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Motivation and Learning in an Online Collaborative Project Using Gamification

Michele L. Hudiburg
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MOTIVATION AND LEARNING IN AN ONLINE COLLABORATIVE PROJECT USING GAMIFICATION

by

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A Dissertation Submitted to the Faculty of
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OLD DOMINION UNIVERSITY
May 2016

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ABSTRACT
MOTIVATION AND LEARNING IN AN ONLINE COLLABORATIVE PROJECT USING GAMIFICATION

Michelle L. Hudiburg
Old Dominion University, 2016
Director: Dr. Ginger Watson

In 2012, there were 2.9 million students enrolled in graduate degrees and 22% were taking strictly online courses (Kena et al., 2014). Many students are not motivated to participate in collaborative learning experiences in online courses (Dirkx & Smith, 2004). Gamification, the inclusion of game elements in non-game contexts, has been shown to have a positive impact on motivation (Deterding, 2012; Kapp, 2012). Prior work has focused on structural gamification including elements such as points, levels, and badges as extrinsic motivators to traditional course activities. The current study explored content gamification including narrative, role-play, interactivity, and feedback in an online collaborative learning environment. Thirty-nine master’s degree students enrolled in an online educational technology program participated in a six-week, collaborative project as part of their online research methods course. Within two sections of a research methods course, students were randomly assigned to either a collaborative project with no gamification or a collaborative project with gamification. Outcome measures included motivation, learning, and student perceptions. Results were not statistically significant but indicated a trend for increased motivation, higher levels of satisfaction with the collaborative experience, and greater improvement from pre- to posttest scores among those experiencing the gamified treatment. Discussion will focus on considerations for utilizing specific types of gamification in online collaborative projects.
This work is licensed under the Creative Commons Attribution-NonCommercial 4.0 International License. To view a copy of this license, visit
http://creativecommons.org/licenses/by-nc/4.0/.
This dissertation is dedicated to my husband and children. May you always see value in the power and promise of a strong, educated woman of faith.
ACKNOWLEDGMENTS

I would like to thank the many individuals who made the completion of this manuscript possible. First, the members of my committee are to be applauded for their patience while guiding me through the pain and process of completing this manuscript. My major advisor and committee chair is highly valued, as she gave copious amounts of time and energy helping to assure my research was sound and my communication of the research was effective. Those efforts deserve special recognition, and I am truly thankful Dr. Watson was the leader of my team. Dr. Stefaniak and Dr. Pribesh were the eyes that made the manuscript better, and pushed me to look deeper as I shared my research. They helped keep my feet on the ground when my head sometimes went to the clouds.

Along with my committee and compatriots at Old Dominion University, I would be remiss in not recognizing my colleagues at Pittsburg State University (PSU). Working with a group of professionals such as these made completing my degree, and my dissertation, all the more valuable. Without my PSU family cheering me on and pushing me forward this manuscript may never have seen completion.

Finally, I must recognize the sacrifice and love of my family. To my husband and three kiddos, thank you from the bottom of my heart. Thank you for making me get to work when I didn’t want to. Thank you for picking up the slack when house work was something I couldn’t get done. Thank you for making me say ‘No’ to a thousand different things I wanted be involved in, and for reminding me that finishing this manuscript was of utmost importance. And thank you for simply loving on me, even the days you just knew mom was literally going off the deep end. For all of you, I am truly thankful. Now, let’s have an epic party, shall we?
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CHAPTER I
INTRODUCTION

Learning, in and of itself, does not exist in a vacuum. Humans use social influences to affect expectations, beliefs, emotions and cognitive competencies through modeling, instruction and social persuasion (Bandura, 1989). Used in online education, collaborative learning activities foster mutual reflection and individual thinking processes while applying technology as a process support (Bernard, et al., 2000). However, restrictions in the online environment, such as distance, time, access, and connectivity, make the practicality of collaboration a difficult task (Hoffman & Nadelson, 2010).

One possible means of motivating learners to work collaboratively in an online environment would be the implementation of elements found in game-based learning, or gamification. Gamification, as a term, began in the digital media industry. Gamification is defined as the inclusion of game elements in non-game contexts, creating experiences that are fun, motivating, and engaging for learners (Deterding, 2012; Kapp, 2012; Nicholson, 2012). Gamified experiences help support deeper learning, problem solving and critical thinking (Kapp, 2012).

A search of ERIC and Education Research Complete databases yielded 219 articles with a gamification and learning focus. Of the cited articles, 92 were included in peer-reviewed, academic journals. These studies communicated a positive impact on motivation when using gamification; however, three reviews of the existing articles raised questions of methodological rigor and design implementation in the published studies (Dicheva, Dichev, Agre, & Angelova, 2015; Dominguez, Saenz-de-Navarrete, de-Marcos, Fernandez-Sanz, & Pages, 2013; Hamari, Koivisto, & Sarsa, 2014). The vast majority of gamification studies have investigated the effects of structural gamification focused on the inclusion of scoring elements of video games such as
points, levels, achievements and other external rewards, applying them to educational and commercial contexts to create a game-like atmosphere (Dicheva et al., 2015; Hamari et al., 2014; Nicholson, 2012). Few published studies have explored gamification of content to investigate the effects of elements such as narrative, role-play, interactivity, and feedback.

Situated in the theoretical perspectives of collaborative learning (Bruffee, 1999; Kitchen & McDougall, 1999), motivation and motivational design (Keller, 1987a; Lepper, 1983, 1988; Malone & Lepper, 1987), and gamification (Deterding, Sicart, Nacke, O'Hara, & Dixon, 2011; Kapp, 2012; Kapp, Blair, & Mesch, 2014), this study focused on the content gamification of a collaborative learning project using elements drawn from game and simulation research. The relationship between motivation, afforded by gamifying an online collaborative learning project, and learner performance was examined.

Students in online courses are often given opportunities to interact with their peers through collaborative projects. Collaborative learning projects could be used to build social bonds (Bruffee, 1999; Dirkx & Smith, 2004; Goodsell, Maher, Tinto, Smith, & MacGregor, 1992; Kitchen & McDougall, 1999). Instead, the implementation of collaborative projects often results in complaints about busy work, free-loading behavior, desire for individual accountability, and difficulty building team interdependence (Dirkx & Smith, 2004). In this study, gamified elements were added to an online collaborative project in an attempt to overcome the challenges of negative collaborative behaviors and to explore motivational challenges and influences on content learning in online collaboration.

The framework for this study built upon the characteristics of content gamification as presented by Kapp (2012). Content gamification encompasses inclusion of narrative arcs, role-play, fantasy and any other game mechanics evoking a sense of play (Kapp, 2012; Kapp et al.,
The characteristics of narrative, interactivity, role-play and feedback were expected to work together, impacting learner-behavior and overall content learning within the gamified project (Landers, 2014). Unlike other gamification research (Hamari et al., 2014) it did not address the use of points, levels, badges or other external motivators. The intent was to utilize a motivational design framework paired with gamification to increase learner motivation, improving the online collaborative experience and positively impacting student learning.
CHAPTER II
LITERATURE REVIEW

In support of increasing learner motivation, improving the online collaborative experience, and impacting student learning through gamification, the literature on collaboration gamification and motivation was reviewed. This chapter begins with a review of collaboration and its use in online learning environments, paying particular attention to gamification and its potential impact on student motivation and learning in online collaborative projects. The review of literature does not include an extensive review of gaming, but instead focuses on how gamification influences motivation and learning. A brief historical context for collaboration and motivation is provided, as both are familiar constructs in the fields of education and instructional design. The uses and potential significance for gamification in learning environments are explored as they are less developed in the research literature.

Collaborative Learning

Collaborative learning is the process of working with a group of people, learning through mutual effort, to make sense of what has been learned while pursuing a common goal (Bernard, Rojo de Rubalcava, & St. Pierre, 2000; Bruffee, 1981, 1999; Dillenbourg, 1999; Kaye, 1992; Kumar, 1996, April; Lehtinen, Hakkarainen, Lipponen, Rahikainen, & Muukkonen, 1999). Collaborative learning activities successfully occur in both face-to-face and online classes. To better understand the importance of collaborative learning, a foundation surrounding its benefits and challenges is needed.

Bandura’s (1989) social cognitive theory asserts that knowledge is gained through social activity. Evidence of this can be found by observing small children learning consequences of action both through personal experience and by watching those around them. Theoretically,
collaborative learning requires social and communicative events to occur, assuring the learning of complex knowledge and the exercising of higher order thinking skills takes place. Communication lends to cognitive growth and results from a collaborative experience, guided by adults or peers, in the zone of proximal development, when a student is pushed just far enough to need assistance but not so far as to experience frustration (Lehtinen et al., 1999; Vygotsky, 1978). Effective collaborative learning relies on the co-construction of knowledge, and co-construction of knowledge only takes place as individuals learn to respect differing perspectives (Lipponen, 2002; Palinscar, 1998).

Well-designed collaborative learning projects are valuable for creating an environment where students work together in the learning process. Heterogeneous groups, moderated communication, grades or assessments, individual accountability, and individual differences are important elements to creating a successful collaborative experience (Curtis & Lawson, 2001; Goodsell et al., 1992; Hathorn & Ingram, 2002). Heterogeneous, appropriately-sized groups are important to ensure diverse discussions, creative problem solving and optimal contributions. It is also important to assure communication is moderated so that comments and communication continually move toward achieving desired learning goals. Assigning a grade, both individual and for the group, is also necessary because if no grade is assigned to the collaborative experience learners will usually split up the work and put the pieces back together in the end, ignoring the group problem solving process altogether. Individual accountability is another critical factor for collaboration, assuring that each member is noticed, is important for group success, and is invaluable as a contributor to the learning experience. Finally, it is important to account for individual differences because sometimes people simply cannot work together.
Figure 1 visually represents the process of collaborative learning, consisting of three interacting elements including individual ideas, constructive conversation, and consensus for the group. The process represented applies to both face-to-face and online learning environments. It is based on the assumption that individuals bring personal thoughts and ideas to the group interactions. As the group comes together, individuals engage in constructive conversation. This conversation includes leading questions, dissent, idea sharing and alternate viewpoints (Bruffee, 1999). Through constructive conversation, members of the group come to a consensus on the best way to solve their problem. Learning occurs as individuals continue contributing their personal knowledge, experience, and effort to the group.

![Figure 1. Visual Map of Collaborative Learning (based on Bruffee, 1999)](image)

**Online Collaboration.** Asking students to work collaboratively in an environment not well suited for such interaction is not without its challenges (Nova, Wehrle, Goslin, Bourquin, & Dillenbourg, 2007). Asking students to work collaboratively in the online environment requires an increased time commitment and effective communication from learners and faculty alike (Gabriel, 2004). For online collaboration to be successful, learners need to feel like a part of a learning community, where they are not fearful of adding to the conversation (Bernard et al.,
Knowing group expectations, how to use the technology, and where to turn if problems arise also creates an atmosphere more conducive to successful online collaboration.

**Benefits of Collaboration.** Collaborative learning builds on social cognitive theories informing educators that learning is more meaningful when experienced with others who have common interests (Bandura, 1989; Bruffee, 1999). Both traditional and online collaboration have been shown to positively impact student learning (Bruffee, 1999; Curtis & Lawson, 2001; Dirkx & Smith, 2004; Goodsell et al., 1992; Johnson, Johnson, & Stanne, 2000; Slavin, 1990). Collaborative learning has been shown to enhance critical thinking (Gokhale, 1995) along with improving perceptions of skill development and course satisfaction (Alavi, 1994).

**Challenges to Collaboration.** Collaborative learning in any context is not without its challenges. Collaborative learning can lead to frustration due to social factors such as free-loading and sucker effects (Brindley, Blaschke, & Walti, 2009; Dirkx & Smith, 2004; Salomon & Globerson, 1989), division of labor (Kitchen & McDougall, 1999; Salomon & Globerson, 1989), and consensus building (Dirkx & Smith, 2004; Kitchen & McDougall, 1999). Likewise, learners find difficulty in accepting a “hands-off” approach from the instructor (Curtis & Lawson, 2001; Kitchen & McDougall, 1999). This ambivalence is also present in online collaboration. Many online students experience a disconnection between previous collaborative projects (mainly face-to-face) and the realities of online group work (Brindley et al., 2009; Dirkx & Smith, 2004; Reeves, Herrington, & Oliver, 2004).

Not only do social factors play a role in ambivalence and dissatisfaction with online group work, but so do more physical and technical issues. Restrictions in the online environment, such as distance, time, access, connectivity, and social factors make the practicality of online collaboration a difficult task (Hoffman & Nadelson, 2010). Technical difficulties, lack of
training, unclear expectations and response lag have also been cited as reasons online, collaborative learning experiences are perceived as a waste of time (Curtis & Lawson, 2001; Kitchen & McDougall, 1999).

Knowing reluctance to the idea of online collaboration exists, questions for overcoming that reluctance emerge (Brindley et al., 2009; Dirkx & Smith, 2004; Graham & Misanchuk, 2004; Kaye, 1992). Learners want to know the benefits and limitations of group work. They want to know why they have to work with others when they anticipate having to do all the work themselves. Learners want to understand why they should give so much time to the team process. In online collaborative groups learners want to know how the limitations of time and distance can be bridged, and they want to understand the reasons for giving up the perceived flexibility afforded by online learning. Gamification can address these challenges in collaborative online learning environments by helping set clear learning goals, assigning specific roles for group members, and creating scenarios that continually move action in a forward direction (Kapp, 2012; J. J. Lee & Hammer, 2011). Expectations for this study were that the structured nature of a gamified learning experience would help alleviate some of the woes associated specifically with online, collaborative learning projects.

**Gamification**

Research exploring gamification has stressed the importance of using game mechanics for enhancing motivation and achievement (Deterding, 2012; Kapp, 2012). Games can potentially present learning opportunities using strategies that allow contextualized learning. Games offer a means of applying and practicing skills by presenting content in a manner that makes sense to the environment (Van Eck, 2006). It is how running becomes social, how understanding agriculture and farm management provides insight into real time management
situations and how leadership skills are learned through guiding others on a challenge (Kapp, 2012). This mindful learning becomes meaningful and beneficial to the learner, unlike inert knowledge gained through decontextualized methods (i.e. classroom worksheets) (Rieber, 1996).

However, gamification is not about developing a game, but is about using game attributes to draw individuals into the fun, leaving them excited about experiencing learning (Arnold, 2014). Gamification has been broadly defined as using game mechanics in non-game contexts to impact motivation (Deterding, Dixon, Khaled, & Nacke, 2011; Kapp, 2012; Nicholson, 2012). For this study, the addition of learning was added to the definition. In other words, gamification is all about motivating individuals to participate in a learning event through the addition of game elements, not full-fledged games (Nicholson, 2012).

**Structural and Content Gamification.** Kapp (2014) divides gamification into two types, structural and content. Structural gamification is the addition of game elements in order to move an individual through the process without altering content. This is the most common type of gamification offering extrinsic motivation through the inclusion of points, levels, badges and achievements (Deterding, Sicart, et al., 2011; Dominguez et al., 2013; Hamari et al., 2014; Kapp, 2012; Nicholson, 2012; Rapp, 2013). Giving an individual points for watching a video, which would help the “player” progress to the next level, is an example of structural gamification.

Content gamification, on the other hand, is making learning more game-like and impacting intrinsic motivation by applying game elements, mechanics, and thinking to its content (Kapp et al., 2014). Adding story elements (narrative), issuing a challenge instead of listing objectives, or involving participants in role-play scenarios instead of assigning individual tasks are all examples of content gamification (Kapp et al., 2014). Stott and Neustaedter (2013) examined three cases using content gamification, specifically freedom to fail, rapid feedback,
progression and storytelling. Each gamification element was shown to successfully impact motivation and student achievement, but the context of each course was critical in this success. In the end, content gamification was shown to be successful as long as the context of course content was kept in consideration during design. Stott and Neustaedter’s study is one of very few studies focused on content gamification.

Gamification Research. The primary focus of previous gamification studies has been on the theoretical possibilities of using gamification in education, with little empirical grounding. Theoretical articles provide lists and recommendations of broad areas for consideration when implementing gamification in learning environments. Recommendations include ideas for motivation and engagement (Deterding, Sicart, et al., 2011; Kapp, 2012; Muntean, 2011); a dynamical model whose variables can be manipulated to obtain optimal educational effectiveness (Kim & Lee, 2012); and using research-based, theory-driven gamification projects (J. J. Lee & Hammer, 2011). By far, these studies focus strictly on the use of structural gamification elements.

Other studies seek to grow the empirical base for using gamification in education. These studies included structural gamification elements such as points, rankings, achievement systems and leaderboards in their respective college courses (O’Donovan, Gain and Marais, (2013); Sheldon, (2012); and Dominguez, et al. (2013). O’Donovan et al. and Sheldon incorporated elements of content gamification, including narrative and role-play, but structural gamification elements took precedence. All three studies concluded gamification can positively impact motivation and learning, but Dominguez, et al. (2013) stressed that care must be taken when designing and implementing gamified learning.
Focusing on structural gamification is a shallow use of gamification as an instructional strategy, leaving a serious gap in the meaningful gamification of learning spaces (Kapp, 2012; Nicholson, 2012; Rapp, 2013). Studies emphasizing structural gamification fail to examine the success of specific game elements used for gamification, and suggest that gamification itself is the answer to improved learner outcomes (Landers, 2014). The way gamification elements are combined can have varied results depending on the desired learning context. Likewise, a focus on learner attitudes is an important missing piece in the gamification literature. Improving learning through gamification means understanding why the gamification is being used and how it influences learner behavior, attitude, and progress (Landers, 2014).

Gamification of Instruction. Extracting design elements from games and embedding them into learning environments as a means of gamifying instruction has potential for increasing learner motivation and student learning (Van Eck, 2007b). Using goals, rules, interaction, time, reward, feedback, challenge, storytelling, curves of interest, aesthetics, and the ability to fail with minimal consequence can result in learning environments where there is increased motivation, retention and application of learning (Dickey, 2005; Garris, Ahlers, & Driskell, 2002; Kapp, 2012). However, the goal of gamification is to improve instruction, not replace it, so if content is not already effective then adding gamification will yield little result (Landers, 2014). Content gamification and motivational design were combined in this study to potentially improve motivation for online collaborative project experiences, along with positively influencing content learning.

Motivation

There is benefit in working to increase motivational appeal within classroom instruction (Cordova & Lepper, 1996; Lepper, 1988; Ryan & Deci, 2000). Our natural motivational
tendency is toward intrinsically motivated activities because exploration, play, curiosity and adventure drive us to be active learners in the environment surrounding us (Ryan & Deci, 2000). However, many of our personal activities have become extrinsically motivated; that is, based on some outside reward. Many of us work to get a paycheck, study to get a grade, and exercise to lose weight. Each of these activities is regulated by our extrinsic motivation. Gamification is no different as it seeks to drive motivation through the use of both extrinsic and intrinsic means (Deterding, 2012; Kapp, 2012; Kapp et al., 2014). The problem lies in knowing the best ways to apply motivational strategies in learning situations (Maehr & Midgley, 1991). Understanding the differences and relationships between motivational perspectives can assist in creating effective learning environments.

**Extrinsic and Intrinsic Motivation.** Extrinsic motivation is closely linked to rewards. Extrinsic motivation is doing a task for something other than its own sake. Extrinsic motivators include rewards, recognition or directives (M. K. O. Lee, Cheung, & Chen, 2005). In a learning environment extrinsic motivators have the potential to compromise goals and redirect focus onto performance (Ryan & Deci, 2000). A student motivated to do homework because of fear of consequences from his parents is extrinsically motivated. However, his autonomy differs from the student who is motivated to finish her homework because it will help her earn better grades. Both individuals are extrinsically motivated, but at differing levels of autonomy. Using extrinsic rewards is good when performance (or the product of a performance) is the goal, but learning is not a strictly performance-based process (Condry & Chambers, 1978).

Compared to extrinsic motivation, intrinsic motivation results in higher quality or sustained learning and creativity because learning tasks are being performed out of internal desire (Lepper, 1988; Malone, 1981; Ryan & Deci, 2000). Intrinsic motivation is the desire to do
a task because it is interesting or enjoyable. Creating learning experiences with high interest value containing personalization of themes, objects, and characters lend to better content learning and heightened intrinsic motivation for continuing a task (Cordova & Lepper, 1996). Instead of wanting to fulfill required learning objectives, intrinsically motivated individuals are more interested in the problem solving process than in quickly finding the answer (Condry & Chambers, 1978). Intrinsically motivated individuals may also feel better about learning and use their learning more in the future (Lepper, 1988; Malone, 1981).

Ideally, intrinsic and extrinsic motivations should work together. An intrinsically motivated individual desires to seek out inherently pleasant learning activities while continuing to be cognizant of the extrinsic effects of those choices based on learning goals (Lepper, Corpus, & Iyengar, 2005). Allowing learners to choose a means of interacting with intrinsically interesting content can work alongside achieving an extrinsic motivator, the desired grade for that same content. On the other hand, if attention is paid only to the extrinsic value of an activity the possible enjoyment of learning propelled by intrinsic interest can be undermined (Lepper et al., 2005). For instance, choosing a career path based solely on salary will eventually lead to a very unsatisfied employee. Meaningful gamification relies on the interplay between both intrinsic and extrinsic motivation (Kapp, 2012; Nicholson, 2012).

