (Kuehl, 2001; Marshall et al., 2005; O'Neil, Chung, & Brown, 1997).

As the field of instructional design evolves with technological advancement and changing pedagogical approaches, effective collaboration is fast becoming a

professional foundation (Bawa & Watson, 2017; Kang & Ritzhaupt, 2015). The ability to work well within a team is found to be an essential skill in the instructional design workplace (Kang & Ritzhaupt, 2015; Sugar, Hoard, Brown, & Daniels, 2012). The effective collaboration of team members and stakeholders can be the determining factor between a successful project and one that falls short of its intended learning and performance goal. Examining teamwork skills will increase our understanding of effective collaboration and strengthen the shared knowledge of the instructional design process in practice.

STATEMENT OF THE PROBLEM

The purpose of this study was to examine the application of teamwork in instructional design to determine the frequency by which coordination, decision making, leadership, interpersonal skills, adaptability, and communication are applied in real-world instructional design teams. Teamwork skills promote innovation in the workplace, which in turn inspires effective work processes, improved work conditions, and increased job satisfaction (Widmann, Messmann, & Mulder, 2016). To learn the frequency by which these skills are applied, one can increase their knowledge of the inner workings of the instructional design process.

RESEARCH QUESTION

The purpose of this study was to examine the following question:

RQ_1: At what frequency are the six teamwork skills (coordination, decision making, leadership, interpersonal skills, adaptability, and communication), as defined by O'Neil et al. (1997), applied in instructional design teams?

BACKGROUND AND SIGNIFICANCE

Job posting analysis in educational technology has repeatedly shown that collaboration and teamwork are essential skills required of an applicant (Kang & Ritzhaupt, 2015; Ritzhaupt & Martin, 2013; Ritzhaupt, Martin, & Daniels, 2010; Sugar et al., 2012). According to Koszalka et al. (2013), instructional designers are working in interdisciplinary design teams more often than working as individuals. It is common for teams of designers, graphics and multimedia artists, subject matter experts, and various stakeholders to work collaboratively to achieve a specific goal and ensure product success. Each professional comes equipped with complex skills unique to their specialty. Collaboration is the art of integrating these differences to create a team-oriented environment that encourages innovation and creativity.

To facilitate a team-oriented environment, technology offers professionals the tools to collaborate through real-time online interaction (Stevenson & Hedberg, 2013). Consistent communication is the key and should encompass multiple methods, including face-to-face, technological tools, team meetings, and weekly status updates (Roytek, 2010). Knowing the collaboration tools available is helpful in building one's instructional design toolbox; however, these tools will inevitably change over time with

the advancement of technology. Rather, the examination of the skills applied while using such tools is foundational to the understanding of teamwork in instructional design.

Research in the field of instructional design and technology has led to an array of models summarizing the instructional design process. Students are taught design through a systematic approach, represented by conceptual models, based on theory, and grounded in data (Tracey & Boling, 2014). This design pedagogy serves as an important groundwork for the novice instructional designer. However, the need to understand what designers do as they work is the key to post-graduation success. When hiring recent graduates, employers place the greatest priority on communication skills, teamwork skills, ethical decision making, critical thinking, and the ability to apply knowledge in real-world settings ("Falling Short," 2016). Gaining a better understanding of the skills applied by practicing instructional designers can increase success in the transition from academics to the workforce.

LIMITATIONS

The research conducted had the following limitations:

1. Data were collected through the social media network LinkedIn and are limited to those instructional designers that are active in that particular network.
2. A limited sample size (167 completed surveys) may not be representative of the given population.

3. Instructional designers were asked to participate in the survey. However, there is no way to verify their actual title/profession.
4. The self-reported data collection used was subject to bias, misinterpretation, and/or untruthfulness.

ASSUMPTIONS

The research conducted was based on the following assumptions:

1. The teamwork skills of coordination, decision making, leadership, interpersonal skills, adaptability, and communication are applicable to the instructional design process.
2. Effective collaboration can be measured in relation to coordination, decision making, leadership, interpersonal skills, adaptability, and communication skills.

PROCEDURES

Instructional designers found on the social media network, LinkedIn, were asked to voluntarily complete the 36-item Teamwork Skills Questionnaire (Appendix A), a self-report, indirect teamwork measurement tool. The six teamwork skills were (a) coordination – organizing team activities, (b) decision making – using available information to make decisions, (c) leadership – providing team direction, (d) interpersonal skills – interacting cooperatively with team members, (e) adaptability – recognizing problems and responding appropriately, and (f) communication – clear, accurate exchange of information (Kuehl, 2001; Marshall et al., 2005; O'Neil et al., 1997).

All questionnaire items used a 4-point Likert-type scale with responses: 1) Almost Never, 2) Sometimes, 3) Often, 4) Almost Always.

The survey was distributed and returned electronically. Descriptive statistics of mean and standard deviation were calculated using Microsoft Excel.

DEFINITION OF TERMS

The following terms are used for the purpose of this study:

1. Competency – A knowledge, skill, or attitude that enables one to effectively perform the activities of a given occupation (Koszalka et al., 2013)
2. Team – Consists of two or more people who have defined roles and depend on each other to accomplish a shared goal (Salas, Dickinson, Converse, & Tannenbaum, 1992)
3. Teamwork – Collaboration to complete a given project or problem (Stevens & Champion, 1994)
4. Team: Adaptability – Ability to monitor the source and nature of problems through an awareness of team activities and factors bearing on the task (O'Neil et al., 1997)
5. Team: Communication – Process by which information is clearly and accurately exchanged between two or more team members in the prescribed manner and by using proper terminology, and the ability to clarify or acknowledge the receipt of information (O'Neil et al., 1997)

6. Team: Coordination – Process by which team resources, activities, and responses are organized to ensure that tasks are integrated, synchronize, and completed with established temporal constraints (O'Neil et al., 1997)
7. Team: Decision Making – Ability to integrate information, use logical and sound judgment, identify possible alternatives, select the best solutions, and evaluate the consequences (O'Neil et al., 1997)
8. Team: Interpersonal skills – Ability to improve the quality of team member interactions through the resolution of team members' dissent, or the use of cooperative behavior (O'Neil et al., 1997)
9. Team: Leadership – Ability to direct and coordinate the activities of other team members, assess team performance, assign tasks, plan and organize, and establish a positive atmosphere (O'Neil et al., 1997)

OVERVIEW OF CHAPTERS

The purpose of this study was to examine the application of teamwork skills in instructional design teams to determine which are used most often to effectively foster collaboration. Effective collaboration is categorized in the ibstpi standards as being an advanced competency, particular especially to expert instructional designers (Koszalka et al., 2013). The importance of effective collaboration is apparent in the research, but the skill behind its application takes time on-the-job and experience in the field. Applied skillfully by an expert instructional designer, the novice designer relies

predominantly on the standards and related research as a benchmark. This study aims to build on the research to further understand instructional design teams in practice.

Chapter II provides a review of the literature to discuss communication and collaboration in instructional design. Chapter III outlines the methods and procedures used in data collection and the findings are presented in Chapter IV. Chapter V discusses the findings, summarizes the study, and suggests recommendations for further research.

CHAPTER II

LITERATURE REVIEW

Many have attempted to untangle the intricate web of the instructional design process, but practical application continues to mystify. The conglomeration of roles, responsibilities, and design activities that are applied by instructional designers are becoming increasingly more complex. For those with limited experience, the instructional designer competencies classify the knowledge, skills, and attitudes applied by instructional design professionals and begin to unravel the intricacy of the design process.

The theory-based principles of instructional design promote more effective learning experiences within a variety of sectors, to include business and industry, government and military, healthcare, education, and nonprofit and community settings. Specific skills are applied to successfully facilitate learning and improve performance. According to Klein & Jun (2014), the instructional design skills rated as most important include: (a) aligning objectives, interventions, and assessments; (b) preparing measurable goals and objectives; (c) collaborating and partnering with others; (d) specifying strategies for intended outcomes; and (e) designing a curriculum. As a relatively new discipline, a continued diligence to deciphering the most important skills of instructional design is necessary for the continued development of the field.