**Motivation for Game Play.** Not all intrinsically-motivated learning experiences are games, and not all educational problems can be solved using games. However, it can be argued that games are highly motivating activities and their components should not be overlooked in the instructional design process (Malone, 1981). When examining online games, several dimensions of motivation emerge. Those dimensions include escape, coping, fantasy, skill development, recreation, competition, and social elements of game play (Demetrovics et al., 2011; Deterding,
Along with the previous seven dimensions of motivation, Dickey (2005) presents five game design elements for learning environments: role-playing, narrative arcs, challenges, interactive choices and interaction with others.

Combining these motivational ideas, three overarching components of motivation for online game play emerge (Yee, 2006), and hold relevance to the study. The achievement dimension is determined by the desire for successful advancement through the understanding of the game’s mechanics and by competing with other players. Next, a social dimension is revealed through building relationships with other players by helping, chatting and participating in group challenges. Finally, players immerse themselves in the game as they discover unique areas not known by other players, as they assume roles and work with others to move through a story, and even avoid real life experiences within the game.

Measuring game-play motivation was important for this study because it could reveal why people play games and determine if that motivation would translate to the gamified collaborative project. If an individual placed high value on game play, it was assumed they would enjoy and do well as part of the gamified project. On the other hand, a person who does not enjoy games or gaming may have found the gamified experience unsatisfactory, possibly creating frustration and anxiety (Landers, 2014). Likewise, different demographic groups may have different motives for playing or enjoying games (Yee, 2006), and these motives may have translated into successful participation in the study. For instance, there is evidence that while males and females both enjoy the social aspect of game play, they do so for very different reasons (Yee, 2006).
Motivational design for learning. Motivation should be influenced through learning design, not controlled (Keller, 2004). Key motivational design techniques include relevance to work or personal interests, meaningful feedback that assists in students understanding their performance level, learning communities, varied presentation formats, and easy navigation in the learning system (Hodges, 2004). To answer the need for a motivational design model, ARCS (attention, relevance, confidence and satisfaction) was introduced (Keller, 1987a; Keller & Suzuki, 2004) as a way to overlay motivational design onto already existing instructional design models.

ARCS is based on the premise that embedding strategies of attention, relevance, confidence and satisfaction to learning materials will impact motivation and in turn enhance cognition (Means, Jonassen, & Dwyer, 1997). Effects of implementing the ARCS model have been varied. Many studies have shown a positive correlation between use of the model, motivation levels and student learning (Keller & Suzuki, 2004; Means et al., 1997; Ocak & Akçayır, 2013); others have found no significant relationships emerging when implementing ARCS (Means et al., 1997). While limitations to the ARCS model and motivational design exist, the affordances of a systematic design model for motivation can help designers focus on the motivational aspects of design for collaboration, including elements of game mechanics and gamification (Hamzah, Ali, Saman, Yusoff, & Yacob, 2015; Keller, 2010).

Identifying motivational requirements of learners and incorporating motivational enhancements to improve online learning experiences is possible using the ARCS model. Research exploring motivational implications of design for online learning has mixed results. While adding motivational tools, such as social media applications, have been shown to positively impact motivation in online learning (Fisher & Baird, 2005) others studies reveal that
the tools are not as important as the focus on learning and elimination of social control (Martens, Bastiaens, & Kirschner, 2007; Squire, 2005).

Game elements of role-play, narrative, fantasy, interactivity, and feedback were included as means of implementing ARCS and content gamification in an online collaborative project. Table 1 illustrates the relationship between each game element, ARCS motivational elements, and motivation for game play implemented in this study. While these relationships are important, the key to successful gamification of learning lies in the chosen game elements affecting desired behavior (i.e. motivation) and the desired behavior affecting learning (Landers, 2014).

Table 1

<table>
<thead>
<tr>
<th>Gamified Elements</th>
<th>ARCS Motivational Design</th>
<th>Motivation for Game Play</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrative – the storyline, or scenario, meant to provide direction to the learning problem</td>
<td>Attention</td>
<td>Fantasy</td>
</tr>
<tr>
<td></td>
<td>Relevance</td>
<td>Social</td>
</tr>
<tr>
<td>Role-play – learners take on character roles defined by the narrative of the learning problem; inclusion of avatar (virtual representation of the character) gives “life” to the character role</td>
<td>Attention</td>
<td>Fantasy</td>
</tr>
<tr>
<td></td>
<td>Relevance</td>
<td>Skill Development</td>
</tr>
<tr>
<td></td>
<td>Confidence</td>
<td>Social</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Escape</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Coping</td>
</tr>
<tr>
<td>Interactivity – ways learners are encouraged to participate with content, peers, narrative, etc. in order to make progress in the learning problem</td>
<td>Confidence</td>
<td>Social</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recreation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Competition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skill Development</td>
</tr>
<tr>
<td>Feedback – methods of guiding learners through the content, assuring positive progress to meet learning objectives</td>
<td>Attention</td>
<td>Skill Development</td>
</tr>
<tr>
<td></td>
<td>Relevance</td>
<td>Social</td>
</tr>
<tr>
<td></td>
<td>Confidence</td>
<td>Competition</td>
</tr>
<tr>
<td></td>
<td>Satisfaction</td>
<td></td>
</tr>
</tbody>
</table>


**Narrative.** Narrative is one of the oldest forms of learning, predating the written word. Humans have a strong line of oral tradition. Biblical stories have their roots in oral tradition, as do many traditional stories found in literature from around the world. Even today, narrative has strong ties in modern culture with books, television and movies being preferred forms of entertainment.

Narrative learning environments can provide intrinsically motivating learning experiences with their focus on challenge, curiosity and fantasy. Take, for instance, a study of 8th graders in a microbiology unit investigating how using narrative impacts learning gains and experiences, including motivational benefits. Learning gains in the narrative environment were noted as significant across all groups, although not highly so (McQuiggan, Rowe, Lee, & Lester, 2008). However, motivational benefits were higher in the narrative condition. In a follow-up study, learning gains were found to be on par with the traditional group, and motivational affordances remained significant (Rowe et al., 2009). Thus, adding narrative to learning experiences was shown to have a positive effect on both motivation and, in turn, learning gains (McQuiggan et al., 2008; Rowe et al., 2009).

Including narrative can also provide direction to the learning experience, and in collaborative learning projects can be related to collaborative scripting. Collaborative scripts are structured interactions within the collaborative environment, used for guiding learners on the collaborative learning journey (Dillenbourg, 2002; King, 2007). Scripting collaborative learning includes attention to five key phases: task definition, group composition, task distribution, modes of interaction, and time limits for activity (Dillenbourg, 2002; Kollar, Fischer, & Hesse, 2006). Collaborative scripting delivered as narrative is a good bridge between collaborative learning and instructional design, providing guidance and supplying parameters for collaboration.
Designing narrative can be challenging because narrative is complex and not necessarily linear (Van Eck, 2007a). To aid in narrative design, Dickey (2006) provides heuristics for integrating game design narrative in instruction. These heuristics help develop the relationship between ARCS elements of attention and relevance and narrative elements. To begin, an initial challenge should be presented, piquing the learner’s interest and facilitating attention-getting. Next the designer identifies potential obstacles while developing puzzles, minor challenges and resources all used to maintain learner attention throughout the process. Thirdly, identification and establishment of roles is necessary. Establishing the physical (what objects are present), temporal (when the narrative takes place), environmental (what is true about the surroundings), and ethical dimensions (the expected mores of those involved) of the environment follows role development, as does the creation of a backstory; both of which lend relevance to the learning experience. Finally, the designer will create cut scenes, short interactions with new content, to support development of the narrative story line while further enriching relevance of the learning experience.

**Role-Play.** Role-play is when individuals assume the identity of another, immersing themselves in that character as they work their way through accompanying narrative of a game or simulation (Ching, 2014; Dracup, 2012). Role-play has long been utilized in collaborative learning projects. In the jigsaw collaboration method the distribution of information defines the role of individual group members (Aronson, 1978). Jigsaw was designed to prevent free-rider effect because one cannot solve a problem and achieve success without input from others in the group (Salomon & Globerson, 1989). Recent ventures into collective intelligence (CI) games use role-play to a similar effect. Individual confidence is built as participants work with others, piecing together information and finding a problem solution. These exercises in CI could be
compared to a type of scavenger hunt (Szulborski, 2005) where players put together provided clues using various communication media, playing individual roles and collectively solving an unidentified problem (McGonigal, 2008; McGrath & Bayerlein, 2013; Thomas, 2006). Immersion in a role focuses individual attention on specific tasks needed to solve a problem (Wills, Leigh, & Ip, 2011).

Online role-play offers opportunities for promoting confidence through reflection and internalization of response choices and consequences (Wills et al., 2011). Role-play fosters a sense of relevance by allowing learners a chance to explore varied possibilities and establish strategies while applying theory and content from their discipline (Ching, 2014). Communication and negotiation skills are also honed through the role-playing experience (Dracup, 2012; Wills et al., 2011).

Role-play is not without its challenges. In an analysis of using role-play in German language teaching to undergraduates, Ludewig (2013) did not find evidence of deep, transferrable learning as an effect of the role-playing experience. In fact, online students in a role-playing situation were less than enthusiastic about participating. Most students desired less autonomy (fewer choices), more feedback (grades) and greater structure (How many words? How long should I work?) than choosing to get lost in the experience. Engagement in the role-play experience was driven by anticipated grades more than the desire/expectation of a fun-learning experience.

On the other hand, studies have also recorded significant influence on motivation and learning by using role-play activities. A study conducted in a Middle East politics learning simulation found that the use of online role-play succeeded in motivating participants and increasing content learning (Dracup, 2012). In another study investigating the impact of role-
playing on the quality of peer feedback in an online course using case-based activities, sixty percent of participants reported that role-play as helpful for composing focused, meaningful feedback for their peers Ching, (2014). Ninety percent reported the feedback they received was useful in helping revise their case analysis, thus boosting confidence in their learning. These studies imply the potential for role-play in improving student learning and motivation.

*Interactivity.* Interactivity is another element included in games and gamification. Interactions encourage active participation in the instructional process, allow for differentiation of learning, help learners build on prior knowledge and transfer new ideas to old schema, and promote intrinsic motivation (Wagner, 1997). Interacting with content promotes deeper levels of learning. Interactivity increases a learner’s willingness to explore content and helps them retain that information (Kapp et al., 2014).

Interaction is important in any learning environment, but choices of interactivity should be made based on learning goals and outcomes, not vice versa (Wagner, 1997). Social dynamics often determine the direction of motivation within the group (Jarvela, 2010). Without a sense of social presence, individuals tend to participate less frequently (So & Brush, 2008). When social interaction does not occur, is difficult to initiate, or tedious to maintain the impact on learner motivation can be negatively impacted (Rienties, 2009).

Recognition that interactivity plays a key role in effective learning, but interaction is not easily quantified into generalizable heuristics. Outcomes of interaction include some type of change in the learner and movement toward achieving a goal (Wagner, 1997). Three important modes of instructional interactions have been presented: learner-instructor, learner-learner, and learner-content (Moore, 1989; Wagner, 1997). These constructs give direction to the design of interactions in online learning environments, increasing motivation by helping build confidence.
Feedback. For this study, feedback is defined as information needed to check one's performance or understanding. When applying feedback research to games, we better understand the necessity of providing feedback within the system. Feedback is one of the primary motivational strategies included in games and simulations, allowing participants to gauge progress and persist in their efforts (Dickey, 2006; Garris et al., 2002; Kiili, 2007). Within the gamified system feedback should come from a variety of sources. Receiving positive and negative feedback through varied sources reinforces behavior and allows shifts in cognitive retention (Wagner, 1997).

The eventual goal of feedback is to bring students to a level of self-regulation where they can assess the quality of their own work and achieve independence as learners. Self-regulation is a metacognitive process linked to the degree in which learners are able to regulate their thinking, motivation and behavior in order to make meaning (Brookhart, 2008; Nicol & Macfarlane-Dick, 2006). Self-regulated students are motivationally and behaviorally active in all aspects of their own learning, lending to good metacognitive processes (Zimmerman, 1990).

Feedback shown to positively impact motivation (1) recognized relationship between effort, ability and success, (2) made progress visible, (3) focused on the task rather than performance information and (4) elicited goal discrepancy (Narciss, 2008). Each of these motivational affordances has direct effect on learner confidence and satisfaction, fitting with ARCS design. And, according to Hoska (1993), feedback should help learners understand how abilities can be developed through practice, how effort helps increase skills, and how mistakes are not failures but are an important part of the learning process; all critical pieces of building confidence through self-efficacy (Bandura, 1989).
Purpose Statement and Research Questions

Games, simulations, and gamification are instructional strategies holding untapped potential for online learning. When combined with proven instructional theory and instructional design processes, gamification (using elements from games and simulations) provides particular promise for heightened motivation, engagement, and learning (Becker, 2007; Rieber, 1996). However, careful thought is required when designing gamification. Making something fun does not always make it the right choice (Koster, 2013; Landers, 2014; Malone & Lepper, 1987). As with any pedagogy, gamification should be used for achieving relevant learning outcomes (Kapp, 2012; Stott & Neustaedter, 2013).

Although gamification has been shown to improve motivation among learners, the focus has been on the use of structural gamification (i.e. points, levels, badges). This narrow view of gamification fails to explore richer possibilities of gamifying learning (Stott & Neustaedter, 2013). Research into the use of content gamification is limited, causing a noticeable gap in the literature; but the strategy has potential to impact motivation and learning. In order to close the gap, research questions might investigate the best ways to incorporate games and gamification into learning, what game mechanics work best together, how students learn best using games and simulations, and what makes the learning in games and simulations different from other types of instruction (Akili, 2007; Becker, 2007; Landers, 2014). Each question is important for expanding the gamification research base.

This study explored the gamification of online collaborative projects using content gamification and ARCS. Content gamification’s relationship to improving motivation and learning in an online environment was the study’s focus, along with its influence on perceptions
of the online collaborative project. Content gamification elements included narrative, role-play, interactivity, and feedback.

This study sought to answer the following research questions:

1. How does motivation differ for students completing an online collaborative project with or without gamification?

2. How does student learning differ for students completing an online collaborative project with or without gamification?

3. How does the perception of online collaboration differ for students completing an online collaborative project with or without gamification?

4. How does the description of online collaborative experiences differ for students completing an online collaborative project with or without gamification?
CHAPTER III

METHOD

This chapter details the research design, study treatments, participants, instruments, and procedures for this study. It concludes with a description of the analysis used to address each research question.

Treatments and Research Design

This study used a mixed form including a quasi-experimental, nonrandomized control group pretest-posttest design with both quantitative and qualitative data, employing statistical and thematic analysis to triangulate results. A control group design was chosen to compare motivation, learning, and perceptions of students assigned to either a traditional or gamified version of a collaborative online project. A pretest-posttest design facilitated comparison of changes in motivation, learning, and perceptions measured at the beginning and end of the five week study project. Qualitative data was collected to determine nuances within the instructional strategy that may not have emerged as part of the quantitative data.

Changes in motivation, learning, and perceptions were determined using quantitative analysis of pre/posttests and pre/post-survey responses. Quantitative analysis included independent samples t-tests, confidence intervals, multivariate analysis of variance (MANOVA), and multiple regression. Each quantitative test was run to determine factors that may have significantly influenced motivation, learning, or perception due to gamification.

Qualitative phenomenological data included analysis of personal interviews and open-ended responses to pre- and post-survey questionnaires. Phenomenological data includes information from those who have directly experienced an event, and as such have developed an overall view of the phenomenon (Patton, 2002). The phenomenological qualitative research
perspectives provided by current participants gave further understanding of how the collaborative project was perceived, with and without gamification.

**Participants**

The study began with an intact group of forty master’s degree students (female = 36, male = 4) enrolled in a spring semester research methods course at a small, regional university in the Midwest United States. Two sections of the course were offered via an asynchronous, online delivery system. The same instructor taught both sections. One male student dropped the course after 3 weeks, leaving a total of 39 participants. The sample consisted primarily of Caucasian (60%) females (90%). Approximately half were younger (53%) than thirty-five years old and half were older (47%) than thirty-five (see Table 2).

<table>
<thead>
<tr>
<th>Treatment</th>
<th>n</th>
<th>Male</th>
<th>Female</th>
<th>Under 35</th>
<th>Over 35</th>
<th>Caucasian</th>
<th>Latino</th>
<th>Native American/American Indian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gamified</td>
<td>21 (53%)</td>
<td>0 0</td>
<td>13 (52%)</td>
<td>8 (53%)</td>
<td>5 4 6</td>
<td>1 6 5</td>
<td>1 0</td>
<td>3 0</td>
</tr>
<tr>
<td>Traditional</td>
<td>19 (47%)</td>
<td>1 3</td>
<td>11 (44%)</td>
<td>4 (27%)</td>
<td>6 2 6</td>
<td>3 8</td>
<td>5 0</td>
<td>4 0</td>
</tr>
<tr>
<td>Total</td>
<td>40d</td>
<td>1 3</td>
<td>24</td>
<td>12</td>
<td>11 6 12 4 14</td>
<td>10 1 0</td>
<td>7 0</td>
<td></td>
</tr>
</tbody>
</table>

*Eight participants did not respond to the survey item for age or ethnicity; b S1 = Section 1 of the course, c S2 = Section 2 of the course; d All 40 students were included in preliminary demographic information collection.

While all students were required to take part in the instructional intervention, students were not required to participate in the study surveys or interviews. At the beginning of the study, students were invited to participate and were assured that there would be no repercussions for non-
participation (Appendix A). Likewise, the study was submitted to the Institutional Review Board and approved as exempt (694621-1). Table 3 presents student participation in each portion of the study. Of the 40 participants initially enrolled in both sections of the course, 30 (75%) actively participated in all portions of the study treatments.

Table 3

Participant Involvement in Study

<table>
<thead>
<tr>
<th>Study Participation</th>
<th>Gamified</th>
<th>Traditional</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>21</td>
<td>19</td>
<td>40</td>
</tr>
<tr>
<td>Posttest</td>
<td>21</td>
<td>18&lt;sup&gt;a&lt;/sup&gt;</td>
<td>39</td>
</tr>
<tr>
<td>Pre-survey</td>
<td>16&lt;sup&gt;b&lt;/sup&gt;</td>
<td>18&lt;sup&gt;c&lt;/sup&gt;</td>
<td>34</td>
</tr>
<tr>
<td>Post-survey</td>
<td>15</td>
<td>17&lt;sup&gt;d&lt;/sup&gt;</td>
<td>32</td>
</tr>
<tr>
<td>Section 1</td>
<td>13 (52%)</td>
<td>12 (48%)</td>
<td>25</td>
</tr>
<tr>
<td>Section 2</td>
<td>8 (53%)</td>
<td>7 (47%)</td>
<td>15</td>
</tr>
</tbody>
</table>

<sup>a</sup>One male participant dropped the course before the posttest was given. <sup>b</sup>One participant completed a portion of the pre-survey twice, and then did not complete the post-survey. Five participants chose not to participate in either survey. One participant completed the pre-survey, but not the post-survey. <sup>c</sup>One participant chose not to participate in either survey. Another participant completed the pre-survey, but not the post-survey. <sup>d</sup>Two participants completed the pre-survey, but not the post-survey. One of those was the male student who dropped the course.

All participants considered themselves either novice or intermediate level game players. For those who played games, mobile-device games were most preferred (75%) (Table 4). The majority (59.3%) of those on both the gamified and traditional collaboration teams played between one and three hours per week (Table 5). However, of the 223 total responses to frequency of play 94 (42%) reported never playing any kind of game; thus interest in playing games was limited within the participant pool.
### Table 4

*Types of games and frequency of play by Participants*

<table>
<thead>
<tr>
<th>Type of Game</th>
<th>n</th>
<th>Frequency of Play</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>G&lt;sup&gt;a&lt;/sup&gt; T&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Never</td>
<td></td>
<td>No time per week</td>
</tr>
<tr>
<td>Once per month</td>
<td></td>
<td>1-3 hours per week</td>
</tr>
<tr>
<td>Once per week</td>
<td></td>
<td>4+ hours per week</td>
</tr>
<tr>
<td>2-3 times per week</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Gamified collaboration team; <sup>b</sup>Traditional collaboration team

### Table 5

*Time Participants spent playing games, weekly*

<table>
<thead>
<tr>
<th>Time spent playing games</th>
<th>No. Responses (n = 32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gamified</td>
<td>Traditional</td>
</tr>
<tr>
<td>No time per week</td>
<td>2</td>
</tr>
<tr>
<td>1-3 hours per week</td>
<td>9</td>
</tr>
<tr>
<td>4+ hours per week</td>
<td>4</td>
</tr>
</tbody>
</table>
Instructional Treatment

The goal of the study was to compare using gamification as a collaborative instructional strategy to improve student motivation and learning, to a traditional online collaborative learning strategy. In order to compare strategies students were randomly assigned into traditional and gamification collaborative teams within their respective course section. There were five traditional and five gamified collaboration teams. Separating each intact section of the course into random treatment and control groups allowed the principal investigator to control for both potential internal and external validity issues.

The traditional collaboration teams were assigned fellow classmates to work with, goals to achieve, a timeline for completion, and evaluation rubrics. They were also offered suggestions for interacting with teammates along with directions for using their group space in the Canvas Learning Management System (CLMS). Once project guidelines were given the collaboration teams were expected to work together to complete assigned goals. For the traditional collaboration teams use of online discussions, synchronous meetings, task assignment/completion, and goal achievement were driven by the instructor and the group itself.

Instructional materials for traditional collaboration teams are provided in Appendix B. The instructional process is presented with more detail in the Procedure.

Similarly, the gamification collaboration teams worked with classmates, were presented with goals to achieve, and were given a completion timeline and project evaluation rubrics. Unlike the traditional collaboration teams, members of gamified collaboration teams assumed character roles and created personal avatars as part of the online collaborative project. All communication, team meetings, and goal achievement for the gamification collaboration teams was driven by narrative, embedded feedback and interactive elements of the gamified activity.
Instructional materials for the gamified collaboration teams can be found in Appendix C, and details surrounding the instructional process are in the Procedure.

**Credibility of Treatment**

To begin, each participant was given a choice of whether to participate in various aspects of the research. All participants were required to take the pre and posttest because it was part of the course curriculum. They also participated in either a gamified or traditional collaboration team as the assigned instructional strategy for meeting course learning objectives. However, individuals were allowed to opt out of completing surveys and participating in personal interviews (Appendix A).

The principal researcher for this study was also the instructor of the courses where all data were collected. In order to facilitate equal treatments for both groups, an auditor was utilized to conduct an objective and independent review of the instructional materials for both groups. The auditor was another faculty member who teaches this course at the university. The auditor reviewed instructional materials before they were presented to students, making sure treatment was identical and that neither traditional nor gamified collaboration teams were receiving preferential treatment. Overall the auditor recommended minor changes to instructional materials. Suggestions included using consistent wording between treatments and adding navigation instructions to the CLMS modules. These suggestions were implemented to improve the structure of instructional materials.

Phenomenological themes were coded by the principal researcher during data analysis. Student perceptions of online collaboration was explored as a human phenomenon. Open-ended survey responses from 32 participants, along with personal interviews from twelve individual participants were collected, six interviews in the traditional collaborative teams and six in the
gamified collaborative teams. After reading through all participants’ survey responses and interview transcripts, content analysis revealed significant statements and quotes about perceptions of online collaboration; these were pinpointed and clustered into themes. Themes emerging from the qualitative data included building relationships, organization, involvement, and communication. Themes were determined based on a visual analysis using word clouds, and then verified by visual inspection. Finally, a narrative description of the essence of participant experience in the gamified or traditional collaborative teams was presented.

Validity of qualitative data was assured through verification and validation of thematic content analysis. Verification occurred through acknowledging past experiences of the principal researcher and their potential influence on interpretation, using an adequate sample for open-ended responses, and interviewing a high percentage of study participants (37.5%). Validation occurred as a result of multiple methods of data collection (open-ended survey responses and personal interviews), review by inquiry participants, and review of interpretation by an external audience reviewer. Early transcripts of the interpretation were provided to interview participants. Only one participant provided a review of the qualitative findings; stating agreement with themes and interpretation of interview data. The external audience reviewer was provided a draft of the final interpretation, along with word clouds generated from interview responses. The reviewer indicated interpretation of data was reasonable, and adequately connected the participants’ ideas concerning perceptions of online collaboration and how gamification influenced those perceptions.

**Instruments**

**Student learning.** A pretest and posttest of unit content was given to measure student learning (Appendix D). Pre and posttests were identical to each other, assessing course material
presented during the five-week learning module. Both pre and posttests were administered via an
electronic assessment application within the CLMS. The test was created by the principal
researcher, and was previewed by two other faculty who teach research methods. The pre and
posttests consisted of 30 multiple-choice, true-false, and matching items ranging the spectrum of
Bloom’s Taxonomy of Educational Development (Anderson, Krathwohl, & Bloom, 2001). Pre
and posttests were used to assess attainment of learning objectives.

Content validity was established by using a table of specifications (Appendix E) and
content review by subject matter experts, who were the other research methods instructors. A
table of specifications ensured alignment of course content and skills (A. C. Klein, 1996). Based
on common course objectives, textbook questions, and the desired learning outcomes for the five
week learning session, the test consisted of seven topic identification questions, three gathering
preliminary information questions, seven review of related literature questions, six library skills
questions, and seven writing a formal literature review questions. When considering Bloom’s
taxonomy, the instructor chose to include questions from each level: Remembering (4),
Understanding (9), Thinking (9), and Using (8).

Expert evaluation of the test by two other instructors of research methods also assured the
test’s content validity. The test was presented to one instructor who took the test and made
suggestions for improvement. After those suggestions were considered and implemented, the test
was given to a second research methods instructor. That instructor also completed the test and
recommended changes, based on their expertise. Feedback from the second professor was then
considered and added to the test as appropriate. The researcher once again presented the revised
test to both instructors. Together, the instructors reviewed each question and answer giving more
feedback about changes and final suggestions for improvement. A feedback matrix for the test
can be found in Appendix F. This final feedback was used to revise the test before it was administered to study participants.

Students received one point for each correct answer on both pre and posttests. The possible score range for each test was a 0 indicating that all items were answered incorrectly and 30 indicating all items were answered correctly. Cronbach’s alpha reliability coefficients were calculated for the pretest ($\alpha = .026$) and posttest ($\alpha = .513$). Cronbach’s alpha reliability coefficients were low based on the assumption of $\alpha = 0.7$ to 0.9 being ideal. Comparing the pre and posttest revealed higher reliability on the posttest. This result was attributed to students not being familiar with course content before taking the pretest, but being more knowledgeable for the posttest. The low internal consistency of the test slightly limits the confidence that can be placed in the scores.

Gaming Perspectives. The Motives for Online Gaming Questionnaire (MOGQ) was administered to all participants as part of the Pre-Assessment Questionnaire (Appendix G). The MOGQ is a twenty-seven item self-report questionnaire focused on online game-play motivation (Demetrovics et al., 2011). The MOGQ assessed why participants play games and was used to determine if those motivations translated into the gamified structure presented in the study.

Demetrovics et al. (2011) based their work on a theoretical framework of online game play. Much of their instrument was derived from Yee’s (2006) earlier work in online gaming motivation. In a study of 3000 online Massively Multiplayer Online Role-playing Game (MMORPG) participants, ten components of motivation for online game play emerged. A secondary factor analysis revealed three overarching components of motivation for online game play: achievement, social and immersion (Yee, 2006). Demetrovics et al. (2011) took Yee’s, and others, gaming motivation research and questioned its relevance to all kinds of online games, not
simply one or two specific types (such as MMORPG). Out of this exploration emerged the MOGQ, an instrument to measure motives for all types of online game play.

The original MOGQ consisted of fifty-six items in seven theoretical factors of online game-play motivation: coping, escape, fantasy, skill development, recreation, competition, and social. In order to develop a short, useful instrument for measuring gaming motives, Demetrovics et al. (2011) performed an item selection for limiting the number of items per motivational factor using a literature review and self-report responses from online game players (n=15). Items were chosen based on factor loadings and item content. Confirmatory factor analysis for the original instrument (n=3818) yielded an improper fit, so exploratory analysis was conducted. Identifying larger error covariance, researchers limited items to twenty-seven of the original fifty-six, without effecting construct validity of the instrument.

On this modified self-report scale, participants were asked to rate their perspectives of gaming from 1-5, based on a Likert-type scale: 1 – almost never/never, 2 – some of the time, 3 – half of the time, 4 – most of the time, 5 – almost always/always. A coefficient alpha of .89 was calculated for this study. Current responses related to the factors of coping, escape, and fantasy were examined together, checking for alignment with the immersion dimension of motivation. Skill development responses were aligned with the achievement dimension. Finally, recreation, competition, and social factors were combined to examine the social dimension of motivation.

**Collaboration.** Analysis of collaboration was conducted using The Collaborative Learning, Social Presence and Satisfaction (CLSS) questionnaire (So & Brush, 2008). Centering on course satisfaction, collaborative learning and social presence, the CLSS affords researchers insight into relationships between all these factors. For this study, only the eight collaboration items were included on the Pre-Assessment Questionnaire (Appendix G).
Validity and reliability evidence for the measure have been found adequate for administering to multiple populations. Prior administrations of the survey yielded Cronbach’s alpha coefficients of 0.85 for satisfaction, 0.72 for collaborative learning and 0.85 for social presence (So & Brush, 2008). The CLSS consists of 11 satisfaction items, eight collaborative items, and 17 social presence items.

For this study, participants rated their perceptions concerning the level of collaborative learning during the course using the CLSS. Questions ranged from overall satisfaction with the collaborative learning experience to actively exchanging ideas. Participants rated their perceptions using a five point Likert-type scale: 1 – Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, and 5 – Strongly Agree. A Cronbach’s alpha reliability coefficient of .791 was reported for this study.

**Motivation.** Motivation was measured using two different scales. The Situational Motivation Scale (SIMS) is a 16 statement self-report questionnaire focusing on constructs of intrinsic motivation, identified regulation, external regulation and amotivation (Guay, Vallerand, & Blanchard, 2000). The results of using a motivational design model (ARCS) was assessed using the Instructional Materials Motivational Survey (IMMS) (Keller, 1987b). The IMMS is a 36 item situation-specific, self-report instrument used to determine motivational attitudes toward content of self-directed learning activities.

Changes in motivation were analyzed by administering the SIMS both before and after students participated in the collaborative activity. Items from SIMS were included on both the Pre-Assessment Questionnaire (Appendix G) and Post-Assessment Questionnaire (Appendix H). Based within the context of self-determination theory (Edward L Deci & Ryan, 1985) the SIMS was developed to represent a multidimensional measure of motivation and self-regulation.
processes (Guay et al., 2000). These measurements can be used to evaluate personal motivation (along with other regulatory processes), using self-report, based on specific situations in which an individual participates. The motivational situation in question was a collaborative online project.

Validity evidence for the SIMS instrument occurs throughout the literature. A search of Google scholar yielded 584 citations of the instrument’s seminal publication. A search of the instrument itself yielded 697 results. These numbers indicate a wide range of SIMS usage. Initially, Guay et al. (2000) performed exploratory and factor analyses revealing four factors identical to theoretical constructs of motivation – intrinsic, extrinsic, amotivation, and self-regulation. Internal consistency values for each of the subscales produced Cronbach’s alpha scores satisfactory on all four subscales, across all five validation studies. Multiple analyses of the instrument also confirmed sufficient content and construct validity evidence. Along with initial validation by Guay et al., a study of the SIMS within the context of physical activity (Standage, Treasure, Duda, & Prusak, 2003) and a Spanish version (Martín-Albo, Núñez, & Navarro, 2009) also verified the instrument’s validity for situational motivation.

Participants in this study rated their overall motivation for participating in collaborative learning, using a seven point, Likert-type scale identical to the original scale: 1 – corresponds not at all, 2 – corresponds a very little, 3 – corresponds a little, 4 – corresponds moderately, 5 – corresponds enough, 6 – corresponds a lot, 7 – corresponds exactly. They rated themselves both before and after the instructional strategy was implemented. A coefficient alpha for the pre-survey in this study was calculated, $\alpha = .525$. For the post-survey, the coefficient alpha was .579. These numbers are comparable, signifying sufficient internal consistency between the pre and post-survey.
In contrast, the IMMS measures each of the four constructs of the ARCS motivational design model. Each subscale is represented on the survey, but not with equal weight. Relevance and confidence have nine items, satisfaction has six and attention has 12. These numbers vary due to lack of sufficient connecting points within printed materials for satisfaction, and the common problem of gaining learner attention with instructional writing (Keller, 2010). The IMMS was found to have sufficient internally consistency in prior studies, based on administration to 90 individuals with Cronbach’s alpha scores for each subscale (attention=0.89, relevance=0.81, confidence=0.90, satisfaction=0.92) and the overall survey (0.96). Likewise, validity and reliability of the instrument has been confirmed through use by its author (Keller, 1987b), and others implementing the IMMS in their own studies (J. D. Klein, 1990; J. D. Klein & Freitag, 1991; Kocaman-Karoglu, Kiraz, & Ozden, 2008; Small & Gluck, 1994).

The IMMS instrument was administered to participants as part of the Post-Assessment Questionnaire (Appendix H) to ascertain attitudes and motivations with respect to the included ARCS design. Individual ratings were based on a five-point Likert-type scale: 1- not true, 2 – slightly true, 3 – moderately true, 4 – mostly true, and 5 – very true. A Cronbach’s alpha reliability coefficient of .921 was calculated affirming internal consistency for this study. Likewise, content reliability was present because the scale was used as presented by the original designer, with the exception of inserting “online collaborative activity” into the stem of the statements. When analyzing responses to the IMMS only those from the gamified collaboration teams were examined. Only the instructional materials in the gamified treatment were designed using the ARCS motivational model.

**Qualitative data.** Qualitative information regarding collaborative learning, gamification and motivation in an online environment was collected using face-to-face interviews (Appendix
and open-ended survey questions on the Pre-Assessment Questionnaire (Appendix G) and Post-Assessment Questionnaire (Appendix H). At the completion of the study, a call for volunteers to complete face-to-face interviews was extended to all students in the two course sections. Fourteen students volunteered to participate. Eight students were part of the gamified collaboration teams and six students were in the traditional collaboration teams. These 14 students represented 35.9% of the total number of students who participated in the instructional intervention, giving the responses statistical power for analysis.

Interviews were conducted after the posttest. Each interview lasted between 15 – 30 minutes. Interviews were conducted using Skype for Business (previously Microsoft Lync) virtual connections. Participants were asked for permission to record the interview so that transcription would be more accurate, and all agreed to the recording. Interview transcripts were examined, looking for patterns and themes emerging from the conversations. Coding of interview and open-ended survey responses consisted of categorizing responses based on common themes. Themes were then analyzed for repetition and overlap. After coding was conducted by the principal researcher, a second individual examined the responses looking for gaps, unseen themes and other patterns the principal researcher may have missed. A visual analysis tool, Wordle, was also incorporated to analyze qualitative interview data. Wordle allowed a quick overview of common themes through the building of word clouds, and was used to verify earlier analysis of qualitative responses.

**Relationship between Research Questions and Data**

In Table 6, the three research questions posed for this study are broken down into variables, data and analysis method. Each data instrument is represented as are the various statistical methods used to analyze both quantitative and qualitative data.
Table 6

Relationship between research questions and data

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Variables</th>
<th>Data</th>
<th>Analysis Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>How does motivation differ for students completing an online collaborative project with or without gamification?</td>
<td>• Dependent: motivation</td>
<td>• Survey data of learner motivation before and after participating in online collaboration (SIMS)</td>
<td>• Independent samples t-test determined differences in change scores between treatments</td>
</tr>
<tr>
<td></td>
<td>• Independent: gamification</td>
<td>• Survey of learner motivation for games (MOGQ)</td>
<td>• Multivariate analysis (one-way ANOVA) of the overall differences between treatments on motivation scales.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Survey of the motivational impact of learning materials (IMMS)</td>
<td></td>
</tr>
<tr>
<td>How does student learning differ for students completing an online collaborative project with or without gamification?</td>
<td>• Dependent: student learning</td>
<td>• Scores of Pre and Post tests</td>
<td>• Independent samples t-test determined if the difference between treatments was statistically significant</td>
</tr>
<tr>
<td></td>
<td>• Independent: gamification of online collaboration</td>
<td>• Transcripts of personal interviews</td>
<td>• Independent samples t-test used to determine differences in change scores between treatment</td>
</tr>
<tr>
<td></td>
<td>• Dependent: collaboration</td>
<td>• Survey data of learner perceptions of online collaboration (CLSS)</td>
<td>• Inductive analysis of qualitative data looking for patterns and themes emerging from the conversations.</td>
</tr>
<tr>
<td></td>
<td>• Independent: gamification</td>
<td>• Observations of online interaction</td>
<td></td>
</tr>
<tr>
<td>How does the perception of online collaboration differ for students completing an online collaborative project with or without gamification?</td>
<td></td>
<td></td>
<td>• Inductive analysis of qualitative data looking for patterns and themes emerging from conversations and survey responses.</td>
</tr>
<tr>
<td></td>
<td>• Dependent: collaboration</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Independent: gamification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How does the description of online collaborative experiences differ for students completing an online collaborative project with or without gamification?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Dependent: collaboration</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Independent: gamification</td>
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<td></td>
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</tbody>
</table>

Procedure

The study took place over a period of six weeks. The study was conducted in two sections of a Methods of Research course, and the course instructor was the principal researcher for both course sections. During the first five weeks students participated in the collaborative project. In week six participants took the posttest, completed personal interviews, and the instructor followed up with students who may have fallen behind on project work. Table 7 gives an instructional timeline for both the gamified and traditional collaboration teams. Related
appendices are also included in the table. Feedback was both instantaneous and delayed within the online collaborative project. A timeline for completing each challenge was available on a Challenge Timeline (Appendix M) content page in the CLMS. A completion checklist was made available for each challenge, serving as self-feedback (Appendix N). Finally, upon completing challenges participants received summative feedback through the use of scoring rubrics (Appendix O) and feedback from the CLMS administered Posttest (Appendix D). Each of these feedback mechanisms was meant to instill learner confidence and satisfaction, continually supporting ARCS design. Participants also received directional feedback during content learning and project challenges. These feedback situations were brief emails or text messages from either the instructor or the superintendent, inquiring about progress during the collaborative project (Appendix P).
Table 7

**Instructional Timeline for Gamified and Traditional collaboration teams.**

<table>
<thead>
<tr>
<th>Timeline</th>
<th>Gamified Collaboration team</th>
<th>Traditional Collaboration team</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>• PreTest of Content Learning (Appendix D)</td>
<td>• PreTest of Content Learning (Appendix D)</td>
</tr>
<tr>
<td></td>
<td>• Pre-Assessment Questionnaire (Appendix G)</td>
<td>• Pre-Assessment Questionnaire (Appendix G)</td>
</tr>
<tr>
<td></td>
<td>• Canvas Module Navigation</td>
<td>• Canvas Module Navigation</td>
</tr>
<tr>
<td></td>
<td>• Problem Introduced (Appendix C)</td>
<td>• Problem Introduced (Appendix B)</td>
</tr>
<tr>
<td></td>
<td>• Choose role and create avatar (Appendix C)</td>
<td>• Assigned to learning team (Appendix B)</td>
</tr>
<tr>
<td></td>
<td>• Assigned to learning team (Appendix C)</td>
<td>• Responsible Teamwork Agreement (Appendix B)</td>
</tr>
<tr>
<td></td>
<td>• Content learning (Appendix C)</td>
<td>• Content learning (Appendix B)</td>
</tr>
<tr>
<td></td>
<td>o Textbook reading</td>
<td>o Textbook reading</td>
</tr>
<tr>
<td></td>
<td>o Presentation videos</td>
<td>o Presentation videos</td>
</tr>
<tr>
<td></td>
<td>o Weekly discussions</td>
<td>o Weekly discussions</td>
</tr>
<tr>
<td></td>
<td>• Challenge Timeline (Appendix M)</td>
<td>• Challenge Timeline (Appendix M)</td>
</tr>
<tr>
<td></td>
<td>• Challenge #1 assigned (Appendix L)</td>
<td>• Challenge #1 assigned (Appendix L)</td>
</tr>
<tr>
<td></td>
<td>o Completion Checklist for Challenge #1 (Appendix N)</td>
<td>o Completion Checklist for Challenge #1 (Appendix N)</td>
</tr>
<tr>
<td>Week 2</td>
<td>• Content learning (Appendix C)</td>
<td>• Content learning (Appendix B)</td>
</tr>
<tr>
<td></td>
<td>o Textbook reading</td>
<td>o Textbook reading</td>
</tr>
<tr>
<td></td>
<td>o Presentation videos</td>
<td>o Presentation videos</td>
</tr>
<tr>
<td></td>
<td>o Supplemental Instructional materials</td>
<td>o Supplemental Instructional materials</td>
</tr>
<tr>
<td></td>
<td>o Weekly discussions</td>
<td>o Weekly discussions</td>
</tr>
<tr>
<td></td>
<td>• Continue, complete, and submit Challenge #1</td>
<td>• Continue, complete, and submit Challenge #1</td>
</tr>
<tr>
<td>Week 3</td>
<td>• Content learning (Appendix C)</td>
<td>• Content learning (Appendix B)</td>
</tr>
<tr>
<td></td>
<td>o Textbook reading</td>
<td>o Textbook reading</td>
</tr>
<tr>
<td></td>
<td>o Presentation videos</td>
<td>o Presentation videos</td>
</tr>
<tr>
<td></td>
<td>o Supplemental Instructional materials</td>
<td>o Supplemental Instructional materials</td>
</tr>
<tr>
<td></td>
<td>o Weekly discussions</td>
<td>o Weekly discussions</td>
</tr>
<tr>
<td></td>
<td>• Challenge #2 assigned and submitted (Appendix Q)</td>
<td>• Challenge #2 assigned and submitted (Appendix Q)</td>
</tr>
<tr>
<td></td>
<td>o Completion Checklist for Challenge #2 (Appendix N)</td>
<td>o Completion Checklist for Challenge #2 (Appendix N)</td>
</tr>
<tr>
<td>Week 4</td>
<td>• Content learning (Appendix C)</td>
<td>• Content learning (Appendix B)</td>
</tr>
<tr>
<td></td>
<td>o Textbook reading</td>
<td>o Textbook reading</td>
</tr>
<tr>
<td></td>
<td>o Presentation videos</td>
<td>o Presentation videos</td>
</tr>
<tr>
<td></td>
<td>o Supplemental Instructional materials</td>
<td>o Supplemental Instructional materials</td>
</tr>
<tr>
<td></td>
<td>o Weekly discussions</td>
<td>o Weekly discussions</td>
</tr>
<tr>
<td></td>
<td>• Challenge #3 assigned and submitted (Appendix R)</td>
<td>• Challenge #3 assigned and submitted (Appendix R)</td>
</tr>
<tr>
<td></td>
<td>o Completion Checklist for Challenge #3 (Appendix N)</td>
<td>o Completion Checklist for Challenge #3 (Appendix N)</td>
</tr>
<tr>
<td></td>
<td>• Challenge #4 introduced (Appendix S)</td>
<td>• Challenge #4 introduced (Appendix S)</td>
</tr>
<tr>
<td></td>
<td>o Completion Checklist for Challenge #4 (Appendix N)</td>
<td>o Completion Checklist for Challenge #4 (Appendix N)</td>
</tr>
<tr>
<td>Week 5</td>
<td>• Continue, complete, and submit Challenge #4</td>
<td>• Continue, complete, and submit Challenge #4</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Week 6</td>
<td>• Administer Posttest of Content Learning (Appendix D)</td>
<td>• Administer Posttest of Content Learning (Appendix D)</td>
</tr>
<tr>
<td></td>
<td>• Administer Post-Assessment Questionnaire (Appendix H)</td>
<td>• Administer Post-Assessment Questionnaire (Appendix H)</td>
</tr>
<tr>
<td></td>
<td>• Personal Interviews (Appendix I)</td>
<td>• Personal Interviews (Appendix I)</td>
</tr>
</tbody>
</table>

**Week 1.** A Pretest was administered to all students on the first day of the assigned learning module (see Appendix D). Participants were surveyed to assess feelings and attitudes toward online collaboration and to collect demographic information (see Appendix G). Students in each course section were introduced to the collaborative project through the presentation of module objectives, procedures for progressing through the content, and a completion timeline (see Appendix M). Once students read the introduction to the project they were directed to their large team area in the CLMS, depending on their assignment to traditional or gamified collaboration teams.