The Standard on Effective Collaboration

In an effort to advance the trajectory of instructional design, an agreed upon set of standards is appropriate to serve as a catalyst for specialization and the progression toward professional certification. The instructional design standards published by the International Board of Standards for Training, Performance, and Instruction (ibstpi) consist of 22 instructional designer competencies, clustered into five domains, and supported by 105 performance statements (Koszalka et al., 2013). Considered among the most widely-researched and validated competencies available, these standards create a shared language for the instructional design field that embodies the required knowledge, skills, and abilities (Larson & Lockee, 2009). Although the ibstpi standards offer great advantages, a closer examination of the competencies and their associated performance statements reveal real-world application as it unfolds in practice.

Effective communication in visual, oral, and written form is the first of the ibspti competencies; effective collaboration being one of its defined performance statements (Koszalka et al., 2013). As the field of instructional design evolves, effective collaboration is fast becoming a hallmark of the instructional design field (Bawa & Watson, 2017). A designer must be able to communicate effectively with a variety of professionals such as project managers, subject matter experts, programmers, authoring specialists, media specialists, and graphic designers. Wagner, Baum, and Newbill (2014) found that "collaboration brings together people who think in distinctly different

ways. Clear and open communication is a key factor in bridging those unique perspectives" (p. 668). Collaboration is the art of integrating differences between professionals to create a team-oriented environment that encourages innovation and creativity.

Those working together must be cognizant of communicating in the language of their profession. To avoid miscommunication, simplify terminology, verify information, ask questions, and use visuals and other documents to ensure comprehension (York & Ertmer, 2016). Teamwork is dependent upon the clear and accurate exchange of information and the ability to clarify or acknowledge the receipt of the information (O'Neil et al., 1997). Bawa & Watson (2017) acknowledge the importance for "the collaborative parties to be good listeners as well as questioners" (p. 2343). Active listening and clarifying questions are both necessary to the mastery of communication.

The ibstpi standards classify effective collaboration as an advanced competency, expected of the expert instructional designer. Learning the skill of effective collaboration takes years of experience as the context variations are continuously changing. Even in its unrefined form, collaboration is one of the most frequently occurring skills in instructional design job announcements (Kang & Ritzhaupt, 2015; Ritzhaupt and Martin, 2013; Ritzhaupt et al., 2010; Sugar et al., 2012). For example, Ritzhaupt and Martin (2014) found that 'soft skills' (i.e., oral and written

communication skills, collaboration skills, interpersonal communication skills, customer service skills, organizational skills, and leadership skills) were rated as much more important than multimedia competencies by those that responded to their survey.

Not only is collaboration important for those seeking employment, but it also holds true for those working in the field. Klein & Jun (2014) surveyed 82 working professionals in instructional design and found collaboration and partnering with others in the top five most important skills. Analysis of the study's open-ended question revealed a recurring theme related to communication skills and teamwork. One participant responded that "practitioners should be able to work in a team environment where the ideas of others may spark their own creativity" (Klein & Jun, 2014, p. 44). These capabilities are essential in today's competitive industry, where innovation and creativity are expected and time constraints are constant.

Instructional Design Teams

Instructional design teams consist of a collection of individuals who share responsibility for an outcome, display task interdependence, exhibit teamwork, and share common and mutually agreed upon objectives (Bailey & Skvoretz, 2017; Bercovitz & Feldman, 2011). Each member of the team is held accountable to ensure that the shared vision comes to fruition. However, a common predictor of an inefficient team is confusion about individual roles and functions (Razak, 2013). Bawa & Watson (2017)

found that formal face-to-face meetings create an opportunity for an exchange of information that may help in improving team member trust and rapport.

Continual and rigorous communication is ideal and should encompass multiple methods, including face-to-face, technological tools, team meetings, and weekly status updates (Roytek, 2010). The purpose, scope, and plan are continuously communicated to all stakeholders until the final iteration of the project is complete. In a literature review of team innovative work behavior, Widmann et al. (2016) found that meetings should occur early in the design process and happen frequently. The underlying goal of these meetings is to foster social interactions that engage team members to share information, clarify needs of the project, reflect on progress, discuss issues and solutions, and offer innovative ideas (Gardner, Bennett, Hyatt, & Stoker, 2017; Wagner, Baum, & Newbill, 2014).

When face-to-face meetings are not possible, technology offers professionals the tools to facilitate collaboration and offers real-time online interaction. Technology can help to organize, track, store, and monitor project artifacts. Stevenson and Hedberg (2013) point out that Web 2.0 tools such as Google Docs enable collaboration in real time and capitalize on design team efficiency. Team members are freed from the constraints of time and place and are given the ability to share ideas anytime and anywhere.

In addition, instructional designer and project management roles often overlap. Van Rooij (2010) points out that "project management skills, including the ability to

lead a project team, estimate project requirements, and develop processes and standards for completion of instructional design projects" (pp. 852-853) are necessary skills to possess for upcoming instructional designers. When serving in this leadership role, it becomes the designer's responsibility to establish clear expectations of team members and create a collaborative environment to share information and foster creativity. In addition, the designer must build rapport with all involved stakeholders and understand their expectations, culture, language, documentation, and communication. Project effectiveness is dependent upon building and maintaining these relationships (Ashbaugh, 2013; Sugar & Luterbach, 2016; York & Ertmer, 2016).

Teamwork Skills

Teamwork is a critical element of organizational success and necessitates the skills of interaction and collaboration for members to function effectively as a team (Salas, Cannon-Bowers, Church-Payne, & Smith-Jenysch, 1998). The best way to measure teamwork skills is through direct observation; however, this direct approach is often not feasible. After years of extensive research on teamwork skills and modification of its original publication, the Teamwork Skills Questionnaire provides a means to measure the traits demonstrated by those working on teams. The six teamwork skills include (a) coordination – organizing team activities, (b) decision making – using available information to make decisions, (c) leadership – providing team direction, (d) interpersonal skills – interacting cooperatively with team members,

(e) adaptability – recognizing problems and responding appropriately, and (f) communication – clear, accurate exchange of information (Kuehl, 2001; Marshall et al., 2005; O'Neil et al., 1997).

Coordination

Coordination, as defined by O'Neil et al. (1997), involves the integration, synchronization, and completion of a task within the established time constraints through the organization of team resources, activities, and responses. Simplified, it is the process of organizing teams to complete a task on time, both effectively and efficiently. Instructional design projects are often complex and depend on the coordinated activity of a team of professionals, each equipped with expertise in their specialty. Cannon-Bowers, Salas, & Converse (1993) propose that the concept of shared mental models, or "common and overlapping cognitive representations of task requirements, procedures, and role responsibility" (p. 222), are pivotal to effective team performance. Shared mental models improve team performance as individual team members are aware of their responsibilities and its relationship to the overall completion of the task.

Decision Making

Decision making, as defined by O'Neil et al. (1997), is the "ability to integrate information, use logical and sound judgments, identify possible alternatives, select the best solution, and evaluate the consequences" (p. 414). Team decision making involves

using all the information that is available to make sound decisions. The shared mental model concept is also applicable to team decision making. When a team shares the knowledge of the task and task-related tools, requests for such information will be minimal, allowing the team to converge on a decision faster because of this shared understanding (O'Neil et al.). Although communication is essential to effective team decision making, nonessential communication wastes time, money, and resources and may pose a risk to accomplishing the overall objectives.

Leadership

Leadership, as defined by O'Neil et al. (1997), is the ability to plan and organize tasks, assign, direct, and coordinate the activities of team members, assess team performance, and establish a positive atmosphere. Ashbaugh (2013) asserts that leaders of instructional design teams must be competent in the development of strategic, proactive plans and assume the responsibility for the subsequent outcomes. In addition, leaders are knowledgeable of the latest advancements in the field of instructional design and technology, while excelling in the previously established, empirically-based standards. Respected team leaders exhibit behaviors that improve team performance, such as the "ability to adapt to changing conditions, exchange information, provide and accept feedback, and provide and accept help" (O'Neil et al., 1997, p. 417).

Interpersonal

Interpersonal skill, as defined by O'Neil et al. (1997), is the ability to resolve team conflict and use cooperative behaviors (i.e., collaboration, coordination, and communication) to improve the quality of team member interactions. The interpersonal skills that utilize cooperative behaviors foster team interdependence or a degree to which "members depend upon one another for access to critical resources and create workflows that require coordinated action" (Courtright, Thurgood, Stewart, & Pierotti, 2015). This dependence allows members to value team success over individual success. Interpersonal skills as an instructional designer are used as a means of forming positive interactions with those involved in the project's outcome, including the client, design team, and other stakeholders (York & Ertmer, 2016).

Adaptability

Adaptability, as defined by O'Neil et al. (1997), is the process of monitoring potential problems through an awareness of team activities and factors bearing on the task. Listed as one of the top ten skills for educational technology professionals, Kang & Ritzhaupt (2015) found that job announcements often requested logical and creative problem-solving skills from prospective applicants. The ability to problem-solve is instrumental throughout the duration of the instructional design project. Team members share the responsibility of detecting and correcting problems by stepping in to help when needed, asking for assistance, reallocating workload, and recognizing when

another team member performs exceptionally well (Salas, Rosen, Burke, Nicholson, & Howse, 2007).

Communication

Communication, as defined by O'Neil et al. (1997), is the clear and accurate exchange of information between two or more team members using the proper terminology, along with the ability to acknowledge or clarify the receipt of information. Communication underlies every teamwork skill discussed thus far (O'Neil, 1997). The ability to effectively communicate is matured over time as team members interact, work closely together, and become familiar with the capabilities and knowledge of others. (Bercovitz & Feldman, 2011). Effective communication is the first of the ibstpi competencies and serves as a professional foundation, an essential competency that every instructional designer is expected to master.

Implications for Training and Development

The significance of communication and collaboration in the field of instructional design has direct implications for the training and development of respective graduates. Employers place great emphasis on the soft skills the cut across disciplines, such as communication, teamwork, decision making, and critical thinking. Larson and Lockee (2009) studied Lovgren University, recognized as being one of the top three exemplary programs for instructional design, and found that practicing soft skills requires ill-defined problem-solving in an authentic context. Engaging instructional design

students in real-world contexts is necessary to gain the skills to function as a competent designer (York & Ertmer, 2016). The coursework introduces the novice designer to the step-by-step procedures outlined by an instructional design model, which are then used in more flexible and dynamic ways post-graduation. Strategies such as case studies, team-project work, internships, and cognitive apprenticeships can provide students with the education that will further prepare them for instructional design in the workplace (Sugar, 2014; Sugar et al., 2012).

Post-graduation, the novice designer acquires new knowledge and skills in the form of everyday, informal learning experiences among instructional designers in the workplace (Yanchar & Hawkley, 2014). Sharing ideas, introducing new technologies, learning people skills, and success stories are all examples of informal learning and can become an integral piece of professional development, the consequential byproducts of an effective collaborative environment.

CHAPTER III

METHODS AND PROCEDURES

The Teamwork Skills Questionnaire was utilized to determine the frequency by which teamwork skills are applied in real-world instructional design teams (Marshall et al., 2005). Quantitative and descriptive data were collected and used to identify the characteristics of instructional design teams. The following chapter details the population and the instrument design, as well as the methods of data collection and the statistical analysis performed.

Population

The population consisted of instructional designers found on the social media network, LinkedIn, a business and employment-oriented social media network. The term "instructional designer" was entered into the homepage search engine and further filtered to eliminate those outside of the United States and those without the specified title of "Instructional Designer." In regard to the methodology used, the significance of cross-cultural reliability and validity was minimized by filtering the population to United States participants only (Johnson, 2015). There was no way to verify the actual title/profession of those identified as instructional designers in the LinkedIn database. Therefore, a qualifying question was incorporated into the questionnaire verifying the participant's position title.

A total number of 19,367 instructional designers fit the specified criteria, however; the Basic LinkedIn account offered a maximum of 1,000 results per search or 100 pages of search results. Each of the 1,000 participants was requested to connect, further limiting the sample size to 486 participants that accepted the connect request.

Instrument Design

The survey research method was applied using the 36-item Teamwork Skills Questionnaire (Appendix A), a self-reported, indirect teamwork measurement tool (Marshall et al., 2005). As a direct observation of an instructional design team was not feasible, the questionnaire methodology offered an alternate means for measuring teamwork. The six teamwork skills examined were (a) coordination, (b) decision making, (c) leadership, (d) interpersonal, (e) adaptability, and (f) communication (Marshall et al., 2005; O'Neil et al., 1997). All questionnaire items utilize a 4-point Likert-type scale with responses: 1) Almost Never, 2) Sometimes, 3) Often, 4) Almost Always.

The Teamwork Skills Questionnaire was originally developed by O'Neil et al. (1997) to measure teamwork skills in relation to the individual traits of team members. The questionnaire has been adapted for participants in several unique settings, including (a) an electronics firm in Taiwan (Chen, 2002); (b) Asian American junior and high school students (Hsieh, 2001); (c) a United States Marine Corps Aviation Logistics Squadron (Kuehl, 2001); (d) nurses in Australia (Marshall, 2003); (e) an electronics firm

in the United States (O'Neil et al., 2003). In a study performed by Marshall et al. (2005), a multigroup analysis was performed on four revisions of the Teamwork Skills Questionnaire. The Cronbach's alpha coefficients were acceptable for all four samples, across all six teamwork skills' scales: coordination from .70 to .81; decision making from .81 to .86; leadership from .86 to .92; interpersonal skills from .78 to .86; adaptability ranged from .78 to .86; and communication from .73 to .86 (Marshall et al., 2005). The reliability coefficients for the total questionnaire by sample of .97 (Chen, 2002), .93 (Hsieh, 2001) .95 (Kuehl, 2001), and .97 (Marshall et al., 2003). These findings indicate a high degree of internal consistency. Reliability and validity were confirmed by Marshall et al. (2005), with the following findings:

> The multigroup analysis supports the use of the Teamwork Skills Questionnaire as a reliable and valid teamwork assessment tool. The reliability information consisted of excellent internal consistency estimations, and the validity consisted of excellent confirmatory factor analyses results. For the purpose of conducting research it is an acceptable measure. (p. 142)

Methods of Data Collection

The free, online survey tool, SurveyMonkey, was used to transfer the current paper-based version to an electronic version of the Teamwork Skills Questionnaire. All 36 items were entered verbatim, along with the 4-point Likert-type scale responses.

A notification was sent each of the 486 possible participants that included a brief explanation of the study's purpose and a SurveyMonkey hyperlink to the questionnaire. Respondents were granted anonymity as no identifying information was collected. In addition, LinkedIn accounts were not associated with responses in either data collection or reporting. The responses were maintained electronically through SurveyMonkey, with access permitted by means of username and password.

Statistical Analysis

Statistical analysis was performed on the quantitative data to determine which teamwork skills were used most frequently in instructional design teams. The Teamwork Skills Questionnaire Scoring Key (Appendix B) served as a guide to score all returned responses (Marshall et al., 2005; O'Neil et al., 1997). The six teamwork skills were categorized on the questionnaire as follows: (a) coordination – five items, (b) decision making – six items, (c) leadership – seven items, (d) interpersonal skills – six items, (e) adaptability – five items, and (f) communication – seven items (Marshall et al., 2005; O'Neil et al., 1997). Descriptive statistics were performed using the Microsoft Excel Data Analysis ToolPak. The mean and standard deviation were reported for each of the 36 items and for each grouping of items, as defined on the Teamwork Skills Questionnaire Scoring Key (Appendix B).