After the first week, students expressed struggles with content navigation. Student emails, tinged with frustration, were sent from gamified and traditional collaboration teams. Based on this feedback, the instructor included a Navigation Checklist on the main CLMS page viewed by all students upon entering the LMS. While the Navigation Checklist alleviated some frustration, messages were still received after Week 2 concerning confusion with navigation. Thus, beginning Week 3, a navigation map was included on the main page of each small collaboration team’s site in the CLMS (called *Navigating the Game* in the gamified collaboration team and *Navigating the Project* in the traditional collaboration team (Appendix K). Each week, navigation hyperlinks were added to the navigation map, helping increase the ARCS constructs of Confidence and Satisfaction. The map idea was chosen based on experience in games such as
Angry Birds and Candy Crush, where a clearly marked path from one level to the next allows the user to easily track progress.

**Gamified Collaboration team.** Story (narrative) is a key component of content gamification (Kapp et al., 2014). Narrative helps build attention and relevance in ARCS design, and assists in scripting the collaborative project; thus, a narrative arc was added to the gamified project. The first part of the story, a newspaper clipping, set the stage for the project (Figure 2).

Introducing the story with a newspaper clipping created a sense of urgency and generated empathy, triggering a sense of curiosity, a concept inherent to good games (Gee, 2007); and obtained attention, critical for motivational design (Keller, 1987a).

*Figure 2. Fictional Newspaper Clipping used to gain learner’s attention*

Upon entering the gamified collaboration team space in the CLMS, students were directed to an announcement for a visit with the district Superintendent (Appendix C). The Superintendent appeared as a Voki-narrated avatar. After being introduced to the problem by the
Superintendent, the gamified collaboration teams were asked to choose individual roles and create avatars (Appendix C).

An avatar (Figure 3) is an online representation of an individual’s virtual “self.” How an individual represents their avatar can impact motivation within the gamified scenario (Baylor, 2011). Including realistic details about the avatar built a heightened sense of relevance as part of ARCS design because it related the character’s role to the narrative.

Roles within the gamified collaboration teams had different responsibilities and strengths determined by the presented scenario. Roles were described on the Character Choices content/wiki page (Appendix C) within the CLMS team space. Students were allowed to choose their role on a first-come, first-served basis by signing up on the Choosing a Character content wiki page (Appendix C).

Gamified collaboration team members were assigned to a small learning team after role choice and avatar creation. Small learning teams were assembled based on how students signed up for character roles. A balance of roles was required on each team as shown in Appendix C. Students were informed of teammates via an email from the district, Dr. Sloan (see Appendix C).
Team names were based on fictional schools that made up *Long Fork Community School* district within the gamified narrative.

**Traditional Collaboration team.** During Week 1 the traditional collaboration team was also receiving information to help begin the collaboration process. An introduction to the overall challenge was presented to the collaboration team using the same newspaper clipping as the gamified collaboration team. When entering the CLMS area for the traditional collaboration team, instead of a visit with the district superintendent, a brief scenario and bulleted steps were presented as shown in Appendix B.

Students in the traditional collaboration team were expected to offer significant contributions to the team project. Assuring students understood the importance of their individual responsibilities to team success, everyone in the traditional collaboration team was asked to create a Teamwork Pledge and agree to Team Responsibilities (Appendix B). Learning teams were randomly assigned by the instructor, and were given the names of popular movies from the 1980s (Appendix B).

**Content Learning.** Appendix B and Appendix C show the instructional content of both the traditional and gamified collaboration team’s CLMS pages for Week 1. The first item of content learning was to read Chapter 1 in the required textbook. The gamified collaboration team received an email from a local professor. The email introduced the book and what students should begin reading. At the same time, students in the traditional collaboration team were directed to the textbook reading by the course instructor via content/wiki page in the CLMS.

Discussion of weekly content also played a part in the collaborative project. Each week, both collaboration teams were asked to discuss a topic related to that week’s learning content. Discussion topics were identical for each collaboration team and were posted to CLMS.
discussion boards (Appendices A and B). During Week 1, the gamified collaboration team was directed to the discussion topic through the narrative, and was instructed to participate as their role indicated. The traditional collaboration team received direction from the course instructor.

The final piece of content assigned during Week 1 was the introduction of Challenge #1 (Appendix L). Challenge #1 involved working together to brainstorm possible action research topics. Students in the gamified collaboration team received a letter from the superintendent’s administrative assistant. The letter laid out the ground work for the challenge, and further instructions were added following the letter. Traditional collaboration team students were presented with directions and guidelines from the course instructor. A completion checklist and scoring rubric were also provided for Challenge #1 (Appendix L).

*Feedback.* During Week 1, feedback was used to remind students to choose roles, access content learning, continue relevant discussions, and be active participants in the collaborative project. As part of the weekly discussion posts, the instructor periodically interjected pertinent questions and comments. The instructor sent two Canvas messages. One message was sent to the gamified collaboration team, reminding them to sign up for characters and create avatars; and the other was sent to the traditional collaboration team, reminding them to “sign” the Responsible Teamwork Agreement and post their Teamwork Pledge.

*Week 2.* Both the gamified and traditional collaboration teams continued working their way through the Long Fork challenge by reading the textbook, viewing content videos, exploring supplemental instructional materials, and discussing weekly topics. Both collaboration teams continued Challenge #1, completing it by the end of Week 2.
**Gamified Collaboration team.** The narrative was used extensively to direct gamified students through Week 2 content. Using content/wiki pages in the CLMS, gamified students were guided to the textbook reading and content learning through the narrative (Appendix C).

Supplemental materials were provided to the team by first directing the “teacher” on the team to send an inquiry to the university professor. Once the “teacher” received information back from the professor he/she was expected to share it with teammates. This scenario set up attention and relevance for team members because it required individuals to attend to details and share information as they would in a real life situation. The Week 2 discussion topic was presented with a scene from the narrative. Students in the gamified collaboration team were reminded to participate in the discussion within the parameters of their chosen role.

**Traditional Collaboration team.** The instructor guided the traditional collaboration team through Week 2 content using content/wiki pages in the CLMS. Information regarding textbook reading, content videos, supplemental instructional materials, and discussion topics (Appendix B) were all presented to traditional students using multiple content pages in the CLMS. All information presented to the traditional collaboration team mirrored that of the gamified collaboration team, but the narrative form of presentation was not utilized.

**Feedback.** Feedback in Week 2 became more prevalent as students begin to really dig into the challenge. Continual Feedback during Challenge #1 took place as both Dr. Sloan (gamified) and the course instructor (traditional) added comments to the Google documents students were using for initial collaboration. Similar to discussion feedback in Week 1, the course instructor interjected pertinent questions and comments during the week for both gamified and traditional collaboration teams. A message was posted in the CLMS, reminding all students
to check their Completion Checklist and Timeline for Completion because a deadline was approaching.

Along with reminding students to check completion items, the course instructor sent Canvas messages to individual students who did not complete the first assignment, did not contribute to the weekly discussion, or did not participate significantly with the collaboration team, encouraging them to be more active participants in the process. All students received rubric feedback (Appendix O) for Challenge #1 no later than 2 days after the due date.

**Week 3.** Week 3 was highly similar to Week 2, but with the introduction and completion of a new challenge. Students in both collaboration teams once again read the textbook, viewed content videos, explored supplementary materials, and discussed a weekly topic. As in Week 2, the difference was in how this content was presented to students.

**Gamified collaboration team.** Students in the gamified collaboration team were guided to the textbook reading and content videos through the narrative (Appendix C). The narrative was also used in guiding students to the weekly discussion board. The Week 3 discussion took place in the CLMS, and students were reminded to participate within the parameters of their chosen roles.

Supplemental instructional materials were given in a fashion similar to Week 2; however, in Week 3 all members of the team were given directives (Appendix C) to information needing to be shared. Once team members gathered information they were encouraged to share it with the rest of the team. These small plot twists continued to guide attention and instill relevance in the challenge.

During Week 3 the second challenge was introduced and completed. Challenge #2 (Appendix Q) involved refinement of individual topic choices and required each student to
attend a virtual conference with the course instructor. Within the CLMS, gamified students received word of an important email from Dr. Sloan. In the email Dr. Sloan laid out expectations and guidelines for Challenge #2. Along with the expectations and guidelines, students were presented with a Completion Checklist (Appendix N) and a scoring rubric (Appendix O).

**Traditional Collaboration team.** Students in the traditional collaboration team were presented with information through the use of content/wiki pages in the CLMS. Textbook reading, content videos, and discussion topics (Appendix B) were posted in the CLMS by the course instructor. Supplemental instructional materials were also given by the instructor using a content/wiki page in the CLMS, but specific information retrieval directions were lined out for individual students. The information retrieval task was similar to the gamified collaboration team, but students chose which information they explored and shared with the team. Challenge #2 was the same for the traditional collaboration team (Appendix Q) as for the gamified collaboration team. The traditional collaboration team was given directions using an assignment page and content/wiki page in the CLMS.

**Feedback.** Week 3 feedback continued to build on the ARCS model. The gamified and traditional collaboration teams both received text messages from Dr. Sloan and the course instructor, respectively, reminding them to set up a virtual appointment (Appendix J). Upon completion of Challenge #2 separate messages were sent to all students with respect to their responsible time management. The course instructor sent students in both collaboration teams, who did not set up virtual appointments in a timely manner, a CLMS message encouraging more active participation. A thank you email from Dr. Sloan and the course instructor was sent to all students who made their appointments, kept them, and completed Challenge #2.
Continuing the feedback process from Week 2 was also important. To begin, an announcement to both collaboration teams was posted, reminding students to check Completion Checklists and Timelines for Completion because a due date was drawing near. The course instructor continued to interject pertinent questions and comments into weekly discussions for gamified and traditional collaboration teams. Also during this week students were directed to encourage each other’s participation in the collaborative process, using positive messages (Appendix P). This continuous cycle of reliable feedback and additional encouraging messages, supported each construct of ARCS.

**Week 4.** This week saw the continuation of content learning in the action research process along with the introduction of two new challenges. Both collaboration teams read their textbook, viewed content videos, explored supplementary materials and participated in the weekly discussion. Two challenges were introduced during Week 4.

**Gamified Collaboration team.** As in past weeks, gamified collaboration teams were guided to their textbook reading through the use of narrative (Appendix C). All other pieces of instructional content for Week 4, while driven by the narrative, were presented as plot twists, character directives, letters, or email communication from characters in the story line. The narrative continued to bring ARCS constructs of attention and relevance to the forefront.

For Week 4 students were not directed to the presentation videos directly through the narrative; instead, the “Instructional Support” team member guided his team to additional resources after receiving a directive within the CLMS. Students were also introduced to a new character, a university research librarian, using an email from the superintendent (Appendix C). The librarian was an animated Voki avatar who exposed students to library services relevant to doing research at a distance. The “Community Member” was given directions, using the
narrative, to invite teammates to interact in the Week 4 discussion board. Minute twists in the norm kept student attention and piqued interest in the topic.

Challenges #3 (Appendix R) and #4 (Appendix S) made up the final phase of the collaborative project. Both Challenges were introduced during Week 4. Challenge #3 was an individual challenge introduced to gamified collaboration teams via Facsimile transmission from Dr. Sloan’s administrative assistant. Along with the fax, students were presented with a template and an example. The narrative also directed the “Principal” on the team to additional examples to share with the team. Challenge #3 was to be completed by the end of Week 5.

The final team challenge was presented with Challenge #4. Students in the gamified collaboration teams were sent a letter from the President of the Board of Education requesting a presentation of their proposal at the next school board meeting. Guidelines for the presentation were supplied. A completion checklist (Appendix N) and scoring rubric (Appendix O) were also provided. Challenge #4 was to be completed by the end of Week 5.

As in previous weeks a team discussion was required. The team discussion for Week 4 was presented using the gamified story line. Students were reminded to participate within the parameters of their chosen roles.

*Traditional Collaboration team.* Content for the traditional collaboration team was identical to the gamified collaboration team. Students in the traditional collaboration team were expected to read their textbook, view presentation videos, explore supplemental instructional materials, discuss weekly topics (Appendix B), and complete Challenges #3 (Appendix R) and #4 (Appendix S). Again, no narrative was presented to the traditional students, and there were no character roles to play. Instead, the course instructor presented information to traditional students utilizing announcements and content/wiki pages in the CLMS.
Feedback. During Week 4 feedback continued to encourage, remind, and value students in the course. Week 4 feedback (Appendix P) followed the same pattern as that in Week 3, through the use of text messages, emails and announcements from both the course instructor (traditional and gamified collaboration teams) and Dr. Sloan (gamified). The university librarian also added a thank you to students for visiting and learning about services.

Week 5. This was the final week of the collaborative project. Students in both the gamified and traditional collaboration teams worked to finish Challenges #3 and #4. No new content was presented to either collaboration team during this week.

Feedback. In the middle of Week 5 students in gamified collaboration teams attended a virtual meeting with Dr. Sloan (Appendix C) who thanked them for their hard work and encouraged any questions they might have as they completed the final challenge. Dr. Sloan also sent members of the gamified collaboration teams a Thank You letter (Appendix P), after everything was submitted. Directions to the final discussion board involved receiving an email from Dr. Sloan concerning a collaboration team debriefing (Appendix C). Gamified collaboration team students continued to receive encouraging and directive feedback from both the course instructor and characters in the narrative (Appendix P) in the same fashion as Weeks 3 and 4.

Just as Dr. Sloan with the gamified collaboration teams, the course instructor held a virtual meeting with members of the traditional collaboration teams (Appendix B). The course instructor sent a Thank You letter to traditional collaboration team members after all submissions, recognizing their hard work and dedication. As with the gamified students, traditional collaboration team students received encouraging and directive feedback from the course instructor in the same fashion as Weeks 3 and 4.
On the last day of Week 5, both the gamified and traditional collaboration teams submitted Challenge #3 and #4 for evaluation. Submissions for both challenges from all collaboration teams were evaluated using identical scoring rubrics (see Appendix O). Rubric feedback was given no later than 4 days after the due date.

**Week 6.** At the beginning of Week 6 all students took the posttest (Appendix D). Those choosing to participate in the study also completed the Post-Assessment Questionnaire (Appendix H). Students in the gamified collaboration team were directed to the Posttest and the Post-Assessment Questionnaire via message to a “Community Member” on the team who was directed to share the information with everyone (Appendix C). Traditional collaboration team students were directed to the same assessments by the course instructor (Appendix B).

Personal interviews with fourteen students were also conducted. Eight students from the gamified collaboration team and six from the traditional collaboration team were randomly selected to participate in follow-up interviews. Participants were selected randomly to avoid bias. Selected participants were emailed with a request to participate. If a student chose not to participate, another student was randomly selected to take their place. A list of interview questions is in Appendix I. Interviews were conducted within two weeks following the conclusion of the collaborative project.

**Limitations**

Controlling extraneous variables in research is rarely tidy or easy. Threats to validity and reliability emerged when planning the study and during data collection. Limitations could have adversely affected anticipated results. Proposed controls were included for assisting in strengthening the study’s final results and conclusions.
Collaborative learning has its potential downfalls in any environment, but those downfalls can be exacerbated in the online environment (Dirkx & Smith, 2004). Social loafing is one of the most often cited problems in collaborative learning (Salomon & Globerson, 1989). To protect against social loafing, a communication scheme was designed into the collaborative project. For one, a **Challenge Timeline** was used to prompt participants in managing time and for contributing to the project in a responsible manner. Completion checklists for each challenge included dates, encouraging individuals to submit work on time. The narrative contained timelines for completion, along with instructions on communicating with collaboration team members. Likewise, the instructor acted as the superintendent and sent random emails and text messages to check progress with all participants. Collaboration team members were encouraged to interact with each other and the content on a daily basis using checkpoint messages sent through the CLMS email client.

Procedural limitations existed within the study. For one, participants were selected using a convenience sample. A convenience sample was chosen because the nature of the study required examining a specific problem-based case. Using a convenience sample \((n<50)\) limited the ability to generalize results to a larger population. By randomly assigning participants to either traditional or gamified collaboration teams there was a better chance of obtaining unbiased results, resulting in the possibility of patterns that overarch the current study.

Random assignment also had its limitations. Within the sample of participants was a married couple. Random assignment placed them in different collaboration teams, one in the gamified collaboration team and the other in the traditional collaboration team. Having these students in different collaboration teams could have introduced treatment bias and between subjects interaction into the study based on comparison of instruction discussions. However, in
the past these individuals exhibited evidence of not sharing school work with each other; thus, they may not have discussed instructional differences.

Another limitation of random assignment is that none of the male students (n=4) were assigned to the gamified collaboration team. Each male participant was selected into the traditional collaboration team; thus, results of the data analysis within the gamified collaboration team may have been skewed because of the female participant group. Two students took the pre-survey twice. One participant’s responses were identical on both submissions, so the initial submission was used. The second repeat participant did have some variation in a few responses. Where the score differed by more than one iteration on the scale, the median score was used for analysis (i.e. “1” on first submission and “3” on second submission resulted in a “2” being used for analysis).

Between subjects interaction was controlled for by first introducing the collaborative project to the whole class so that everyone understood the nature of the collaborative project. Second, smaller collaboration teams were assigned private workspaces within the CLMS, assuring information specific to both gamified and traditional collaboration teams was kept private. One caveat to having students in the gamified collaboration team change their CLMS profile image to their avatar was that everyone could see that change. Traditional students may have been curious as to why some of the class suddenly had different profile images.

Two sections of a course participated and it was important to present the collaborative project identically. For this study both sections of the course had the same instructor, and the content of the collaborative project was designed, scripted, and reviewed by an Auditor assuring identical presentation in both courses. Likewise, assuring students in each section were comfortable with content navigation was crucial. In the beginning navigating the CLMS content
was tricky for students and the instructor had to make in-game/in-project navigation changes on the fly.

One last procedural limitation was administering the exam online. Cheating was discouraged through shuffling of answers and questions from the pre to posttests, use of the Respondus Lockdown capability in the CLMS, assignment of passwords to protect content, setting date and timestamps for when the exam could be accessed, and encouraging students to engage in honest test-taking behavior.