Summary

This study was conducted to examine the application of teamwork in instructional design teams. Effective collaboration is fast becoming a professional foundation (Bawa & Watson, 2017; Kang & Ritzhaupt, 2015). The study was intended to investigate the application of collaboration to provide a further understanding of the process of design in practice. Instructional designers found on the social media network, LinkedIn, were asked to voluntarily complete the 36-item Teamwork Skills Questionnaire, a self-report, indirect teamwork measurement tool. Specifically, the six skills examined were (a) coordination, (b) decision making, (c) leadership, (d) interpersonal, (e) adaptability, and (f) communication (Marshall et al., 2005; O'Neil et al., 1997). The free, online survey tool, SurveyMonkey, was used to collect the data electronically. Descriptive statistics were performed to present the findings.

CHAPTER IV

FINDINGS

The purpose of this study was to examine the application of teamwork in instructional design to determine the frequency by which coordination, decision making, leadership, interpersonal skills, adaptability, and communication are applied in real-world instructional design teams. The Teamwork Skills Questionnaire (Marshall et al., 2005; O'Neil et al., 1997) was utilized to collect data from professional instructional designers identified in the LinkedIn database, and descriptive statistics were performed to analyze the data collected.

Response Rate

The questionnaire was distributed to 486 instructional designers via the LinkedIn instant messenger. Potential participants were given one month to complete the survey and non-respondents were sent a reminder notification within one week of the deadline. Conclusively, 167 responses were recorded of the 486 questionnaires sent, resulting in a 34% response rate. According to the Survey Random Sample Calculator (Custom Insight, 2018), the number of respondents to this survey provides 99% confidence with an 8.1% error level.

Survey Results

The questionnaire consisted of 36 items and utilized a 4-point Likert-type scale for responses. An open-ended question labeled as 'required' followed the 36 items and

was used to verify the participant's position title. Additional questions pertaining to company size and teamwork within the organization were also requested. The final version of the Teamwork Skills Questionnaire used for this study can be found in Appendix A. Each of the 36 items were grouped according to their correlating teamwork skill and the findings are listed below.

Coordination

Question 6: When I work as part of a team, I allocate the tasks according to each team member's abilities.

A total of 164 responses were received for question 6. Based on the Likert-type scale used, Almost Always was selected 62 times (38%), Often was selected 76 times (46%), Sometimes was selected 20 times (12%), and Almost Never was selected 6 times (4%). The mean of these responses was 2.84 with a standard deviation of 0.98 (M = 2.84, SD = 0.98).

Question 11: When I work as part of a team, I help ensure the proper balancing of the workload.

A total of 161 responses were received for question 11. Based on the Likert-type scale used, Almost Always was selected 39 times (24%), Often was selected 82 times (51%), Sometimes was selected 32 times (20%), and Almost Never was selected 8 times (5%). The mean of these responses was 2.63 with a standard deviation of 0.91 (M = 2.63, SD = 0.91).

Question 17: When I work as part of a team, I do my part of the organization in a timely manner.

A total of 164 responses were received for question 17. Based on the Likert-type scale used, Almost Always was selected 108 times (66%), Often was selected 50 times (30%), Sometimes was selected 6 times (4%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.35 with a standard deviation of 0.92 (M = 3.35, SD = 0.92).

Question 23: When I work as part of a team, I track other team members' progress.

A total of 164 responses were received for question 23. Based on the Likert-type scale used, Almost Always was selected 28 times (17%), Often was selected 48 times (29%), Sometimes was selected 73 times (45%), and Almost Never was selected 15 times (9%). The mean of these responses was 2.70 with a standard deviation of 0.86 (M = 2.70, SD = 0.86).

Question 32: When I work as part of a team, I emphasize the meeting of deadlines.

A total of 163 responses were received for question 32. Based on the Likert-type scale used, Almost Always was selected 87 times (53%), Often was selected 51 times (31%), Sometimes was selected 24 times (15%), and Almost Never was selected 1 time (1%). The mean of these responses was 3.21 with a standard deviation of 0.92 (M = 3.21, SD = 0.92).

Coordination

A total of five questions were asked pertaining to coordination in instructional design teams. An accumulated total of 816 responses was received for this grouping of questions. In relation to the frequencies by which coordination is applied in instructional design teams, Almost Always was selected 324 times (40%), Often was selected 307 times (38%), Sometimes was selected 155 times (19%), and Almost Never was selected 30 times (4%). The mean of these responses was 2.95 with a standard deviation of 0.96 (M = 2.95, SD = 0.96).

Decision Making

Question 3: When I work as part of a team, I understand and contribute to the organizational goals.

A total of 164 responses were received for question 3. Based on the Likert-type scale used, Almost Always was selected 107 times (65%), Often was selected 48 times (29%), Sometimes was selected 9 times (5%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.36 with a standard deviation of 0.91 (M = 3.36, SD = 0.91).

Question 7: When I work as part of a team, I know the process of making a decision.

A total of 163 responses were received for question 7. Based on the Likert-type scale used, Almost Always was selected 70 times (43%), Often was selected 70 times (43%), Sometimes was selected 23 times (14%), and Almost Never was selected 0 times (0%).

The mean of these responses was 3.00 with a standard deviation of 0.93 (M = 3.00, SD = 0.93).

Question 12: When I work as part of a team, I know how to weigh the relative importance among different issues.

A total of 164 responses were received for question 12. Based on the Likert-type scale used, Almost Always was selected 57 times (35%), Often was selected 87 times (53%), Sometimes was selected 19 times (12%), and Almost Never was selected 1 time (1%). The mean of these responses was 2.80 with a standard deviation of 0.93 (M = 2.80, SD = 0.93).

Question 18: When I work as part of a team, I prepare sufficiently to make a decision.

A total of 164 responses were received for question 18. Based on the Likert-type scale used, Almost Always was selected 87 times (53%), Often was selected 67 times (41%), Sometimes was selected 9 times (5%), and Almost Never was selected 1 time (1%). The mean of these responses was 3.11 with a standard deviation of 0.98 (M = 3.11, SD = 0.98).

Question 24: When I work as part of a team, I solicit input for decision making from my team members.

A total of 162 responses were received for question 24. Based on the Likert-type scale used, Almost Always was selected 85 times (52%), Often was selected 65 times (40%), Sometimes was selected 10 times (6%), and Almost Never was selected 2 times (1%).

The mean of these responses was 3.10 with a standard deviation of 0.99 (M = 3.10, SD = 0.99).

Question 28: When I work as part of a team, I am able to change decisions based upon new information.

A total of 163 responses were received for question 28. Based on the Likert-type scale used, Almost Always was selected 81 times (50%), Often was selected 69 times (42%), Sometimes was selected 13 times (8%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.07 with a standard deviation of 0.96 (M = 3.07, SD = 0.96).

Decision Making

A total of six questions were asked pertaining to decision making in instructional design teams. An accumulated total of 980 responses was received for this grouping of questions. In relation to the frequencies by which decision making is applied in instructional design teams, Almost Always was selected 487 times (50%), Often was selected 406 times (41%), Sometimes was selected 83 times (8%), and Almost Never was selected 4 times (0%). The mean of these responses was 3.07 with a standard deviation of 0.96 (M = 3.07, SD = 0.96).

Leadership

Question 1: When I work as part of a team, I exercise leadership.

A total of 164 responses were received for question 1. Based on the Likert-type scale used, Almost Always was selected 49 times (30%), Often was selected 75 times (46%), Sometimes was selected 40 times (24%), and Almost Never was selected 0 times (0%). The mean of these responses was 2.84 with a standard deviation of 0.86 (M = 2.84, SD = 0.86).

Question 4: When I work as part of a team, I teach other team members.