To assure participant honesty when completing survey questionnaires anonymity and confidentiality was preserved through the use of an online survey tool, Survey Monkey. Survey Monkey does not require divulging usernames or personal information in order to take an online survey. Thus, participants had no reason to fear honest answers having negative ramifications. Likewise, participants were assured they could withdraw from the study at any time without fear of affecting their course grade.
CHAPTER IV

RESULTS

This section describes results of analyzing data as related to the research questions. Each question was analyzed separately. Results include a review of both quantitative and qualitative data collected during the study.

Question 1: How does motivation differ for students completing an online collaborative project with or without gamification?

Motivation. Thirty students completed both the pre and post-survey instruments (Traditional, \( N = 16 \); Gamified, \( N = 14 \)). Differences in the means for motivation on the SIMS instrument between pre and post-surveys were calculated. An independent samples t-test (Table 8) was conducted to evaluate the question of how motivation changes when gamification was used for collaborative online projects versus more traditional instruction for collaborative online projects. Motivation scores for both traditional and gamified collaboration teams were normally distributed, as assessed by Shapiro-Wilk’s test (\( p > .05 \)), and there was homogeneity of variances as assessed by Levene’s test for equality of variances (\( p = .19 \)). The test was not significant, \( t(28) = 1.341, p = .19 \). Students in the traditional collaboration team (\( M = .19, SD = .52 \)) had higher motivation scores than those in the gamified collaboration team (\( M = .15, SD = .84 \)). The 95% confidence interval for the difference in means was wide, ranging from -.18 to .85. The eta squared index indicated that 6% of the motivation variable was accounted for by whether a student was assigned to a gamified or a traditional collaboration team.

Although no statistically significant difference in overall motivation was observed between traditional and gamified collaboration teams, closer inspection of intrinsic and extrinsic motivation was conducted to ascertain if a difference in types of motivation occurred between
collaboration teams. A one-way multivariate analysis of variance (MANOVA) was run to
determine the effect of gamification on intrinsic and extrinsic motivation.

Table 8

Results of independent samples t-test for motivation

<table>
<thead>
<tr>
<th>Overall Motivation</th>
<th>Equal variances assumed</th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Overall Motivation</td>
<td></td>
<td>3.268</td>
<td>.081</td>
<td>1.341</td>
</tr>
</tbody>
</table>

Students in the traditional collaboration team saw higher intrinsic motivation gains \( (M = .67, \ SD = .85) \) than students in the gamified collaboration team \( (M = .21, \ SD = 1.34) \). Gamified students did see a higher negative gain in external regulation \( (M = -.26, \ SD = 1.76) \) than those in the traditional collaboration team \( (M = .18, \ SD = 1.68) \). The differences between traditional and gamified collaboration teams on the combined dependent variable was not statistically significant, Wilks’ \( \Lambda = .885, F(2, 27) = 1.758, p = .192 \). The multivariate, \( \eta^2 \) based on Wilks’ \( \Lambda \) was weak, .115. No statistically significant difference was found, although examination of mean scores for gamified students did show a slight positive intrinsic motivation gain and a slight negative external regulation gain.

An examination of using the ARCS model for motivational design was conducted by evaluating responses from the IMMS portion of the post-survey. Using the IMMS allowed for closer inspection of how the design of project specific materials contributed to student
motivation. Seventeen traditional and 15 gamified students completed the survey. An
independent samples t-test (Table 9) was conducted to determine if there were motivational
differences when using the ARCS model for motivational design. Motivation scores for both
traditional and gamified collaboration teams were normally distributed, as assessed by Shapiro-
Wilk’s test ($p>.05$), and there was homogeneity of variances as assessed by Levene’s test for
equality of variances ($p = .42$). The test was not significant, $t(30) = .82, p = .53$. Instructional
materials for the traditional collaboration team ($M = 3.02, SD = .64$) were more motivating than
those for the gamified collaboration team ($M = 2.84, SD = .66$). The 95% confidence interval for
the difference in means had a wide range, from -.28 to .66. Calculation of the eta squared index
indicated that 2% of the motivational design variable was accounted for by whether a student
was assigned to a gamified or a traditional collaboration team.

Table 9

Results of independent samples t-test for ARCS motivational design

<table>
<thead>
<tr>
<th></th>
<th>Independent Samples t-test</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Levene’s Test for Equality of Variances</td>
<td>t-test for Equality of Means</td>
<td>95% Confidence Interval of the Difference</td>
<td></td>
</tr>
<tr>
<td>Overall Motivation</td>
<td>Equal variances assumed</td>
<td>$F$</td>
<td>Sig.</td>
<td>$t$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.408</td>
<td>.528</td>
<td>.815</td>
</tr>
</tbody>
</table>

A one-way MANOVA was used to ascertain effects of the ARCS constructs (Attention, Relevance, Confidence, and Satisfaction) on the dependent variables (traditional and gamified). No significant difference was found between ARCS constructs and the dependent variables,
Wilks’ Λ = .902, F(4, 27) = .730, p = .579. The multivariate η² was quite weak, .098. Table 10 contains the means and standard deviations on the dependent variables for the three collaboration teams.

Table 10

*Means and Standard Deviations on Traditional and Gamified Collaboration teams for ARCS constructs*

<table>
<thead>
<tr>
<th>ARCS Construct</th>
<th>Gamified</th>
<th>Traditional</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Attention</td>
<td>2.9036</td>
<td>.61040</td>
<td>3.1928</td>
<td>.76397</td>
</tr>
<tr>
<td>Relevance</td>
<td>2.9238</td>
<td>.75567</td>
<td>3.1373</td>
<td>.69453</td>
</tr>
<tr>
<td>Confidence</td>
<td>2.8593</td>
<td>.74583</td>
<td>2.7868</td>
<td>.61200</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>2.7200</td>
<td>.96435</td>
<td>2.9020</td>
<td>.88792</td>
</tr>
</tbody>
</table>

Students in the traditional collaboration team scored higher on ARCS constructs of Attention, Relevance, and Satisfaction than students in the gamified collaboration team. Gamified students scored higher on the Confidence construct than the traditional students.

**Question 2: How does student learning differ for students completing an online collaborative project with or without gamification?**

An independent samples t-test (Table 11) was conducted to evaluate if learning was significantly different for participants who completed online collaborative projects with gamification when compared to those who completed more online collaborative projects. There
were 18 traditional and 21 gamification students in each collaboration team. Analysis was conducted using the differences between pretest and posttest.

Students in the traditional collaboration team ($M = 6.06$, $SD = 2.76$) on the average had almost identical gains from the pretest to the posttest when compared with the gamification collaboration team ($M = 6.04$, $SD = 2.83$). However, results of the independent samples t-test, $t(37) = .02$, $p = 0.99$, showed no significant difference between traditional and gamification collaboration teams, assuming equal variances. The 95% confidence interval was quite narrow, ranging from -1.80 to 1.84. The eta square index indicated that 1% of the variance of the difference in mean scores from the pretest to the posttest was accounted for by whether a student was in the traditional collaboration team or the gamification collaboration team. Results indicate that gamifying the collaborative project created no statistically significant change in overall student learning.

Table 11

Results of independent samples t-test for pre and posttest

<table>
<thead>
<tr>
<th>Difference Between Pre and Posttest Scores</th>
<th>Equal variances assumed</th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
<td>df</td>
</tr>
<tr>
<td></td>
<td>.008</td>
<td>.929</td>
<td>.018</td>
<td>37</td>
</tr>
</tbody>
</table>
Question 3: How does the perception of online collaboration differ for students completing an online collaborative project with or without gamification?

An independent samples t-test (Table 12) was conducted to explore how gamification influenced the collaborative experience, using responses from the CLSS portion of the post-survey. Seventeen traditional and 15 gamification students completed the post-survey. Collaboration satisfaction scores were shown to be normally distributed, as assessed by Shapiro-Wilk’s test \( (p > 0.5) \) and there was homogeneity of variances as shown by Levene’s test of equality of variances \( (p = .957) \). Students in the traditional collaboration team \( (M = 3.52, SD = .64) \) on the average had slightly higher satisfaction with collaboration levels when compared with the gamification collaboration team \( (M = 3.36, SD = .63) \). Results of the test were not significant, \( t(30) = .72, p = .48 \) between traditional and gamified collaboration teams. The eta square index indicated that 2% of the variance of the difference in mean scores from satisfaction with collaboration was dependent on whether a student was in the traditional collaboration team or the gamification collaboration team. Results indicate that gamifying the collaborative project had no statistically significant influence on the collaborative experience.
Table 12

Results of independent samples t-test for collaboration satisfaction

<table>
<thead>
<tr>
<th></th>
<th>Independent Samples t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Levene’s Test for Equality of Variances</td>
</tr>
<tr>
<td></td>
<td>t-test for Equality of Means</td>
</tr>
<tr>
<td></td>
<td>95% Confidence Interval of the Difference</td>
</tr>
<tr>
<td>Overall Collaboration</td>
<td>F</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>.003</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td></td>
</tr>
</tbody>
</table>

Data regarding general characteristics of participants were also analyzed to examine whether (a) age, (b) ethnicity, or (c) levels of gaming experience were related to perceived satisfaction with the collaborative experience. In the original survey (Appendix G) age, ethnicity and levels of gaming experience all had multiple possible responses. For data analysis all three factors were divided into two categories to assure confidentiality of respondents. Age became “under 35” and “over 35.” Ethnicity became “Caucasian” and “Other,” where a majority of the “Other” category were Native American. Assuming everyone has played a game at some point in their lives, the students ($N = 2$) who chose “No experience” when asked about levels of gaming experience were grouped with the “Novice” responses; thus, levels of gaming experience became “Novice” and “Intermediate” as no respondent chose “Expert”. Independent samples t-tests for each factor yielded no significant results among (a) age [$N = 32$, $t(30) = -.21$, $p = .83$], (b) ethnicity [$N = 30$, $t(28) = 1.84$, $p = .08$], or (c) levels of gaming experience [$N = 32$, $t(30) = -.04$, $p = .97$]. Quantitative data revealed no significant difference between groups of students and their perception of online, collaborative learning projects.
In order to better understand the relationship between motivation for gaming and gamification of collaborative projects, results from individual factors of the MOGQ were compared based on participation in gamified or traditional projects. Responses to the MOGQ revealed participant motives for playing games including factors of Social, Escape, Competition, Coping, Skill Development, Fantasy, and Recreation. Each factor was compared to gamified and traditional collaboration teams, establishing any statistical significance between groups. Before comparisons were calculated, a check for multicollinearity was conducted using Pearson’s correlation. Table 13 shows no multi-collinearity was present among factors on the MOGQ, as assessed by Pearson correlation.

Table 13

Test for multicollinearity of MOGQ factors

<table>
<thead>
<tr>
<th>MOGQ Factor</th>
<th>Pearson Correlation</th>
<th>Social</th>
<th>Escape</th>
<th>Competition</th>
<th>Coping</th>
<th>Skill Development</th>
<th>Fantasy</th>
<th>Recreation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social</td>
<td></td>
<td>1</td>
<td>.528**</td>
<td>.556**</td>
<td>.629**</td>
<td>.418*</td>
<td>.635**</td>
<td>.398*</td>
</tr>
<tr>
<td></td>
<td>Sig (2-tailed)</td>
<td>.002</td>
<td>.001</td>
<td>.000</td>
<td>.017</td>
<td>.000</td>
<td>.000</td>
<td>.024</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>32</td>
<td>32</td>
<td>32</td>
<td>32</td>
<td>32</td>
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<td>32</td>
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<tr>
<td>Escape</td>
<td></td>
<td>1</td>
<td>.518**</td>
<td>.756**</td>
<td>.358*</td>
<td>.644**</td>
<td>.361*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig (2-tailed)</td>
<td>.002</td>
<td>.000</td>
<td>.045</td>
<td>.000</td>
<td>.043</td>
<td></td>
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<tr>
<td>Competition</td>
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<td>.730**</td>
<td>.655**</td>
<td>.577**</td>
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<tr>
<td></td>
<td>Sig (2-tailed)</td>
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<td>.000</td>
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<td></td>
<td></td>
</tr>
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<tr>
<td>Coping</td>
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<td>.619**</td>
<td>.664**</td>
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<tr>
<td></td>
<td>Sig (2-tailed)</td>
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<tr>
<td>Skill</td>
<td></td>
<td>1</td>
<td>.339*</td>
<td>.611**</td>
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<td></td>
</tr>
<tr>
<td>Development</td>
<td>Sig (2-tailed)</td>
<td>.058</td>
<td>.000</td>
<td></td>
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<td>32</td>
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<tr>
<td>Fantasy</td>
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<td>.207</td>
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<td>Sig (2-tailed)</td>
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**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).
Thirty-two participants (gamified = 17, traditional = 15) completed the MOGQ section of the survey. Independent samples t-tests were run for each MOGQ factor, to determine if differences existed between motives for game play and the gamification of the collaborative project. Scores for each MOGQ factor were normally distributed, as assessed by Shapiro-Wilk’s test (\( p > .05 \) for all factors), and there was homogeneity of variances, as assessed by Levene’s test for equality of variances [Social, \( p = .099 \); Escape, \( p = .963 \); Competition, \( p = .720 \); Coping, \( p = .296 \); Skill Development, \( p = .492 \); Fantasy, \( p = .917 \); Recreation, \( p = .216 \)]. Results were not statistically significant for any individual factors [Social, \( t(30) = -.053, p = .958 \); Escape, \( t(30) = .792, p = .434 \); Competition, \( t(30) = -.202, p = .841 \); Coping, \( t(30) = -.671, p = .507 \); Skill Development, \( t(30) = -.251, p = .804 \); Fantasy, \( t(30) = .089, p = .930 \); Recreation, \( t(30) = -1.620, p = .116 \)].

**Question 4: How does the description of online collaborative experiences differ for students completing an online collaborative project with or without gamification?**

Qualitative data were collected through open-ended survey questions and personal interviews. Interview transcripts and open-ended survey responses were analyzed to identify themes that would better explain how the online collaborative experience differed for students who participated in the gamified vs traditional collaborative project. Participants responded to open-ended items on both the pre and post-surveys (Appendices E and F). Responses differed so that a change caused by the gamified project might emerge. The open-ended items differed only in asking participants to respond about prior classes and the current class (e.g. “What did you enjoy most about collaborative online learning experiences in prior classes? (Pre-survey)” compared to “What did you enjoy most about collaborative online learning experiences in your
current class? (Post-survey)” Interview questions (Appendix I) zeroed in on specific experiences during the current course and previous courses.

**Perceptions of Online Collaboration.** Of the 12 students interviewed, all but three expressed disdain at the thought of participating in online collaborative projects. Responses mainly expressed trepidation at having to rely on others to pull their weight, a thought validated in prior research (Dirkx & Smith, 2004). Describing reactions to online collaborative projects students made such comments as, “My first reaction is always a feeling of anxiety and sickness throughout my body. Then a feeling of dread creeps in,” and “Prior to this project that announcement would have been met with a sigh of anxiety.” These sentiments were echoed in survey responses and Wordle analyses of both traditional (Figure 4) and gamified (Figure 5) survey and interview responses. In examining the word cloud, negative connotations concerning the difficulty of completing a successful online collaborative project emerge. Words such as reaction, generally, sigh, might, feeling, procrastinate, someone, hate, and always relay sentiments of trepidation about the process. One survey respondent even admitted to doing others work for them because she grew tired of waiting. Summing up all reactions to online collaboration was best captured by the following survey response, “It is difficult to work in groups online. When you must be present in body you know that everyone is working on the same goal at the same time. When you are working online, you have different people working at different times and it slows down the process somewhat.”
Figure 4. Wordle analysis of traditional participants’ reaction to online collaboration.

Figure 5. Wordle analysis of gamified participants’ reaction to online collaboration.

After sharing initial reactions to online collaborative projects, those interviewed were asked to share how their feelings changed after participating in the current collaborative project.
Of those in the traditional collaboration team, 4 of the 6 interviewed expressed no change in their feelings toward online collaborative projects. Likewise, a theme of ambivalence toward collaborative projects emerged from Participants responding to open-ended survey items. Participants wanted to be given a choice of whether to participate, or they wanted online collaboration to not happen at all. In fact, Gretchen was quite graphic in her continued dissatisfaction, “I preferred to drink acid, light myself on fire, and jump out of a window; all while listening to polka music than participate in another dismal collaborative online project.” On the other hand, one individual in the traditional interview group expressed delight in the online collaborative project experience, saying, “That was one of the best group experiences that I’ve had and I really feel like a lot of it was because of the size of the group. We all felt a responsibility to the group (Julie).”

Reactions of those who participated in the gamified project were opposite of those in the traditional group. Only two of 7 participants interviewed from the gamified collaboration teams showed no change in their attitude towards online collaborative projects. Five gamification participants expressed positive comments about the collaborative experience including, “After taking part in this recent collaborative experience, I realized that there is a great benefit in working in a group (Janet),” “My group was great! We were all able to count on each other to get things done on time and the right way (Megan),” and “But um with this group project I think that it was nice because we each had our specific tasks that we were supposed to do and so I actually enjoyed this group project for this reason (Valerie).” Gamification participants contributing survey responses were also favorable to this collaborative project. Four of the 14 participants expressed this project as a good experience, with nothing to change. Interestingly, one participant remarked that while “I didn’t have this problem so much this last time, but it
doesn’t change the way I feel in general (Survey respondent).” This comment indicated that the structure of the current project was better than previously experienced, but perceptions about online collaboration did not change. Comparing the responses of the two groups gives evidence to the gamified structure being an effective means of changing individual perspectives concerning online collaborative projects.

**Perceptions of Gamification.** When asked about the gamification of their collaborative project, perspectives of those interviewed varied widely. Again, Gretchen strongly disliked the gamification experience, calling it “…a waste of time that took away from my research paper.” Other students liked the idea, but thought the context of this particular attempt at gamification was unsuitable. Annette remarked, “I thought the gamified learning experience was a great idea…but maybe not for the final semester of graduate school. In my opinion it would be fantastic in high school or undergrad, but playing a game as a fictional character, while trying to manage ‘life’ was not ideal.” Julie echoed those thoughts, “I really wasn’t a big fan of it. It was neat, but I knew that the research was going to be a lot of work. I was always worried about having enough time to get my work done. In another class I would have liked it a little more I think. The research class just really had me freaked out!” And finally there were those who enjoyed the experience; Jackie even commented about her intent to implement gamification in her own classroom. “I liked that it was different than any of the classes I’ve taken so far. Which did make it more motivational. Because I didn’t really know what to expect to come next…So, it was more interesting than just here’s what you need to do, do it…I did really like the gamification part and I work with middle school and so I’m thinking about ways of incorporating part of this. You have inspired me.” Even though students may have found the gamification a little confusing or inappropriate for the course context, all those expressing positive comments
alluded to gamification’s motivational potential using words like “fun,” “engaging,” “different,” “neat,” “motivational,” and “great idea.”

When asked what could improve collaborative online learning experiences, 25% of those in the gamified collaboration team responded that nothing could improve. According to one survey respondent, “Overall I had a pretty good experience this time during collaborative learning. I wouldn't change anything.” In contrast, only one out of 18 in the traditional collaboration team echoed that sentiment. These comments present evidence that the gamified project was well accepted, and even enjoyed. But acceptance and enjoyment do not equate to success, and there were critical factors that could improve gamification’s viability as an instructional strategy.

**Critical Factors for Gamification.** Three critical factors emerged from the qualitative analysis (a) Building Relationships, (b) Organization, and (c) Involvement. These factors were instrumental in perceiving how gamification influenced the collaborative learning experience.

Gamified participants felt their experience gave them good opportunities to build relationships, share perspectives, and learn from one another. As Jackie shared in her interview, “The fact that I have someone to kind of check over my work. The team work aspect of it is that it’s not all on me, that I can get help from others if I need it.” And a more general comment from a survey response indicated enjoying the people on the team, “I had a great group!” Building relationships is a key to success in online learning (Curtis & Lawson, 2001), and in this case gamification seems to facilitate that construct. Likewise, participants in the traditional collaboration team mentioned interacting with fellow classmates, having good teammates, learning from others, and sharing ideas as important to building relationships in the online collaborative project.
Understanding expectations and project navigation emerged as critical to satisfaction with online collaborative projects, and the gamified project specifically. Reactions to organization within the gamified collaborative project were mixed. This was not surprising because the CLMS provided the principal researcher with design/content presentation challenges. Some participants were confused from the outset and had a hard time understanding what was expected during the project. Jackie confirmed participant frustration with organization of the gamified content, “If I could change anything about this group project it would be the organization of the content. It was difficult for me to keep track of all the tasks that needed to be accomplished due to the fact that there were numerous pages that needed to be viewed such as the course page, fictional school page, and role page.”

Because of initial organizational and navigation issues within the CLMS, participants asked for help with knowing where to start so a Navigational Map was implemented (Appendix K). Once participants better understood the organizational structure of the collaborative project, both traditional and gamified participants found the experience more satisfactory. As one gamified survey respondent put it, “Not much [needs improved] but there has needed to be some clarification on several points on assignments which she has been glad to provide.” Good organization is key to any instructional design, and online collaborative projects are no exception.