A total of 163 responses were received for question 4. Based on the Likert-type scale used, Almost Always was selected 52 times (32%), Often was selected 72 times (44%), Sometimes was selected 38 times (23%), and Almost Never was selected 1 time (1%). The mean of these responses was 2.87 with a standard deviation of 0.88 (M = 2.87, SD = 0.88).

Question 8: When I work as part of a team, I serve as a role model in formal and informal interactions.

A total of 164 responses were received for question 8. Based on the Likert-type scale used, Almost Always was selected 58 times (35%), Often was selected 82 times (50%), Sometimes was selected 21 times (13%), and Almost Never was selected 3 times (2%). The mean of these responses was 2.82 with a standard deviation of 0.95 (M = 2.82, SD = 0.95).

Question 13: When I work as part of a team, I lead when appropriate, mobilizing the group for high performance.

A total of 162 responses were received for question 13. Based on the Likert-type scale used, Almost Always was selected 63 times (39%), Often was selected 73 times (45%), Sometimes was selected 25 times (15%), and Almost Never was selected 1 time (1%). The mean of these responses was 2.93 with a standard deviation of 0.93 (M = 2.93, SD = 0.93).

Question 19: When I work as part of a team, I lead the team effectively.

A total of 161 responses were received for question 19. Based on the Likert-type scale used, Almost Always was selected 52 times (32%), Often was selected 84 times (52%), Sometimes was selected 23 times (14%), and Almost Never was selected 2 times (1%). The mean of these responses was 2.78 with a standard deviation of 0.92 (M = 2.78, SD = 0.92).

Question 25: When I work as part of a team, I demonstrate leadership and ensure team results.

A total of 164 responses were received for question 25. Based on the Likert-type scale used, Almost Always was selected 67 times (41%), Often was selected 75 times (46%), Sometimes was selected 21 times (13%), and Almost Never was selected 1 time (1%). The mean of these responses was 2.94 with a standard deviation of 0.94 (M = 2.94, SD = 0.94).

Question 29: When I work as part of a team, I try to bring out the best in others.

A total of 162 responses were received for question 29. Based on the Likert-type scale used, Almost Always was selected 99 times (61%), Often was selected 49 times (30%), Sometimes was selected 13 times (8%), and Almost Never was selected 1 time (1%). The mean of these responses was 3.30 with a standard deviation of 0.93 (M = 3.30, SD = 0.93).

Leadership

A total of seven questions were asked pertaining to leadership in instructional design teams. An accumulated total of 1140 responses was received for this grouping of questions. In relation to the frequencies by which leadership is applied in instructional design teams, Almost Always was selected 440 times (39%), Often was selected 510 times (45%), Sometimes was selected 181 times (16%), and Almost Never was selected 9 times (1%). The mean of these responses was 2.92 with a standard deviation of 0.93 (M = 2.92, SD = 0.93).

Interpersonal Skills

Question 5: When I work as part of a team, I interact cooperatively with other team members.

A total of 162 responses were received for question 5. Based on the Likert-type scale used, Almost Always was selected 135 times (83%), Often was selected 26 times (16%), Sometimes was selected 1 time (1%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.67 with a standard deviation of 0.74 (M = 3.67, SD = 0.74).

Question 9: When I work as part of a team, I conduct myself with courtesy.

A total of 162 responses were received for question 9. Based on the Likert-type scale used, Almost Always was selected 138 times (85%), Often was selected 22 times (14%), Sometimes was selected 2 times (1%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.72 with a standard deviation of 0.69 (M = 3.72, SD = 0.69).

Question 14: When I work as part of a team, I respect the thoughts and opinions of others in the team.

A total of 164 responses were received for question 14. Based on the Likert-type scale used, Almost Always was selected 127 times (77%), Often was selected 34 times (21%), Sometimes was selected 3 times (2%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.57 with a standard deviation of 0.81 (M = 3.57, SD = 0.81).

Question 20: When I work as part of a team, I treat others with courtesy.

A total of 163 responses were received for question 20. Based on the Likert-type scale used, Almost Always was selected 148 times (91%), Often was selected 15 times (9%), Sometimes was selected 0 times (0%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.82 with a standard deviation of 0.58 (M = 3.82, SD = 0.58).

Question 33: When I work as part of a team, I accept individual differences among members.

A total of 163 responses were received for question 33. Based on the Likert-type scale used, Almost Always was selected 96 times (59%), Often was selected 59 times (36%),

Sometimes was selected 8 times (5%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.23 with a standard deviation of 0.95 (M = 3.23, SD = 0.95).

Question 36: When I work as part of a team, I treat all my team members as equals.

A total of 164 responses were received for question 36. Based on the Likert-type scale used, Almost Always was selected 114 times (70%), Often was selected 42 times (26%), Sometimes was selected 8 times (5%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.44 with a standard deviation of 0.87 (M = 3.44, SD = 0.87).

Interpersonal Skills

A total of six questions were asked pertaining to interpersonal skills in instructional design teams. An accumulated total of 978 responses was received for this grouping of questions. In relation to the frequencies by which interpersonal skills are applied in instructional design teams, Almost Always was selected 758 times (78%), Often was selected 198 times (20%), Sometimes was selected 22 times (2%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.57 with a standard deviation of 0.81 (M = 3.57, SD = 0.81).

Adaptability

Question 15: When I work as part of a team, I can identify potential problems readily.

A total of 164 responses were received for question 15. Based on the Likert-type scale used, Almost Always was selected 51 times (31%), Often was selected 85 times (52%), Sometimes was selected 28 times (17%), and Almost Never was selected 0 times (0%).

The mean of these responses was 2.79 with a standard deviation of 0.89 (M = 2.79, SD = 0.89).

Question 21: When I work as part of a team, I willingly contribute solutions to resolve problems.

A total of 163 responses were received for question 21. Based on the Likert-type scale used, Almost Always was selected 106 times (65%), Often was selected 50 times (31%), Sometimes was selected 7 times (4%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.34 with a standard deviation of 0.92 (M = 3.34, SD = 0.92).

Question 26: When I work as part of a team, I adapt readily to varying conditions and demands.

A total of 164 responses were received for question 26. Based on the Likert-type scale used, Almost Always was selected 99 times (60%), Often was selected 54 times (33%), Sometimes was selected 11 times (7%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.27 with a standard deviation of 0.93 (M = 3.27, SD = 0.93).

Question 30: When I work as part of a team, I recognize conflict.

A total of 164 responses were received for question 30. Based on the Likert-type scale used, Almost Always was selected 58 times (35%), Often was selected 81 times (49%), Sometimes was selected 24 times (15%), and Almost Never was selected 1 time (1%).

The mean of these responses was 2.85 with a standard deviation of 0.92 (M = 2.85, SD = 0.92).

Question 34: When I work as part of a team, I identify needs or requirements and develop quality/timely solutions.

A total of 164 responses were received for question 34. Based on the Likert-type scale used, Almost Always was selected 87 times (53%), Often was selected 71 times (43%), Sometimes was selected 6 times (4%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.10 with a standard deviation of 0.98 (M = 3.10, SD = 0.98).

Adaptability

A total of five questions were asked pertaining to adaptability in instructional design teams. An accumulated total of 819 responses was received for this grouping of questions. In relation to the frequencies by which adaptability is applied in instructional design teams, Almost Always was selected 401 times (49%), Often was selected 341 times (42%), Sometimes was selected 76 times (9%), and Almost Never was selected 1 time (0%). The mean of these responses was 3.07 with a standard deviation of 0.95 (M = 3.07, SD = 0.95). .

Communication

Question 2: When I work as part of a team, I ensure the instructions are understood by all team members prior to starting the task.

A total of 164 responses were received for question 2. Based on the Likert-type scale used, Almost Always was selected 92 times (56%), Often was selected 52 times (32%), Sometimes was selected 20 times (12%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.24 with a standard deviation of 0.91 (M = 3.24, SD = 0.91).