A third factor critical to perceptions of online collaboration is involvement of group members. Involvement is a critical element to any collaborative effort, but it doesn’t always happen successfully especially in online courses (Dirkx & Smith, 2004). In fact, Hannah, a traditional collaboration team participant summed up the common experience, “I would say my immediate thought is ‘oh no, I hate this.’ Because it’s like the meme you sent us of the movie
the Hangover with the different group descriptions of who people are in the group. I think that we all connected with that. It was very descriptive of how it is. Particularly in the larger groups, I found like in the 4 or 5 person groups. There is always the person who disappeared, someone who appeared at the very end and was like ‘Oh yeah, I did all this stuff’ -and they didn’t. I found it very frustrating.”

While feelings of frustration were expressed about involvement during prior courses, comments concerning the current class experience took on a more positive note. When asked what would have improved their collaborative experience, responses referring to involvement decreased in the gamified collaboration team, with four (25%) post-survey responses centered around the involvement factor on the post-survey as compared to eight (50%) pre-survey responses. Results for the traditional collaboration team remained constant, with 44.4% commenting about involvement on both the pre and post-survey. Likewise, interviewed participants were asked how their feelings about involvement in collaborative projects differed after participating in the gamified project. “After taking part in this recent collaborative experience, I realized that there is a great benefit in working in a group. For instance, in this situation every group member contributed and discussed in a timely manner to ensure we not only met our deadlines but that we understood the concepts. I find the collaboration aspect of group work to be most beneficial (Interview with Janet).” Responses from 5 of the 7 gamified participants reflected a more positive perspective after participating in the gamified collaborative project.
CHAPTER V

DISCUSSION AND CONCLUSIONS

The pertinent findings and conclusions of this study are discussed in this section, along with implications and recommendations for future research. The discussion considers how gamification failed to significantly impact motivation, collaboration, and learning, even having a negative effect in certain instances.

Findings

Motivation

The purpose of this study was to improve motivation for participating in online collaborative projects using gamification. Literature defining the purpose of gamification wholeheartedly points to increasing motivation in participants (Deterding, 2012; Hamari et al., 2014; Kapp, 2012; Landers, 2014). Resting on the idea that adding external motivators from games (points, levels, badges, etc.) increases external motivation, attempts to gamify learning have relied on structural gamification (Dominguez et al., 2013; Kapp, 2012; Stott & Neustaedter, 2013). In contrast, this study sought to gamify the content of the learning, in order to increase motivation for participating in online collaborative projects. Content gamification includes adding game elements of narrative, role play, and challenge to the instruction essentially turning the learning into a quasi-simulated experience, guiding the participant through the content (Kapp, 2012; Sheldon, 2012).

Previous motivation studies have stressed that rewards for boring tasks could potentially make the content more interesting (Deci et al, 1999). This means gamification could be motivating for students not innately interested in a course’s subject matter, but not for those already curious and wanting to engage in the course. Analysis of current data reveals that
gamification used in the current study could have fallen prey to this effect, even though the intent of content gamification is not to reward, but to guide. Participants were all graduate students, focused on achieving excellent grades, and were fully invested in the program’s subject matter. Interviews with Annette and Julie affirmed these thoughts when speaking to gamification being a great idea, but maybe not for the final semester of graduate school, especially a research course. Graduate school may not be the most ideal environment for testing content gamification due to already high levels of student motivation. It may be more beneficial to test the implementation of content gamification in courses at the K-12 or undergraduate level. Likewise, future gamification research in online courses might focus on how voluntary participation and individualization of gamification influences motivation outcomes, because even graduate students can find content boring.

Gamification could also hinder motivation if extrinsic rewards (points, levels, badges) are being awarded for tasks individuals already find interesting (intrinsic motivation), a concept promoted by previous motivation studies (Edward L. Deci, Koestner, & Ryan, 1999, 2001; Lepper, 1983). A recent study (Hanus & Fox, 2015) explored gamification of a college communications course, focusing on the potential negative effect of gamification on motivation, satisfaction, effort, and learning. Eighty students participated and the gamification elements used were a badge system and a leaderboard. They found that the combination of badges, leaderboards and competition mechanics did not improve motivation, satisfaction, effort or learning, and could have been detrimental. Although focusing on structural gamification, this finding corroborates current results. Implementation of content gamification made no significant difference to motivation. In fact, those in the traditional collaboration teams reported better motivation than those in the gamified collaboration teams. This seems counterintuitive to the
Motivation was also affected by the complexity of presenting the gamified environment within the CLMS. The static nature of current learning management systems (LMS) makes creating intuitive gamified systems difficult (Dicheva et al., 2015). Participants expressed being confused when accessing content, what pages to view, what order to view content, and where to interact with fellow teammates. “If I could change anything about this group project it would be the organization of the content. It was difficult for me to keep track of all the tasks that needed to be accomplished due to the fact that there were numerous pages that needed to be viewed such as the course page, fictional school page, and role page.” (Interview with Jackie). This finding appears to contradict the initial design ideas for content gamification in the research methods course. Using small group pages within the CLMS sounded like a good fit for presenting content to students, without revealing instructional differences. Limitations of those pages, however, required the instructor to create additional content pages to direct student attention. What began as a good idea on paper soon became unwieldy, causing motivation to decrease.

As part of the Theory of Gamified Learning (Landers, 2014), the fourth proposition emphasizes the moderation of instructional effectives using game elements. In short, if the instructional design is sound the addition of gamification should cause an increase in desired outcomes, a premise echoed by other gamification studies (de-Marcos, Domínguez, Saenz-de-Navarrete, & Pagés, 2014; Hanus & Fox, 2015; Seaborn & Fels, 2015). To ensure sound design for increased motivation, the ARCS model was used. When using ARCS to design instruction, motivation is gained by addressing issues of attention, relevance, confidence, and satisfaction (Keller, 2010). Content gamification elements were chosen with each of these elements in mind.
Results from analysis of the instructional materials revealed no significant differences between any of the ARCS constructs. Findings indicate that adding content gamification through the combination of narrative, role play, interactivity, and feedback is not effective for improving motivation in the current context.

**Collaboration**

Collaboration in online courses is not often met with positive reactions (Dirkx & Smith, 2004). A study by Knutas, et al. (2014) examined whether computer studies students could be motivated to collaborate online using a gamification system. The gamification system consisted of adding a leaderboard, achievement badges, and points for constructive contributions to course discussions. Within the context of the course, the gamification was successful, increasing online collaboration by enabling students to desire peer interaction instead of tutor/instructor communication. The current study also wanted to examine if the addition of gamification could improve the online collaborative experience. Through the addition of narrative and role-play, both potential intrinsic motivators (Dickey, 2007), there was anticipation that collaboration would be met with greater enthusiasm. Quantitative analysis of satisfaction with collaboration showed no significant difference between traditional and gamified collaboration teams. Demographics had no significant influence on collaborative satisfaction, nor did levels of gaming experience or factors related to game-play motivation.

Qualitative analysis, on the other hand, indicated that gamification was influential to the collaborative experience. Four critical factors surrounding gamification of online collaborative learning emerged from the data, and each was found to have an influence on collaborative satisfaction. Students in the gamified collaboration teams had an overall more positive perception of building relationships, organization, involvement and communication within the
online collaborative project. These factors have been previously endorsed as critical to successful collaboration, in traditional and online learning environment (Bernard et al., 2000; Slavin, 1980). Concerns about each factor were voiced from both traditional and gamified collaboration teams, but those in the gamified collaboration team indicated fewer negative comments on the post-survey and in face-to-face interviews. These results are encouraging because they uphold ideas that online collaboration can be an enjoyable experience if presented in an effective manner (Dirkx & Smith, 2004).

**Learning**

Responding to the premise that successful collaboration results in learning gains (Kitchen & McDougall, 1999; Slavin, 1980) this research sought to improve online collaborative projects using gamification with the added intent of increasing content learning. In order for gamification to successfully effect learning it must cause a target behavior and that behavior must, in turn, positively impact learning (Landers, 2014). Within the context of this collaborative project, students were expected to learn content based on specified course objectives. These objectives were shared at the beginning of the project and students were first assessed on their knowledge using a pretest. Upon completion of the learning module, all students took the same test again, as a posttest. Results suggested no clear relationship between gamification of collaborative projects and learning gains.

The lack of significant results may be because the gamification process focused more on practical application than acquiring content knowledge, a result acknowledged by de-Marcos, et al. (2014) in their study of gamification, social media, and the effects on learning. They recognized disparity between the treatment groups outperforming the control group on the first set of evaluation items focused on skill acquisition, and the control group scoring significantly
better than both experimental groups on the final written exam focused on knowledge acquisition. The current research acknowledges this same contradiction, and recognizes the need to better match assessment items to performance goals. There also is a likelihood that gamification does not create a statistically significant change in learning as cited by Dominguez, et al. (2013), who found those working in traditional e-learning environments scored similarly to those in a gamified environment.

**Study Implications and Directions for Future Research**

This study was conducted to answer how best to motivate students for active participation in online collaborative projects. It was anticipated that the use of gamification, as an instructional strategy designed using ARCS, would create a positive difference in student motivation and, through the mediating factor, improve student learning. Although motivation and learning differed between students participating in the gamified and traditional project, results were not statistically significant. Four factors emerged that potentially affected these results.

**Gamification Elements**

One factor posing implications to this research was the combination of gamification elements chosen for the study. Gamification elements included narrative, role-play, interaction, and feedback, all considered important constructs of intrinsically motivating content gamification (Kapp, 2012). For the chosen context these game elements may not have been the best choices for inclusion in the online collaborative project. Further, they may have been too numerous and overwhelming to students unfamiliar with the gamification process. It is possible that gamification of the online collaborative project may have been more successful by simply including a narrative combined with feedback. Although content gamification in the present context was not shown to be any more effective than previous structural gamification efforts,
there exists the belief that a proper combination of instructional design methods and gamification elements can create positive influences on intended learning objectives (Hanus & Fox, 2015; Landers, 2014; Seaborn & Fels, 2015).

To date, no less than four reviews of gamification literature have been published (Dicheva et al., 2015; Hamari et al., 2014; Seaborn & Fels, 2015; Stott & Neustaedter, 2013). Each review agrees on three critical elements 1) a lack of empirical studies, 2) any success seen with gamification is limited to its context, and 3) there is a pervasive focus on the use of structural gamification (points, badges, levels, etc.). The first and second elements have been touched upon previously and given direction for future research, but the idea that structural gamification is a focal point of current gamification studies has not. Structural gamification only adds the extrinsically motivating elements of games, and has been touted as “shallow gamification” (Nicholson, 2012). These are the easiest additions but also the least engaging of potential game elements when considering the addition of story, challenge, feedback, and interactivity – content gamification (Kapp, 2012). Results of using strictly content gamification were less than desired, showing no significance for any of the research questions. Thus, future research needs to continue exploring different ways to combine structural and content gamification elements within proper contexts in order to provide best practice heuristics for future instructional design.

**Design and Technical Issues**

Design and technical issues also interfered with significant success of the gamification. Students reported being confused by how content was presented through the CLMS. The biggest complaints had to do with navigating through the team pages. This complaint was mostly related to the CLMS platform itself and the limitations of its page design. The idea for CLMS navigation
worked well “on paper,” but did not translate well to the LMS interface. The idea of a LMS being too restrictive has been expressed before (Dicheva et al., 2015); thus, one conclusion suggested by student responses is the critical importance of a good testing process when designing any kind of gamification. Researching limitations of current LMS’s and their ability to effectively present structural and content gamification would be advantageous as future research because reliance on the LMS is a hinge in online delivery.

**Participants**

Along with chosen gamification elements and technical issues, the participants themselves may not have been ideal for this research. Because of the greatly lopsided division between female and male participants, and the fact that no male participants took part in the gamified project, statistics examining the impact of gender on the gamification of collaborative online projects were not analyzed. However, prior research indicates that gender and age can have an influence on the benefits of gamification (Kim & Lee, 2013; Koivisto & Hamari, 2014; Pedro, Lopes, Prates, Vassileva, & Isotani, 2015). Including a larger, more balanced sample would enable future researchers to better establish a connection between demographic factors and their influence on gamification in online collaborative projects.

**Course and Content**

The course and content chosen for gamification may also have hindered its effect. Research courses are stressful. The final semester of graduate school can be stressful. Taking courses online can be stressful. Putting all these elements together and then adding an unknown, like gamification, can compound that stress, making what was intended as a fun experience into something just the opposite. Including gamification in research methods, as the first time students had been exposed to the strategy, played a large role in student dissatisfaction with the
collaborative project. These thoughts were echoed by several students during face-to-face interviews.

Students liked that gamification was a different approach to how they might do traditional collaborative projects in online courses; however, they did not like that the gamification occurred during such a “strenuous” course. One student’s survey comment says it best, “I believe that the gamified learning experience is an engaging idea to enhance student learning; however, it was difficult to get into a rhythm and groove with the content because I believe that the gamified learning can be difficult to carry out in the online setting.” In hindsight, gamification within the study’s context would use a different combination of game elements (i.e. only narrative and feedback) supporting findings from previous reviews of gamification literature recommending designers take care in choosing what, how, and why to include gamification (de-Marcos et al., 2014; Dicheva et al., 2015; Hamari et al., 2014; Seaborn & Fels, 2015). Those wanting to test gamification’s potential influence for online learning and collaboration might want to focus more closely on courses and content that may be deemed boring, better determining how gamification improves intended outcomes.

Conclusions

In a review of gamification literature four successful game elements applied to learning that are more consistently successful were shared: freedom to fail, rapid feedback, progression, and storytelling (Stott & Neustaedter, 2013). Three case studies were examined to evaluate these gamification dynamics in action. Examination of the cases and corresponding literature corroborated similar studies’ findings that successful gamification is bound by its context (Hamari et al., 2014; Kapp, 2012; Landers, 2014; Stott & Neustaedter, 2013). Based on current literature there is no one best practice for gamification, either structural or content. Instead,
successful gamification needs to be based on the context of individual user needs and motivations (Seaborn & Fels, 2015).

Therefore, a lack of statistically significant results for using the form of content gamification presented in this study as an instructional strategy for online collaborative projects should not be a deterrent. Results suggest that the gamification of online collaborative projects does not significantly alter motivation or learning. However, the study supports research by Landers (2014) that in some contexts elements of gamification may cause more harm than good, and more research is needed to discover meaningful combinations of gamification elements. It is important to note that findings are limited to the scope of the mechanics included in this gamified collaborative project, and are not indicative of all gamified systems.

Elements of gamification chosen to be inserted into the collaborative online project were not effective for improving motivation or learning, but that does not mean gamification cannot be an effective instructional strategy for online collaboration. Further study of alternate methods of implementing gamification into online collaborative projects may reveal the strategy as beneficial for improving motivation and learning, but it may not. There is a possibility that gamification simply does not work any better than traditional forms of presenting collaborative projects in the online environment. The findings of this study support the need for more research examining gamification’s effectiveness and how combinations of gamification elements support learning and motivation for online collaborative projects.
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doi:10.3102/00346543050002315


Appendix A. Consent to Participate in Research Study

Note: The following instructions were placed at the beginning of the optional pre-survey, given at the outset of data collection. It was used as the consent to participate.

Instructions: This questionnaire is designed to measure your perceptions on various aspects of this class. There is no right or wrong answer for each question. Your participation is entirely voluntary and will in no way affect your grade in the course. We will use the information you provide to add to our understanding of online collaborative learning from the student perspective. All your answers will, of course, be kept confidential. It should take you about 10-15 minutes to complete the survey.

We are conducting this research with Professor Ginger Watson of Old Dominion University. If you have any questions concerning your rights as a research participant that have not been answered by the investigator or if you wish to report any concern about the study, you may contact Ed Gomez the current Human Subjects Chair for the Darden College of Education at 757-683-6309, edgomez@odu.edu at Old Dominion University. By clicking the submit button at the end of the survey you confirm that you have read and understand this section and consent to participate in the survey.
Appendix B. Instructional Materials for Traditional Collaboration Teams

Note: Weekly instructional materials for students participating in the online collaborative project as part of the Traditional group are presented here. Each week starts on a separate page.

I. Week 1

Step 1: Week 1 – Read Me First

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READ ME FIRST!
Michelle Hudburg

Check out the big challenge on the Long Fork Schools: Planning For A Bright Future content page.

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Step 2: Week 1 – Long Fork Challenge page

Long Fork Schools: Planning for a Bright Future

I. The Challenge
The Superintendent of Long Fork Community School District wants your team to explore ways to help raise the district's dwindling graduation rate, especially among minority populations.

II. The Task
Create a proposal for an action research project, exploring an instructional solution to...

- Ensure effective education for minority children, helping to increase graduation rates for the Long Fork Community School District.
- Instill cultural awareness in the entire school community, creating a climate of unconscious competence towards cultural uniqueness.

III. The Product
- Topic – Narrowed to a specific instructional solution to the proposed problems
  - Challenge 1 – Brainstorming Research Topics
  - Challenge 2 – Refinement of Research Topic
  - Statement of Purpose – Why does your chosen topic meet the challenge given by the Superintendent?
  - Annotated Bibliography – A list of 10 items of related literature that will guide your review of related literature. The list will include properly formatted references, along with a brief annotation of the literature and its findings.
    - Challenge 3 – Explore the Literature
    - Challenge 4 – Annotated Bibliography
    - Public Presentation – Submit your final proposal to the superintendent and defend your proposal to an imaginary school board. The presentation will be a combination of all individual ideas/plans.
    - Challenge 5 – Presentation Defense and Final Proposal

IV. The Guidelines (An overview)
- You will be assigned to a team of 4-5 members.
- As a team you will discuss content topics as presented by the instructor.
- As a team you will brainstorm possible topics for your action research project.
- As an individual you will refine your research topic, in conversation with the instructor.
- As a team you will explore academic literature, PSU library services, and Google Scholar.
- As an individual you will compile an Annotated Bibliography as directed in The Product section of this page and the Challenge #4 assignment.
- As a team you will submit your initial proposal and a presentation for your action research project
  - Topic, written as a question
  - Statement of Purpose
  - Related literature, citations only

YOUR TASK: Now that you know the challenge, let’s get started! Go to the Learning Teams page to see who you’ll be working with in your small groups.
Step 3: Week 1 – Learning Teams

### Learning Teams

- To complete the group project, you’ve been assigned a team of no more than 5 individuals.
- Teams appear in the Table below (you’ll notice a theme... HAI).
- Please make initial contact with your teammates ASAP.
- You will receive details about Challenge #1 in 3 days.
- While waiting for Task #1 instructions, go to the Team Responsibilities and Teamwork Pledge pages. Make sure you read all the directions carefully.
- Make sure to read this week’s information. You can find what you need to read on the Chapter 1 Reading Assignment content page.

<table>
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<tr>
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<td>Team 2 – The Breakfast Club</td>
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<td>3.</td>
</tr>
<tr>
<td></td>
<td>4.</td>
</tr>
<tr>
<td>Team 3 – Pretty in Pink</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td>2.</td>
</tr>
<tr>
<td></td>
<td>3.</td>
</tr>
<tr>
<td></td>
<td>4.</td>
</tr>
</tbody>
</table>

Step 4: Week 1 – Team Responsibilities (5 different team responsibilities were presented)

### Team Responsibilities

Don't let this become your group!

**EVERY GROUP PROJECT**

- Does 90% of the work
- Says he’s going to help but he’s not
- Disappears at the very beginning and doesn’t show up again till the very end

In school you have ever done

Ok, now that you have had a good chuckle (or perhaps even a belly laugh) it’s time to really think about that meme and what it means for successfully working together. Although what’s depicted might be what you have experienced in the past, it’s not what has to happen.

Take a few moments and read through the following statements for responsible team work.

**A LEADER WILL EMERGE.**

- Every team has a leader, it’s a given. Otherwise the team would go nowhere fast. Teams need an individual who can direct the action, and move everybody in a positive direction. What that doesn’t mean is the leader bullies the team into doing everything the way they want it done. Good leadership means listening to everyone, taking all points of view into consideration, and knowing when to give up control when necessary (yes leadership can change, depending on circumstances). Let the leader of your group emerge through natural communication and direction of your group, not by who sends the first email getting you started...

1. I agree there will be a leader
After reading through the team responsibilities, team members were given a specific task.

**YOUR TASK:** Send an email to the members of your team, and the instructor that includes each of the "I agree..." statements at the end of each section on this content page. The message will be your way of letting everyone involved know you have read and understand these terms and conditions. (Think of it as our end-user's license.) You should send your email no later than Monday, February 9.

**NEXT STEP:** Visit the Teamwork Pledge content page and follow the directions found there.

Step 5: Week 1 – Teamwork Pledge

**Teamwork Pledge**

During this project you will have tasks that need to be completed by the entire group, and you will have tasks that need individual attention before being brought to the group. So that responsible team work occurs, I would like for you to compose a pledge to your team. Here’s how it will work:

1. Compose your pledge. It might look something like the following:
   1. I pledge to be a valuable contributor to my team. [Insert your team name]. I understand I will need to communicate regularly, and I pledge to check our Canvas group every other day for updates, new contributions, and further direction. I also pledge to meet all deadlines, and if I cannot meet a deadline I will communicate immediately. The success of this group is important to me, and I pledge to take my work seriously and make this experience a positive one for all of us.
   2. Note: Your pledge should be unique to YOU. Please do not use the example pledge as your own.
   2. Go to the Teamwork Pledge discussion board and add your pledge as both a written and an audio reply.