Question 10: When I work as part of a team, I ask for the instructions to be clarified when it appears not all the team members understand the task.

A total of 164 responses were received for question 10. Based on the Likert-type scale used, Almost Always was selected 99 times (60%), Often was selected 47 times (29%), Sometimes was selected 17 times (10%), and Almost Never was selected 1 time (1%). The mean of these responses was 3.30 with a standard deviation of 0.91 (M = 3.30, SD = 0.91).

Question 16: When I work as part of a team, I communicate in a manner to ensure mutual understanding.

A total of 164 responses were received for question 16. Based on the Likert-type scale used, Almost Always was selected 94 times (57%), Often was selected 64 times (39%), Sometimes was selected 6 times (4%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.18 with a standard deviation of 0.97 (M = 3.18, SD = 0.97).

Question 22: When I work as part of a team, I seek and respond to feedback.

A total of 163 responses were received for question 22. Based on the Likert-type scale used, Almost Always was selected 99 times (61%), Often was selected 58 times (36%), Sometimes was selected 6 times (4%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.25 with a standard deviation of 0.95 ($M = 3.25$, $SD = 0.95$).

Question 27: When I work as part of a team, I listen attentively.

A total of 164 responses were received for question 27. Based on the Likert-type scale used, Almost Always was selected 102 times (62%), Often was selected 56 times (34%), Sometimes was selected 6 times (4%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.28 with a standard deviation of 0.94 ($M = 3.28$, $SD = 0.94$).

Question 31: When I work as part of a team, I clearly and accurately exchange information.

A total of 164 responses were received for question 31. Based on the Likert-type scale used, Almost Always was selected 87 times (53%), Often was selected 70 times (43%), Sometimes was selected 7 times (4%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.10 with a standard deviation of 0.98 ($M = 3.10$, $SD = 0.98$).

Question 35: When I work as part of a team, I pay attention to what others are saying.

A total of 163 responses were received for question 35. Based on the Likert-type scale used, Almost Always was selected 119 times (73%), Often was selected 42 times (26%), Sometimes was selected 2 times (1%), and Almost Never was selected 0 times (0%). The mean of these responses was 3.47 with a standard deviation of 0.88 ($M = 3.47$, $SD = 0.88$).

Communication

A total of seven questions were asked pertaining to communication in instructional design teams. An accumulated total of 1146 responses was received for this grouping of questions. In relation to the frequencies by which communication is applied in instructional design teams, Almost Always was selected 692 times (60%), Often was selected 389 times (34%), Sometimes was selected 64 times (6%), and Almost Never was selected 1 time (0%). The mean of these responses was 3.26 with a standard deviation of 0.94 ($M = 3.26$, $SD = 0.94$).

Summary

The responses collected from the Teamwork Skills Questionnaire have been presented in this chapter and provide data on the mean, standard deviation, and frequency by which coordination, decision making, leadership, interpersonal skills, adaptability, and communication are applied in instructional design teams (see Table 1).

A population of 486 instructional designers was given the opportunity to participate, of which 167 completed the questionnaire. Three participants were eliminated from the study because they either did not provide their position title and/or they do not work as part of a team (question 37 and 39, respectively). Therefore, a total of 164 responses that were analyzed and data included in the above findings.

Table 1
*Mean and Standard Deviation, Teamwork Skills Questionnaire (*N *= 164)*

Skill	Number of Items	*M*	*SD*
Coordination	5	2.95	0.96
Decision Making	6	3.07	0.96
Leadership	7	2.92	0.93
Interpersonal Skills	6	3.57	0.81
Adaptability	5	3.07	0.95
Communication	7	3.26	0.94

The results were grouped according to the six teamwork skills examined, as displayed in the Teamwork Skills Questionnaire Scoring Key (Appendix B). The descriptive statistics of mean, standard deviation, and percentage for each question were reported. In addition, the grouping of questions was combined and the number of items per group, mean, standard deviation, and percentages were reported for each skill. Figure 1 depicts the mean for each skill examined. These results can be used to further bring clarity to the application of teamwork skills in real-world instructional design teams in an effort to increase knowledge of the inner workings of the instructional design process.

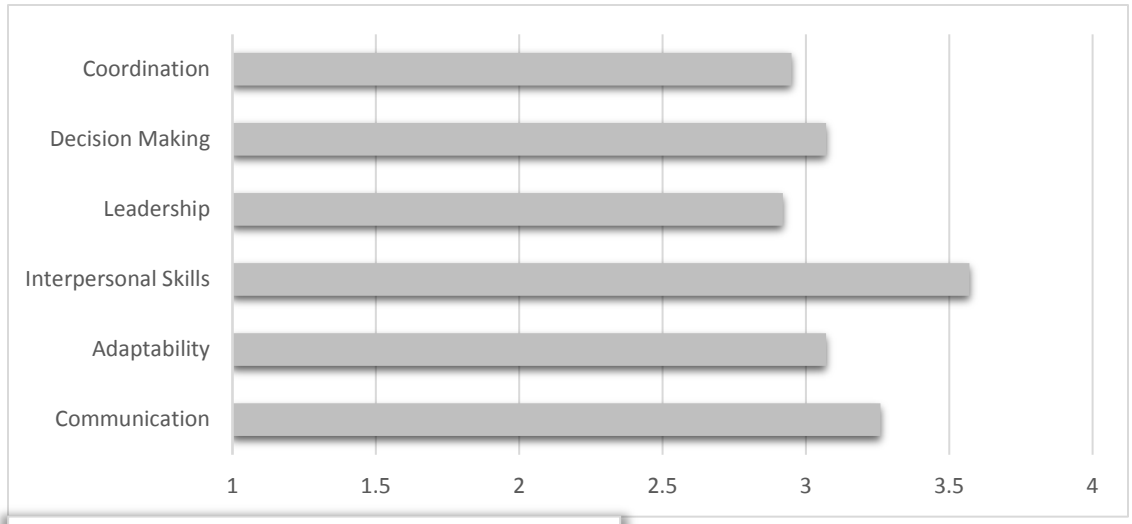

Figure 1. Means for the six teamwork skills

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter provides a summary of the study, conclusions based on the findings, and supporting recommendations. The purpose of this study was to examine the application of teamwork in instructional design to determine the frequency by which coordination, decision making, leadership, interpersonal skills, adaptability, and communication are applied in instructional design teams.

Summary

The 36-item Teamwork Skills Questionnaire was used to collect data for this study (see Appendix A). The survey was reproduced electronically using SurveyMonkey and distributed on the social media site, LinkedIn via the instant messenger (see Appendix C). A total of 167 instructional designers voluntarily participated. Each of the 36 items was grouped according to their correlating skill (Appendix B). The findings for each of the items and the group of items were presented in Chapter IV. Although not representative of the entire population, the responses that were collected build on the knowledge of instructional design teams. Gaining an understanding of the processes that occur in the workplace will help to align pedagogy with practicality and better prepare the novice designers for success in their profession.

Conclusions

Based on the findings, the following conclusions regarding the research question have been drawn. The purpose of this study was to examine the following question:

> RQ_1: At what frequency are the six teamwork skills (coordination, decision making, leadership, interpersonal skills, adaptability, and communication), as defined by O'Neil et al. (1997), applied in instructional design teams?

The most frequently applied teamwork skills in instructional design teams were interpersonal skills (M = 3.57) and communication (M = 3.26). Each of the six skills examined, however, were found to be applicable at least some of the time with the lowest mean being in leadership (M = 2.92). In addition, of the 32 questions asked, 21 questions received zero responses of 'Almost Never'. These findings indicate that the majority of the skills identified were relevant in instructional design teams at least some of the time.

Interpersonal skills were shown to be the most frequently applied skill in instructional design teams, applicable at least often 98% of the time. Each of the questions pertaining to interpersonal skills was found to be used at least sometimes and there were zero selections of 'Almost Never' for the combined 978 responses received. This grouping of questions relates to cooperative interaction, courtesy, respect, acceptance, and equality.