3. Read and listen to your teammates’ pledges.
   1. Ask questions or seek clarification as necessary.
   2. If a teammate asks a question causing you to rethink aspects of your pledge, do not hesitate to revise and repost.
   3. As you continue to work on this project, hold each other accountable for what you’ve each pledged to the team.
   4. Your Teamwork Pledge should be posted no later than Monday, February 9.

Step 6: Week 1 – Chapter 1 Reading Assignment

**Chapter 1 Reading Assignment**

**Week 1 Reading Assignment**

Before diving into the process of action research, it is important to understand what the process entails. To help with that task I have chosen to use the following textbook in this course:


Your reading assignment for the current week is the following:

- Preface – pp. xx – xxx
- Chapter 1 – pp. 3 – 20
Step 7: Week 1 – What do I do now?

What do I do now?
Michele Hudnall

Visit the Challenge #1 page to find directions for the next step in the group project process.
II. Week 2

Step 1: Week 2 – Reading for Understanding Announcement

Week 2: Reading for Understanding
Michelle Hudiburg

This week we will continue exploring the process of action research. We will continue to read Martler’s book.

- *Action Research: Improving Schools and Empowering Educators (4th ed.)*

Your reading assignment for the current week is the following:

- Chapter 2 – pp. 35 - 60

Next step: After reading Chapter 2, your next step is to visit Ch 2 Presentation Overview

Step 2: Week 2 – Presentation Overview

Ch 2 Presentation Overview

Sometimes it is good to hear and see information being presented, as well as reading it. Thank you for us, the author of our textbook has created several short videos and relate PowerPoint slides that go along with the sections in Chapter 2.

- *Textbook Resources* for *Action Research: Improving Schools and Empowering Educators*

Next step: Once you have followed the directions on this page, visit the Exemplars of Action Research page.

Step 3: Week 2 – Exemplars of Action Research

Exemplars of Action Research

Introduction:

You and your team are working to brainstorm ideas for action research projects. You have also been learning about action research through textbook reading and video presentations. One more way to help you better understand the process and what you will be tackling in this course is to provide you with exemplars of action research projects.

Action Research Exemplars:

- Sample #1 - *Effect of Technology on Enthusiasm for Learning Science* [PDF]
- Sample #2 - *What Patterns of Teacher-Student Verbal Communication Exist in My Classroom?* [PDF]
- Sample #3 - *The Effects of De-Emphasizing Grades on the Achievement and Stress Levels of Students in Health Class* [PDF]
- Sample #4 - *Assessing the Assessments – What Really Works? An Action Research Report* [PDF]

Next step: Once you have explored any information shared on this page, proceed to the Week 2 Team Discussion.
Step 4: Week 2 – Team Discussion

Introduction:

- Talking through the action research process as a group could be helpful for everyone’s understanding. For this activity, the team will focus on mathematics.

The Problem:

- Suppose that students in your school are not achieving at the desired level in the area of mathematics. Using the four-stage procedure for action research as presented in the chapter, briefly describe how you might systematically examine this problem.

The Task:

- Each group member is required to post an original audio response.
- Reply (may use text or audio) to each team member at least once.
III. Week 3

Step 1: Week 3 – Reading for Understanding Announcement

Week 3: Reading for Understanding
Michelle Hudiburg

This week we will continue exploring the process of action research. We will continue to read Mertler’s book.

- *Action Research: improving Schools and Empowering Educators* (4th ed.)

Your reading assignment for the current week is the following:

- Chapter 3 – pp. 53 - 71

Next Step: Once you have read pages 53-71 in Chapter 3, visit Ch 3 Presentation Overview

Step 2: Week 3 – Presentation Overview

Ch 3 Presentation Overview

Sometimes it is good to hear and see information being presented, as well as reading it. Thankfully for us, the author of our textbook has created several short videos and relate PowerPoint slides that go along with the sections in Chapter 2.

- Textbook Resources for Action Research: Improving Schools and Empowering Educators

  - Hint: Videos 2.1 and 2.2 are relevant to this week’s content. If you download the presentation slides, do not venture into the literature review section because we’ve not gotten that far yet.

Next step: Once you have followed the directions on this page, visit the Tools for Topic Refinement page.
Step 3: Week 3 – Tools for Topic Refinement

Tools for Topic Refinement

Introduction:

You have worked together to brainstorm topics for possible action research. In order to conduct a successful project you first need to refine your topic, but how do you do that? What’s the best way to word your question, or should you use a hypothesis? Maybe you’ll call it a Problem of Practice. Whatever you decide, it’s probably a good idea to do some more exploring of tools that might help with the process. The guidelines below will help you and your team better understand the process of refining your action research topic.

Guidelines:

1. Each person in your group should choose one of the following tasks to complete. As a group, you will need to decide who will accomplish each task.
   1. Contact the course instructor, via Canvas message, and request resources to help with topic refinement. Within 24 hours you should receive feedback to share with your team.
   2. Peruse the following Facebook Page [Link]. You will share pertinent findings with your team.
   3. Conduct a Google search looking for tools that might assist you with the process of refining your action research topic. You will share pertinent findings with your team.
   4. Go to Twitter and study the hashtag #actionresearch. You will share pertinent findings with your team.
   5. Peruse any resources on topic refinement at the end of Chapter 2. You will share pertinent findings with your team.
   6. Go to [Link] and share your findings with the rest of your team.
   7. Make sure you explore the resources and information your team members share on this page.

Here’s What I Found:

Next Step: When you’ve completed this step and explored what your teammates share, you’re ready to tackle Challenge #2.

Step 4: Week 3 – Challenge #2

Challenge #2

STEP 1:

• Recall the goal of the group project.
• Create a proposal for an action research project, exploring an instructional solution to...”
  • Ensure effective education for minority children, helping to increase graduation rates for the Long Fork Community School District.
  • Instill cultural awareness in the entire school community, creating a climate of unconscious competence towards cultural uniqueness.
  • Your proposal needs a solid, straightforward topic. This is also referred to as the research question, hypothesis, or problem of practice. In this assignment, you’ll work with your instructor to refine your topic.

STEP 2: Sign up for a time to Skype with Mrs. Hudgins.

• Add your name to the cell corresponding to the date and time you would like to meet.
• Times are available starting tomorrow, February 19 (Thursday).
• Times and dates are available on a first-come, first-served basis.
• Please only sign up for one time slot.

STEP 3: After your session with Mrs. Hudgins, go to the Long Fork Group Project – Challenge #2 Assignment in the main Canvas section (in Module 7) and submit your refined topic statement/question by the due date.

Next Step:

• You have recently refined the topic on which you will be conducting action research. As reflective practice, you need to discuss the process with your team.

• Go to the Week 3 Team Discussion page.
  • Follow the directions found there for quantity and quality of posts.
Week 3 Team Discussion

Michelle Hudiburg

Share how your broadly defined topic became a focused question to use in your action research project.

- Each group member will be required to post an original response.
- Reply to each team member at least once.
- Reply to those who have replied to your original posts at least once.
IV. Week 4

Step 1: Week 4 – Reading for Understanding Announcement

Week 4: Reading for Understanding
Michelle Hudiburg

This week we will continue exploring the process of action research. We will continue to read Mertler’s book.

- *Action Research: Improving Schools and Empowering Educators (4th ed.)*

Your reading assignment for the current week is the following:

- Chapter 3 – pp. 71 – 84

**Next Step:** Visit the [Ch 3 (Pt 2) Presentation Overview](#) page for more information about the topic.

Step 2: Week 5 – Presentation Overview

Ch 3 (Pt 2) Presentation Overview

Sometimes it is good to hear and see information being presented, as well as reading it. Thankfully the textbook author had the same idea and created some supplemental materials to go along with the reading:

- Go to [http://www.sagepub.com/medteach/study/chapter.html](http://www.sagepub.com/medteach/study/chapter.html)
  - Make sure you watch Video 3.3
  - If you downloaded the presentation slides last week, make sure you now look at the information regarding the literature review.
  - You might want to download this file: [Planning your Action Research Literature Review](#)

**Next Step:** Check out more information to help you find related literature on [The University Library](#) page.
Step 3: Week 5 – University Library

The University Library

(Click play to take the library tour)

Additional Resources for Axe Library:

- Document Delivery through ILLiad (interlibrary loan)
- Interlibrary loan - books, articles, etc from other libraries if Axe doesn't have it
- Library Databases by Subject
- Axe Library reference on YouTube - although dated, these videos may help as you begin to navigate the library's resources

Next Step: Once you've familiarized yourself with the university library go to the Researching and Referencing page.
Step 4: Week 4 – Researching and Referencing

Researching and Referencing

One of my favorite internet resources for finding literature review articles and resources is Google Scholar. In this section you’ll find a short video about using Google Scholar, links to some official Google resources, and other good resources about using the site.

- How I use Google Scholar

- Quick Tips for Searching Google Scholar: [Watch](http://www.youtube.com/watch?v=sg54ySHHjIk) from Rockingham Community College
- Using Google Scholar from Eastern Michigan University: [Watch](http://www.youtube.com/watch?v=sg54ySHHjIk)

Mendeley

One more valuable resource when conducting a literature review is a citation manager. I want to introduce you to Mendeley. I think once you get into it you’re going to love how it can help you organize all your articles and help compile your bibliography.

- Mendeley: [website](http://www.mendeley.com) Go here to download the application and get started.
- Mendeley Tutorial: [videos](http://www.youtube.com/watch?v=sg54ySHHjIk) Use these videos to make sense of the whole thing.
- Mendeley Help Guides: [Official guides from Mendeley](http://www.mendeley.com/help) to help with your use of the application across all devices.
- Mendeley Tag: [Mendeley](http://www.mendeley.com) on Twitter!
- Me showing you Mendeley

**Next Step:** In order to help you organize and synthesize the resources you’ll choose to use for your review of literature I am going to ask you to create an Annotated Bibliography. Directions for creating the Annotated Bibliography can be found on the [Challenge #3](http://www.mendeley.com) content page in your team area. You’ll have 2 weeks to complete the challenge, but don’t put it off because there’s a lot to do.
Step 5: Week 4 – Challenge #3

**Challenge #3**

**STEP 1:** Your task is to create an annotated bibliography of at least 10 resources to be used in the review of related literature for your specific research topic.

**STEP 2:** Directions for creating an Annotated Bibliography can be found at the following link: [http://guides.library.cornell.edu.php?q=32342&ps=203789](http://guides.library.cornell.edu.php?q=32342&ps=203789).

**STEP 3:** Guidelines are provided:
1. No fewer than 10 credible resources.
2. Each resource should be cited using correct APA citation style.
3. Each resource should include a personal annotation.
   1. (a) evaluate the authority or background of the author,
   2. (b) comment on the intended audience,
   3. (c) compare or contrast this work with another you have cited,
   4. (d) explain how this work illuminates your bibliography topic.

Note: For your convenience, a template and one example are included here: [Annotated Bibliography Template](#) 📖

**Next Step:** View information for **Challenge #4** and begin making plans with your team for its completion (also due March 11).

---

Step 6: Week 4 – Challenge #4

**Challenge #4**

**STEP 1:** Once again, recall the goal of the group project.

Create a proposal for an action research project, exploring an instructional solution to...

- Ensure effective education for minority children, helping to increase graduation rates for the Long Fork Community School District.
- Instill cultural awareness in the entire school community, creating a climate of unconscious competence towards cultural uniqueness.

**STEP 2:** As a team you will need to create a presentation to defend your proposal idea to the Long Fork School board. (Google has a Presentation tool that’s great for collaborating. Prezi works pretty well too.) Make sure to include all the following necessary items.

- Names and positions/occupation of each team member.
- Three slides for each individual topic.
  - One slide with the question or problem you’ll be focusing on and the name of the individual doing this part of the project.
  - One slide with the statement of purpose for your project.
  - One slide referencing the literature you’ll be using to defend your problem.
  - Proposed timeline for completion.
  - Any other information that will help us understand what you are planning.

**Next Step:** Participate in the [Week 4 Team Discussion](#)

---

Step 7: Week 4 – Team Discussion

**Week 4 Team Discussion**

Michelle Hardbarg

What do you believe might be the most difficult aspect of conducting a review of literature related to a potential action research topic?

- Each group member is required to post an original response
- Reply to each team member at least once
- Reply to those who have replied to your original post at least once.
IV. Week 5

Step 1: Week 5 – Final Team Meeting Announcement

Michele Hudiburg

Mrs. Hudiburg would like to “meet” with your team one last time. Please visit the Final Team Meeting page for further directions.

Step 2: Week 5 – Final Team Meeting

https://www.youtube.com/watch?v=T0hMQrHHkrs

Questions for Mrs. Hudiburg

• Can you give me a little more information on what needs to be on our slide that is to defend our proposal? Is this just the bibliography information?
  • There is not a single slide that defends the proposal. Each person will have 3 slides for their individual projects. 1 that states your question, 1 that says why you are choosing to pursue that question and 1 that gives a bibliography of the literature you'll be referencing.
• Can you give me a little more information on the proposed timeline slide also?
  • Proposed timeline is for your entire team. If you were pitching this to the school board, what kind of timeline would you give for getting everything done?

Next Step: Participate in the Week 4 Team Discussion

Step 3: Week 5 – Team Discussion

Michelle Hudiburg

You are working to complete the final tasks for this group project. Take some time to debrief with your team.

To Discuss with your team:

• What was the biggest challenge you faced while working on this project?
Appendix C. Instructional Materials for Gamified Collaboration Teams

Note: Weekly instructional materials for students participating in the online collaborative project as part of the Gamified group are presented here. Each week starts on a separate page.

I. Week 1

Step 1: Week 1 – Read Me First

READ ME FIRST!
Michelle Hudiburg

Make sure you visit the Superintendent's Office before you do anything. There's an important message for you there.

Step 2: Week 1 – The Superintendent’s Office visit

Superintendent's Office

- What exactly does Dr. Sloan have in mind? Check out the Long Fork Schools: Planned for a Bright Future content page.

Superintendent’s (Dr. Sloan) script

Good morning, I appreciate you coming to see me on such short notice. I assume you read yesterday’s paper? I really wish they’d have waited to break THAT news until I had a chance to get a plan in place. Oh well, I can’t control that but I can start moving forward with a plan, and I hope you’ll help me avoid a potential catastrophe for this entire community.

Here’s what I’m thinking. As you read in the paper, there’s a very real possibility that our school district could be closed in the near future if we don’t make some progress toward improvement. I’ve known for a few weeks that this was coming, and I’ve been looking at district data to find the biggest weak spots. One thing that really stands out to me is our higher than
average dropout rate, especially among our non-white students. I think there’s potential for improvement in that arena, but I need help setting a plan in place.

That’s where you come in. You’ve exhibited some really great leadership qualities in the past, and I know you have a passion for kids and seeing them succeed. What I need is to put together a team of individuals who will work together and develop a plan of action for moving our dropout rate in a better direction. I’d like you to be part of that team. To help us stay on track and make positive steps I’ve enlisted the help of the local university. You’ll be able to contact them for assistance and more information as you and your team put together your plan. Oh, and I’m going to need to know what your specific target is going to be and what information you used to make that decision within the next three weeks. It’s going to take dedication and a lot of work, but I’m confident you and your team will do a fantastic job. I know I can count on you to take this challenge and help keep our schools open.
Long Fork Schools: Planning for a Bright Future

I. The Challenge

You’ve recently met with the Superintendent, Dr. Sloan. The problem is daunting and you’re not sure what you can do, but you told Dr. Sloan you’re willing to try. Before you left the Superintendent’s office you made sure you understood the challenge you and your team are being presented with. You understand that the schools are being threatened with closure because state funding is dwindling and district performance has been subpar in recent years. Dr. Sloan has examined district data and noticed a trend in dropout rates and minority students. Dr. Sloan needs you and your team to brainstorm ways to turn this trend around. However, this challenge must be done using good research skills, assuring any instructional practices adopted because of your team’s work is grounded in research.

II. The Task

Create a proposal for an action research project, exploring an instructional solution to...

- Ensure effective education for minority children, helping to increase graduation rates for the Long Fork Community School District.
- Instill cultural awareness in the entire school community, creating a climate of unconscious competence towards cultural uniqueness.

III. The Product

In the end you, and each member of your team, will bring forward a proposal to the Superintendent. Dr. Sloan wants multiple options in order to successfully reach the most students. You will also work together to prepare a short presentation for the Board of Education meeting, defending your plan as a whole. It will be imperative that you work together, bringing your personal expertise to the table. The Superintendent is expecting to see the following items in your proposal.

- Topic – Narrowed to a specific instructional solution to the proposed problems
- Statement of Purpose – Why does your chosen topic meet the challenge given by the Superintendent?
- Annotated Bibliography – A list of 10 items of related literature that will guide your plan
of action. The list will include properly formatted references, along with a brief summary of the literature and its findings.

- Proposal and Presentation for the Superintendent and Board of Education – The presentation will be a defense of your entire proposal, all 5 ideas wrapped in a neat package.

IV. The Guidelines (An overview)

Challenges await as you embark upon this journey to help improve your schools. You are excited because you have been deemed worthy to help lead this effort, but you are also a bit afraid because the task is daunting and much rides on its success. There is much to do, and conquering the challenges ahead lies squarely on the choices you make. Many questions must be answered, and all choices lead to the success or failure of accomplishing Dr. Sloan’s challenge.

- Who will you choose to be during this Challenge?
- Who will be on your team?
- What ideas will you and your team brainstorm together?
- What lively discussions will emerge as your team explores possible solutions?
- Will Dr. Sloan approve of your solution? If not, will the Superintendent give direction for refinement?
- Where can your team find information to assure Dr. Sloan that your topic is valid, necessary and relevant to the challenge?
- What information will help guide your proposed solution?
- Will your proposed solution have enough grounding in research to be considered an effective alternative?
- Will the superintendent and board of education members think your proposed solutions are doable and worthy of consideration?

NAVIGATION Note: Once you’ve finished with this page’s content, go to the Choosing a Character page to start your adventure.

Step 4: Week 1 – Choosing a Character

Dr. Sloan needs to put together a strong team of school and community leaders if the plan for improvement is to be successful. In order to do that, the Superintendent needs to know what people these folks choose. Dr. Sloan will create teams made up of a school Principal, at least one teacher, one instructional support staff and one member of the community. The teams created by the Superintendent will have to meet the following criteria: By the end, Dr. Sloan knows who to choose from brainstorming, your task is to sign-up for a character.

Once you sign up for a character, you will be notified by email and given two weeks to complete your input. Your name will be visible to the group and anyone else. If you aren’t interested in this adventure, or you’d like to change your character, you may do so until the end of the brainstorming period.

Are you ready? Let’s get started on this adventure by choosing a character.

STEP 1: Fill-in your name: make sure you personalize the choice of your character. After all, you want to play a role that really interests you because this is going to be your role for the next 5 weeks. Go to the Choosing a Character page to read descriptions of each possible character.

STEP 2: By choosing a character (a), give at least three ideas and sign-up for your choice. Character choices are forever. However, at all the desks for your first choice are taken, you have to choose an alternative. Please do not add numbers to any of the characters who have been assigned to you already.

Character
Name
Principal
Teacher
Instructional Support Staff
Community Member

STEP 3: You’ve chosen your character, now fill in the blanks that characterize his or her role. Using the data boxes on the Character canvas page, input your own self into a living being.

STEP 4: At the same time, you will be given some information about Challenge #1 on Sunday. Don’t miss it!