The questionnaire items pertaining to interpersonal skills are characteristic of personality traits more so than professional skills. An individual's personality represents the regularities that occur in different ways over time (Uher & Visalberghi, 2016). A subjective assessment of personality traits may, therefore, reflect an inaccurate interpretation prescribed at any given moment in time. In their multi-species study of personality, Uher & Visalberghi (2016) found biases and methodological limitations in personality research assessments and argue for observational research methods, such as the implementation of technological advancements to record individual behavior in everyday life settings. Albeit the current studies' limitations, the findings suggest that interpersonal skills are a vital component of instructional design teams.

For the purpose of this study, interpersonal skills were defined by O'Neil et al. (1997) as the ability to resolve conflict and use cooperative behaviors to improve the quality of team interactions; cooperative behaviors being a unique assembly of skills such as collaboration, coordination, and communication. According to this definition, interpersonal skills become a collective set of attributes that infuses personality traits with professional skills and our findings show that they are frequently applied to facilitate interactions with others on a team. The results of this study, therefore, support that forming positive interactions with others is foundational to a team's success, as members come to depend on one another and create coordinated workflows (Courtright, Thurgood, Stewart, & Pierotti, 2015).

Communication followed closely behind interpersonal skills as the second most frequently applied skill in instructional design teams. Of the seven questions asked pertaining to communication, six were found to be applied at least some of the time. Communication was used at least often 94% of the time and of the 1146 combined responses received for this grouping of questions, 'Almost Never' was selected only 1 time. The questionnaire items involving communication were related to concepts of understanding, listening, attentiveness, feedback, clarity, and accuracy.

Communication is the first of the ibstpi competencies and serves as a professional foundation and an essential competency that every instructional designer is expected to master (Koszalka et al., 2013). For the purposes of this study, communication was defined as the clear and accurate exchange of information between two or more members of a team, using proper terminology, clarification, and acknowledgment of information received (O'Neil et al., 1997). Consistent with the ibstpi standards, the findings show that communication skills are frequently applied in instructional design teams. Whether this communication occurs more often between a team of instructional designers or involved stakeholders has not been determined.

Decision making and adaptability were also found to be frequently applied skills in instructional design teams, both occurring at least often 91% of the time. Three of the six questions pertaining to decision making resulted in zero responses of 'Almost Never', meaning that all participants utilize these skills at least some of the time. These

questions, in particular, involve organizational goals, the decision-making process, and adaptable decision making. Perhaps, competent decision making is dependent on organizational knowledge, including understanding the organizations' goals and their decision-making process. It would be interesting to investigate if those with <5 years of experience implement these skills less often and/or inaccurately than employees with <5 years of experience.

Four of the five questions on adaptability found these skills to be applied at least some of the time, resulting in zero responses of 'Almost Never'. These skills include the identification of needs or problems, the contribution of timely/quality solutions, and the adaptability to various conditions and demands. In their analysis of educational technology job applicants, Kang & Ritzhaupt (2015) found that logical and creative problem-solving skills were in the top ten skills requested by an employer. The ability to problem-solve is applicable to the skills of decision making and adaptability and the findings in this study are consistent with their analysis.

Leadership and coordination were found to be the least frequently applied skills in instructional design teams. However, both show considerable impact on instructional design teams (coordination, $M = 2.95$, leadership $M = 2.92$). Of the combined 12 questions asked, two received zero responses for 'Almost Never', indicating that 100% of the participant's agreed these skills were applied at least some

of the time. These two questions, in particular, addressed the concepts of timeliness and exercising leadership in instructional design teams.

Timeliness and meeting deadlines were surveyed several times throughout the questionnaire (see Table 2). These findings are consistent with the literature. The ability to work under deadlines ranked as the third most important skill in a survey of educational technology professionals conducted by Ritzhaupt et al. (2010) and was requested by employers at least 20% of the time in job announcement analysis (Kang & Ritzhaupt, 2015; Ritzhaupt & Martin, 2013; Ritzhaupt et al., 2010). Based on their findings, Ritzhaupt et al. (2010) recommend that educational technology programs have students work within groups on projects with deadlines to help prepare them for the expectations of the workforce.

Table 2
Mean and Standard Deviation, Timeliness in instructional design teams

Skill: Question	*M*	*SD*
Coordination: When I work as part of a team, I do my part of the organization in a timely manner.	3.35	0.92
Coordination: When I work as part of a team, I emphasize the meeting of deadlines.	3.21	0.92
Adaptability: When I work as part of a team, I identify needs or requirements and develop quality/timely solutions.	3.10	0.98

Along with timeliness, the participants agreed that exercising leadership was applied at least some of the time. Instructional designer and project management roles often overlap. Within these roles, leadership and coordination work in conjunction with each other. When delegated the responsibility of project management, the

instructional designer must possess the ability to work under deadlines, prioritize tasks, manage multiple projects, advise and supervise employees, manage multiple tasks, manage teams, and manage vendors (Ashbaugh, 2013; Sugar & Luterbach, 2016; York & Ertmer, 2016).

Recommendations

Instructional design encompasses the creation of learning and performance initiatives in the recursive process of analysis, design, development, implementation, and evaluation. The findings in this study build on the professional knowledge and understanding of instructional design, specifically in relation to the teamwork involved in a design project. The purpose of this study was to examine the frequency at which the teamwork skills, coordination, decision making, leadership, interpersonal skills, adaptability, and communication, are applied in instructional design teams. Based on the findings, it can be concluded:

- All six teamwork skills were found to be applicable at least some of the time.
- The most frequently applied skills were interpersonal skills, followed by communication.
- Although they still had a considerable impact, the least frequently applied skills were coordination and leadership.

The relevance of the application of these teamwork skills is evident based on the frequency at which they are utilized in practice. Presumably, those most frequently

applied hold the greatest importance to a project's success; however, this association was not assessed in the current study. A case study of an instructional design team would shed light on the intricacies of the instructional design process and further validate the importance of these skills in practice. In addition to a case study, recommendations for further research include:

- An observational study of an instructional design team to observe individual behavior, specifically focusing on the interpersonal skills defined in the current study (cooperative interaction, courtesy, respect, acceptance, and equality).
- Additional research on communication in instructional design teams to compare the level of interaction between designers and involved stakeholders in a given project.
- Supplemental question added to the Teamwork Skills Questionnaire regarding the participants' years of experience in instructional design to determine the significance in relation to the frequency of teamwork skills applied in practice. This study may also show if these teamwork skills are developed with time and experience.

The intention of the study was to further define instructional design as it is implemented in practice. Research of this nature offers a glimpse of the profession to the novice designer, as well as serves as a building block to curriculum development in instructional design pedagogy. As the findings indicate, teamwork skills are frequently

applied in instructional design teams and should be integrated into the curriculum to prepare students for the expectations of the workforce.

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Appendix A - Teamwork Skills Questionnaire

Teamwork Skills Questionnaire

Directions: This set of questions is to help us understand the way you think and feel about working with others. We know that different parts of your life, such as your job, recreational activities, or service to your community, may involve working with others and have different requirements and that you may react differently in each kind of activity. Nonetheless, read each statement below and indicate how you generally think or feel. There are no right or wrong answers. Do not spend too much time on any one statement. Remember, give the answer that seems to describe how you *generally* think or feel.

		Almost Never	Sometimes	Often	Almost Always
1.	When I work as part of a team, I exercise leadership.	**1**	**2**	**3**	**4**
2.	When I work as part of a team, I ensure the instructions are understood by all team members prior to starting the task.	**1**	**2**	**3**	**4**
3.	When I work as part of a team, I understand and contribute to the organizational goals.	**1**	**2**	**3**	**4**
4.	When I work as part of a team, I teach other team members.	**1**	**2**	**3**	**4**
5.	When I work as part of a team, I interact cooperatively with other team members.	**1**	**2**	**3**	**4**
6.	When I work as part of a team, I allocate the tasks according to each team member's abilities.	**1**	**2**	**3**	**4**
7.	When I work as part of a team, I know the process of making a decision.	**1**	**2**	**3**	**4**
8.	When I work as part of a team, I serve as a role model in formal and informal interactions.	**1**	**2**	**3**	**4**
9.	When I work as part of a team, I conduct myself with courtesy.	**1**	**2**	**3**	**4**
10.	When I work as part of a team, I ask for the instructions to be clarified when it appears not all the team members understand the task.	**1**	**2**	**3**	**4**
11.	When I work as part of a team, I help ensure the proper balancing of the workload.	**1**	**2**	**3**	**4**
12.	When I work as part of a team, I know how to weigh the relative importance among different issues.	**1**	**2**	**3**	**4**
13.	When I work as part of a team, I lead when appropriate, mobilizing the group for high performance.	**1**	**2**	**3**	**4**

	Almost Never	Sometimes	Often	Almost Always
14. When I work as part of a team, I respect the thoughts and opinions of others in the team.	**1**	**2**	**3**	**4**
15. When I work as part of a team, I can identify potential problems readily.	**1**	**2**	**3**	**4**
16. When I work as part of a team, I communicate in a manner to ensure mutual understanding.	**1**	**2**	**3**	**4**
17. When I work as part of a team, I do my part of the organization in a timely manner.	**1**	**2**	**3**	**4**
18. When I work as part of a team, I prepare sufficiently to make a decision.	**1**	**2**	**3**	**4**
19. When I work as part of a team, I lead the team effectively.	**1**	**2**	**3**	**4**
20. When I work as part of a team, I treat others with courtesy.	**1**	**2**	**3**	**4**
21. When I work as part of a team, I willingly contribute solutions to resolve problems.	**1**	**2**	**3**	**4**
22. When I work as part of a team, I seek and respond to feedback.	**1**	**2**	**3**	**4**
23. When I work as part of a team, I track other team members' progress.	**1**	**2**	**3**	**4**
24. When I work as part of a team, I solicit input for decision making from my team members.	**1**	**2**	**3**	**4**
25. When I work as part of a team, I demonstrate leadership and ensure team results.	**1**	**2**	**3**	**4**
26. When I work as part of a team, I adapt readily to varying conditions and demands.	**1**	**2**	**3**	**4**
27. When I work as part of a team, I listen attentively.	**1**	**2**	**3**	**4**
28. When I work as part of a team, I am able to change decisions based upon new information.	**1**	**2**	**3**	**4**
29. When I work as part of a team, I try to bring out the best in others.	**1**	**2**	**3**	**4**
30. When I work as part of a team, I recognize conflict.	**1**	**2**	**3**	**4**
31. When I work as part of a team, I clearly and accurately exchange information.	**1**	**2**	**3**	**4**

	Almost Never	Sometimes	Often	Almost Always
32. When I work as part of a team, I emphasize the meeting of deadlines.	**1**	**2**	**3**	**4**
33. When I work as part of a team, I accept individual differences among members.	**1**	**2**	**3**	**4**
34. When I work as part of a team, I identify needs or requirements and develop quality/timely solutions.	**1**	**2**	**3**	**4**
35. When I work as part of a team, I pay attention to what others are saying.	**1**	**2**	**3**	**4**
36. When I work as part of a team, I treat all my team members as equals.	**1**	**2**	**3**	**4**

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37. Position title (**required**):_____

38. In total, about how many persons are employed by your company at all locations?
    - Less than 20 1
    - 20 to 99 2
    - 100 to 500 3
    - 501 to 999 4
    - 1,000 to 5,000 5
    - 5,000 to 10,000 6
    - 10,000+ 7
    - Unknown 8

39. At work, I sometimes work as part of a team.
    - YES
    - NO

If you answered NO to the above question, skip the following questions.

	Almost Never	Sometimes	Often	Almost Always
40. At work, how often do you work as part of a team?	**1**	**2**	**3**	**4**

Appendix B - Teamwork Skills Questionnaire Scoring Key

Scoring Key

Scales	Items
Coordination (n = 5)	6, 11, 17, 23, 32
Decision Making (n = 6)	3, 7, 12, 18, 24, 28
Leadership (n = 7)	1, 4, 8, 13, 19, 25, 29
Interpersonal Skills (n = 6)	5, 9, 14, 20, 33, 36
Adaptability (n = 5)	15, 21, 26, 30, 34
Communication (n = 7)	2, 10, 16, 22, 27, 31, 35

COORDINATION – Organizing team activities to complete a task on time

6. When I work as part of a team, I allocate the tasks according to each team member's abilities.

11. When I work as part of a team, I help ensure the proper balancing of the workload.

17. When I work as part of a team, I do my part of the organization in a timely manner.

23. When I work as part of a team, I track other team members' progress.

32. When I work as part of a team, I emphasize the meeting of deadlines.

DECISION MAKING – Using available information to make decisions

3. When I work as part of a team, I understand and contribute to the organizational goals.

7. When I work as part of a team, I know the process of making a decision.

12. When I work as part of a team, I know how to weigh the relative importance among different issues.

18. When I work as part of a team, I prepare sufficiently to make a decision.

24. When I work as part of a team, I solicit input for decision making from my team members.

28. When I work as part of a team, I am able to change decisions based upon new information.

LEADERSHIP – Providing direction for the team

1. When I work as part of a team, I exercise leadership.

4. When I work as part of a team, I teach other team members.

8. When I work as part of a team, I serve as a role model in formal and informal interactions.

13. When I work as part of a team, I lead when appropriate, mobilizing the group for high performance.

18. When I work as part of a team, I lead the team effectively.

25. When I work as part of a team, I demonstrate leadership and ensure team results.

29. When I work as part of a team, I try to bring out the best in others.

INTERPERSONAL SKILLS – Interacting cooperatively with other team members

5. When I work as part of a team, I interact cooperatively with other team members.

9. When I work as part of a team, I conduct myself with courtesy.

14. When I work as part of a team, I respect the thoughts and opinions of others in the team.

20. When I work as part of a team, I treat others with courtesy.

33. When I work as part of a team, I accept individual differences among members.

36. When I work as part of a team, I treat all my team members as equals.

ADAPTABILITY – Recognizing problems and responding appropriately

15. When I work as part of a team, I can identify potential problems readily.

21. When I work as part of a team, I willingly contribute solutions to resolve problems.

26. When I work as part of a team, I adapt readily to varying conditions and demands.

30. When I work as part of a team, I recognize conflict.

34. When I work as part of a team, I identify needs or requirements and develop quality/timely solutions.

COMMUNICATION – Clear and accurate exchange of information.

2. When I work as part of a team, I ensure the instruction are understood by all team members prior to starting the task.

10. When I work as part of a team, I ask for the instructions to be clarified when it appears not all the team members understand the task.

16. When I work as part of a team, I communicate in a manner to ensure mutual understanding.

22. When I work as part of a team, I seek and respond to feedback.

27. When I work as part of a team, I listen attentively.

31. When I work as part of a team, I clearly and accurately exchange information.

35. When I work as part of a team, I pay attention to what others are saying.

Appendix C – LinkedIn Notification Message

(Name of participant),

Collaboration is fast becoming a vital skill in the Instructional Design industry and I'm in search of an understanding of its application in real-world context. My name is Melissa Ferguson and I'm a graduate student at Old Dominion University. For my final project, I am examining collaboration in instructional design teams. You have been randomly selected to participate in a 10-minute survey about teamwork, offered through SurveyMonkey (see link below). There is no compensation for responding nor is there any known risk. As no identifying information is being requested, you will remain anonymous. If you are interested in the final results of this study, feel free to contact me through my LinkedIn account. Thank you! Your participation is greatly appreciated!

Much obliged,

Melissa Ferguson

Survey link