NAVIGATION Note: Once you’re done with this page, check the Online Resource Pages page to read more as you can.
Step 5: Week 1 – Character Descriptions

Character Choices

The Characters
Each learning team will consist of the following characters:
1. Principal
2. One teacher
3. One school support staff
4. One member of the community – parent, student or community member
5. One additional member from either 2, 3, or 4 above (for 5 member teams)
6. Once you've chosen your character, return to the Choosing A Character page and sign up!
   1. Once everyone has signed up for a character, Dr. Sloan will create teams and send everyone a message.
<table>
<thead>
<tr>
<th>Character</th>
<th>Required on team?</th>
<th>Educational Profile</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal</td>
<td>Yes</td>
<td>• 10 years of experience as a building administrator</td>
<td>• Organizational skills</td>
<td>• Reactive personality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 16 years classroom experience – Middle School math</td>
<td>• Visionary leadership</td>
<td>• Tends to overlook details</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• EdS in General School Administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Working on a PhD in Educational Leadership</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher 1</td>
<td>At least one teacher on each team</td>
<td>• 35 years classroom experience – mostly in the 4th grade</td>
<td>• Students proclaim as favorite teacher, almost every year</td>
<td>• Hesitant to try different teaching methods</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MS in Elementary Education – received in 1986</td>
<td>• Loves kids</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Loves teaching</td>
<td>• Loves teaching</td>
<td></td>
</tr>
<tr>
<td>Teacher 2</td>
<td>At least one teacher on each team</td>
<td>• First year teacher – high school government</td>
<td>• Incorporates technology into the curriculum on a regular basis</td>
<td>• Fallen in with a group of teachers who enjoy complaining instead of being change agents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• BSEd in History with double minor in ESL and Technological Literacy</td>
<td>• Students report enjoying time in class</td>
<td>• Unsure of how much involvement is expected</td>
</tr>
<tr>
<td>Teacher 3</td>
<td>At least one teacher on each team</td>
<td>• 11 years classroom experience – Middle School language arts</td>
<td>• Recognized as a teacher leader in the building</td>
<td>• Tries to do everything – stretches self too thin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• BSEd in English</td>
<td>• Helps others implement innovative teaching ideas</td>
<td>• Can be scatter-brained</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Currently pursuing MS in Educational Technology</td>
<td>• Regularly takes part in professional development opportunities</td>
<td></td>
</tr>
<tr>
<td>Librarian</td>
<td>At least one instructional support staff on each team</td>
<td>• 20 years of educational experience</td>
<td>• Genuinely wants to help teachers by offering opportunities for collaboration</td>
<td>• Sometimes comes across as a know-it-all</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Classroom teacher (speech) for 11 years</td>
<td>• Is noted as a school leader</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Librarian for 9 years</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• MS in Library and Information Systems</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• EdS in General School Administration</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Adjunct instructor for local university</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructional Coach</td>
<td>At least one instructional support staff on each team</td>
<td>• 15 years classroom experience – ranging from 3rd grade to middle school social studies</td>
<td>• Visionary leadership</td>
<td>• Struggles with time management issues</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Instructional coach for 2 years</td>
<td>• Passion for improving instructional methods to enhance learning</td>
<td>• Doesn’t like to delegate tasks, likes to be in control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MS in Leadership Studies</td>
<td>• Understands how details help round out a plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MS in Classroom Teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Currently pursuing EdD in Instruction Design</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Technology Coordinator | At least one instructional support staff on each team | • 2 years classroom experience – high school technology/computers  
• 1st year in current position – performs both networking and professional development duties  
• MS in Educational Technology with an emphasis in Classroom Technology Integration | • Young – has always had technology available to perform daily tasks  
• Knows both the hardware and application side of technology integration  
• Willing to try new technologies if others think they might be beneficial in the classroom  
• Good team player | • Has more to do than can possibly get done, but doesn’t ask for help because wants to appear competent to do the job  
• Sometimes has a hard time explaining techie talk to those unfamiliar with terms and concepts |
| --- | --- | --- | --- |
| Curriculum Director | At least one instructional support staff on each team | • 32 years of educational experience  
• 10 years as Kindergarten teacher  
• 5 years as building principal  
• 9 years as assistant superintendent  
• 5 years as professor of Educational Leadership  
• 3 years in current position  
• Highest degree – EdD in Curriculum and Instruction | • Has a wealth of knowledge due to various experiences  
• Knows the district curriculum inside and out  
• Understands the necessity of keeping curriculum and instructional practices relevant to learners | • Never seems satisfied  
• Keeps looking for the next big career opportunity |
| Parent 1 | At least one community member on each team | • 1st grade teacher in a neighboring school district  
• Highest degree – BSEd in Early Childhood Education  
• Good team player  
• Has a passion for kids and education  
• Connects well with at-risk children, at school and in the community  
• Believes their child does no wrong  
• Very busy with personal responsibilities |
|---|---|---|
| Parent 2 | At least one community member on each team | • Graduated from the local high school  
• Obtained Associates degree from local community college  
• Comes from a diverse background  
• Believes education is important for everyone  
• Wants schools to stay open  
• Available only after 5:00 each day  
• Wants to help more, but is never sure where to plug in (insecure)  
• Uncomfortable with technology |
| Student 1 | At least one community member on each team | • High school senior  
• Top 10% of graduating class  
• Taking college bound courses  
• Comes from a diverse background  
• Will be first family member to attend college  
• Works hard in all classes  
• Teachers and peers all respect this student  
• Likes to bite of more than they can chew  
• Follows without questioning, especially teachers  
• Is sometimes embarrassed by family’s lack of education |
| Student 2 | At least one community member on each team | • High school freshman  
• Middle 25% of graduating class  
• Focusing on career and technical education classes  
• Teachers have noted the outstanding work done when a project really interests this student  
• Outstanding work ethic  
• Likes to ask questions  
• Has family support for future plans  
• Doesn’t think many courses are worth the time and effort  
• Has attendance issues |
| Community Member 1 | At least one community member on each team | • 8th grade education  
• On the job training has helped move them through the ranks – now in a managerial position  
• Motivated to succeed  
• Great people skills/infectious personality  
• Believes in the value of education  
• Organizational leadership  
• Can have difficulty seeing the big picture  
• Can be too nice in some situations  
• Has difficulty coping with others who don’t pull their weight |
| Community Member 2 | At least one community member on each team | • Highest degree – MBA  
• Certified Public Accountant  
• Loves a challenge  
• Works well in groups  
• When convinced a problem exists, is dedicated to seeing a plan through to a solution  
• Doesn’t always hold education in high esteem  
• Likes to play devil’s advocate  
• Can come across as pompous/arrogant |
Step 6: Week 1 – Avatar Creation

You’ve chosen who you’re going to be, now it’s time to choose how you’re going to look. Follow the steps on this page to create an avatar you’ll use during the group challenge process.

**STEP 1:** Watch the tutorial for creating your avatar using [this link](https://www.youtube.com/watch?v=4Y8Jq0kY).

**STEP 2:** Go to [http://www.google.com](http://www.google.com) and create your avatar.
- Your avatar may look however you want it to, but you must keep in mind the characteristics of your role. For instance, if you choose to be a student, your avatar should not look like a 40-year-old. If you chose to be a teacher or another adult character your avatar should not look like a child/teenager.

**STEP 3:** Go to Camtasia and change your Profile Picture so that it reflects your avatar.

**STEP 4:** Go to the Choosing a Character content page in Camtasia and add the image of your avatar by drag your name in the character table.
- You should have already saved the image on your computer.
- Once in Camtasia, on the Choosing a Character page, click “Add” at the top right.
- Once in the Add/Remove image, place the cursor in front of your character name.
- Click the image tab on the right side of the page.
- Click on Upload a new image link.
- Click Browse.
- Locate your avatar’s image file and select Open.
- Click Upload.
- Your image should appear where you placed the cursor.
- If the image is too large, click on it, grab the corner bracket and resize the image.

For a video of these instructions, view the embedded video or follow the link below.

**NEXT STEPS:** There’s an important email you need to read! Check the Learning Resources Page 1 page.
Step 7: Week 1 – Learning Resources email

Learning Resources - Page 1

Hello, my name is Myranda Hudiston and I am an Assistant Professor in the College of Education at Ottawa Dane University. Recently, Dr. Sloan contacted me requesting assistance with a school improvement project. As I understand it he has asked you and your team to make plans for conducting action research projects with a focus on improving graduation rates for the district, especially for students of diverse populations.

I am excited to offer you and your team my assistance and expertise in the area of action research in education. I hope you’ll find the experience rewarding, both for your district and your personal, professional practice. If you should need any assistance, please don’t hesitate to contact me using this email mhud001@odu.edu and I’ll make sure to respond within 24 hours of receiving your message.

To begin, I thought I would direct you to a really great text that covers all the ins and outs of action research. Dr. Sloan assured me there are copies for everyone, so make sure to grab yours and get started by reading the Preface (pp. xv - xii) and Chapter 1 (pp. 3 - 33)! Here’s the information about the book:


---

Myranda Hudiston  
Assistant Professor, Educational Research  
Department of Teaching & Leadership  
College of Education  
Ottawa Dane University

Step 8: Week 1 – What do I do now?

What do I do now?  
*Michele Hudibora*

You’re probably wondering what in the world you’re supposed to do now. There’s a letter for you at *Your Starting Point* that might help! There also a *discussion* that needs your attention.
Your Starting Point

This letter arrived for you today! (Link to actual letter file: Team Challenge Letter 📄)

[Scroll down after reading the letter. There's more to see!]

1/12/2015

TO: School Improvement Team
FROM: Dr. R.C. Sloan
RE: Getting Started and Brainstorming

Dear Sir,

Dr. Sloan would like to once again convey thanks for your agreement to serve on this valuable team. We understand your time is valuable, and it is in the best interest of the district to begin moving forward on the project. The Superintendent has asked me to convey expectations for the first task so you can get started. Dr. Sloan is confident the team has taken time to communicate with each other, and everyone is anxious to begin.

The first item of business Dr. Sloan would like you to tackle is brainstorming ideas for the project. The Superintendent asked that you be reminded of the goal of this project. Your task is to create a proposal for an action research project, exploring an instructional solution to...

- Ensure effective education for minority children, helping to increase graduation rates for the Long Fork Community School District.
- Install cultural awareness in the entire school community, creating a climate of unconscious competence towards cultural uniqueness.

To help facilitate collaboration between you and your team members, Dr. Sloan asked our Chief Information Officer to create a Google document editable by the entire team. An invitation to access the document has been sent to the primary email address you provided. Dr. Sloan has added more detailed instructions for your team on that document. If you have trouble accessing the document, or have not received an invitation, please contact me so I can promptly rectify any possible technical issues.

Sincerely,

Ms. Allison Newscomb
Administrative Assistant to the Superintendent
Long Fork Community Schools
asnewscomb@longforkschools.org
555.323.8912

At the end of the letter, the following instruction appeared:

STEP 1: Use the Brainstorming ideas document found under the Collaborate tab to complete Challenge #1.

STEP 2: Complete Challenge #1 by February 18. The Challenge is complete when all members of the team have contributed at least 5 different ideas addressing the problem presented in the letter you read at the top of this page.

Note: Nothing will be submitted in Canvas. The instructor will award each person 2 points for each idea contributed.
Step 10: Week 1 – Team Discussion

**Week 1 Team Discussion**

Michelle Hudiburg

Do you think action research can benefit you and your school district? If so, how? If not, why not?

- Post an original response
- Reply to each team member at least once.
- Reply to those who have replied to your original post at least once.

_Note:_ You should answer the question posed as though you are your chosen character.
II. Week 2

Step 1: Week 2 – Reading for Understanding Announcement

Ch 2 Presentation Overview

The Community Leader* on your team will have some important information to share on this page. Make sure you check back!

Next step: Once you have followed the directions on this page, visit the Exemplars of Action Research page.

*Community Leaders need to check their Character site for more information.

Step 3: Week 2 – Exemplars of Action Research

Exemplars of Action Research

The teacher* on your team will be sharing important information here. Make sure you check back!

Next step: Once you have explored any information shared on this page, proceed to the Week 2 Team Discussion.

*Teachers need to check their Character site for more information.
Step 4: Week 2 – Team Discussion

Introduction:
- Taking through the action research process as a group could be helpful for everyone’s understanding. For this activity, the team will focus on mathematics.

The Problem:
- Suppose that students in your school are not achieving at the desired level in the area of mathematics. Using the four-stage procedure for action research as presented in the chapter, briefly describe how you might systematically examine this problem.

The Task:
- Each group member is required to post an original audio response.
- Reply three (one text or audio) to each team member at least once.

NOTE: Don’t forget to interact as if you are your “game” character.
III. Week 3

Step 1: Week 3 – Reading for Understanding Announcement

Dr. Sloan has been asking some good questions that you and your team haven’t thought about. Seriously, would we study long-term effects of time-limits in math classes? Does that even matter? Is it too big and broad? How in the world are we supposed to know if our topic is doable? And we’ve all got 5 topics apiece, how do we choose the one we want to really study? Maybe McFer has some good ideas...

- You and your team should read pages 55-71 of Chapter 3 in Action Research: Improving Schools and Empowering Educators 4th ed.

Next Step: After reading pages 55-71 in Chapter 3, your next step is to visit Ch 3 Presentation Overview.

Step 2: Week 3 – Presentation Overview

Ch 3 Presentation Overview

Rumor has it the textbook information shared by the community leader last week isn’t just for Chapter 2!

Check out http://www.sagepub.com/mentlerlinerstudy/chapter.htm and see what resources are available for Chapter 3.

- Hint: For this week, videos 3.1 and 3.2 are relevant. And if you download the presentation slides don’t venture into the literature review slides because this project hasn’t progressed that far yet.

Next step: Visit Tools for Topic Refinement

Step 3: Week 3 – Tools for Topic Refinement

Tools for Topic Refinement

Everybody has explored different resources for refining action research topics. Share your revelations in this space.

Here’s What I Found:

Share your findings in the area below. (I have begun the list you, feel free to delete my placeholder text)

- [Add your information here. Hit “Enter” to create a new bullet point.]

Next step: An important message from Dr. Sloan just arrived in your Inbox!
Step 4: Week 3 – Inbox Message

Challenge #2 (Inbox)

Good morning!
I was able to speak with Dr. Myranda Hudston at Ottawa Dane University this week. She has agreed to block out some time to meet with each of you via Skype to help refine your topic choice. If you will recall, I've asked you to share at least 5 ideas with your team, talk about them with the team, and then each individual is to choose one topic to focus on. Dr. Hudston will be helping you hone your topic, making sure it is relevant, ethical and workable within our time frame.

She has created a document in Google Sheets to aid in sign up. Use this link http://bit.ly/1DannHn to access the sheet. When you access the sheet you'll see dates along the left and times along the top. Dr. Hudston asks that you put your name in the cell corresponding to your chosen time. And please only sign up for one time.

Thank you for making this a priority. I believe she has times starting as early as tomorrow, February 19 (Thursday). If you have questions Dr. Hudston said to email her at mthudston@odu.edu.

Sincerely,
R.C. Sloan, EdD
Superintendent
Long Fork Community School District

STEP 1: Visit the link to the Topic Refinement Schedule sign up sheet given in the email from Dr. Sloan.
STEP 2: Sign up for a time to meet with Dr. Hudston (aka Mrs. Hudiburg). Times are available on a first-come, first-served basis.
STEP 3: After your session with Dr. Hudston, go the Long Fork Group Project – Challenge #2 Assignment on the main Canvas page and submit your refined topic statement/question by the due date.

Next Step:
• Excitement is in the air because each member of the team now has a topic to pursue in more depth. You're just itching to share with the team your actual topic and how you and Professor Hudston worked to refine it.
  ◦ Navigate to the Week 3 Team discussion board.
  ◦ Follow the directions found there for quantity and quality of posts.

Step 5: Week 3 – Team Discussion

Week 3 Team Discussion

Michele Hudiburg

Share how your broadly defined topic became a focused question to use in your action research project.

• Each team member should post an original response.
• Reply to each team member at least once.
• Reply to those who have replied to their original posts at least once.

NOTE. Remember to interact with the team as if you are your “game” character.
IV. Week 4

Step 1: Week 4 – Reading for Understanding Announcement

Step 2: Week 4 – Presentation Overview

Ch 3 (Pt 2) Presentation Overview

This reviewing literature thing is starting to sound just a bit intimidating, and you’re not sure you understood everything you read. Hey, maybe the internet link that goes with the textbook has videos and information about this topic too!

- Go to http://www.sagepub.com/netherd6study/chapter.htm
- Make sure you watch Video 3.3
- If you downloaded the presentation slides last week, make sure you now look at the information regarding the literature review.
- You might want to download this file: Planning your Action Research Literature Review

Next Step: Dr. Sloan has some information to share that might be of assistance when looking for literature. Check the Sources For Related Literature page.

Step 3: Week 4 – Sources for Related Literature

Sources for Related Literature

Good evening. Professor Hullston and I spoke today. She told me one of the research librarians has offered his services to help with the next phase of the challenge. I believe the university library could be of great help as you move forward.

I want to strongly encourage you to take advantage of this generous offer.

Dr. Sloan

R.C. Sloan, EdD
Superintendent
Long Fork Community School District

Next Step: It appears a trip to the University Library is in order.
Step 4: Week 4 – University Library

The University Library

(Click the play button to take the library tour.)

Additional Resources for Axe Library:

- Document Delivery through ILLiad (interlibrary loan)
- Interlibrary Loan - books, articles, etc from other libraries if Axe doesn’t have it
- Library Databases by Subject
- Axe Library reference on YouTube - although dated, these videos may help as you begin to navigate the library's resources

Next Step: Once you've familiarized yourself with the university library go to the Researching and Referencing page.

Step 5: Week 4 – Researching and Referencing

Researching and Referencing

Surely there’s some way to help you start a good search (something like Google) before diving into the library’s vastness! And how in the world will you organize everything? Wait, what’s this... it looks like your Instructional Support team member found something worth sharing. YAY for teamwork!

*The instructional support team member needs to check their Character pages for specifics.

Next Step: A tax came for you this morning. It looked important so I made sure to put it on your desk.
Step 6: Week 4 – Fax transmission

Challenge #3 (Fax)

Fax

3/7/2015

From: Allen Newscomb
Phone: 555-123-9872
Fax: 555-123-9871
Company Name: Long Fork Community School District
Title: Members of the Long Fork Special School Improvement Team

Comments:

As per Dr. Shaw,

Please be advised that each member of the team should submit to Dr. Shaw an annotated bibliography of at least 10 resources used in the review of related literature for their specific research topic. Directions for creating an Annotated Bibliography can be found on the following link:

http://global.lib.txam.edu/login/login.pl?template=0835

Guidelines are provided:

1. No fewer than 10 credible resources.
2. Each resource should be cited using correct APA citation style.
3. Each resource should include a personal annotation:
   a. Include one or more sentences that
      i. evaluate the authority or background of the author,
      ii. (b) comment on the intended audience,
      iii. compare or contrast this work with another you have cited,
      iv. explain how this work illuminates your bibliography topic.
4. For your convenience, a template and one example are included on the next page of this transmission.
5. Submit the annotated bibliography to Dr. Shaw by the speed open date.

---

STEP 1: Follow the directions in Ms. Newscomb’s fax to complete Challenge #3. The template and example she spoke of can be found by clicking this link: Annotated Bibliography Template

STEP 2: Submit your Annotated Bibliography to the Long Fork Group Project – Challenge #3 assignment in the main Canvas area by March 11.

Next Step: You are a popular individual today! A letter arrived and I put it in your mailbox. I think it’s from the school board president. I hope you didn’t do anything you weren’t supposed to!
Step 7: Week 4 – Important Letter

**Challenge #4 (Letter)**

BARNES BROS. BANK AND TRUST

2/19/2016

Jonathan K. Barnes
Barnes Bros. Bank and Trust
21914 Magnolia Ct, Old Mountains, Ct.

Long Fork Community School District
Special School Improvement Team

To Whom It May Concern,

Dr. Sloan has informed the Board of Education that a team has been working to address the challenges arising from the state’s study earlier this school year. We are excited to hear that our students are making significant progress, and we look forward to conducting a study to potentially help our district keep its doors open in the future.

Because what you are planning to do has the potential to impact all of our schools, the members of the school board would like to present your plan at our next meeting. The meeting is Monday, March 16 at 7:00 PM.

We would like you to include the following in your presentation:
- One slide for each individual topic
- One slide with the question or problem you’re focusing on
- One slide with the statement of purpose for your project
- One slide describing the literature you’ll be using to defend your problem

A timeline for completion

Any other information that will help us understand what you are planning.

Thank you for giving your valuable time to the students and staff of Long Fork Community School. Working together we CAN make a difference in our school that will last a lifetime.

Sincerely,

Jonathan K. Barnes
Vice President of Operations
Barnes Bros. Bank and Trust

- **STEP 1**: As a team you will need to create the presentation requested by Mr. Barnes. (Google has a Presentation tool that’s great for collaborating. Prezi works pretty well too.)
- **STEP 2**: Submit your Presentation to the Long Fork Group Project – Challenge #4 assignment in the main Canvas area by March 11.

Next Step: You are about to panic! A review of literature? You have to do a review of literature? How in the world are you going to accomplish that? You need to hash this whole thing out with your team. Go to the Week 4 Team Discussion to decompress.

Step 8: Week 4 – Team Discussion

**Week 4 Team Discussion**

Jonah Maddern

What do you believe might be the most difficult aspect of conducting a review of literature related to a potential action research topic?

- Each group member is required to post an original response and reply to each team member at least once
- Reply to those who have replied to your original post at least once

**Note**: Don’t forget to interact with your team as your “game” character.
V. Week 5

Step 1: Week 5 – Final Team Meeting Announcement

Week 5: Final Team Meeting
Michele Hudiburg

Dr. Sloan is expecting you. Thank you for taking time to attend this final team meeting!

Step 2: Week 5 – Final Team Meeting

Final Team Meeting

Questions for Dr. Sloan? Please add them below and she will answer them as soon as her schedule allows:

- [Insert your questions. Hit the Enter key to add a new bullet point.]

Next Step: You need to debrief with your teammates once this process is all said and done. Visit Week 5 Team Discussion to do just that!
Step 3: Week 5 – Team Discussion

<table>
<thead>
<tr>
<th>Mail</th>
<th>Address Book</th>
<th>Calendar</th>
<th>Tasks</th>
<th>Briefcase</th>
<th>Preferences</th>
<th>Final team conv.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To: School Improvement Team
Cc:

**Final team conversation**

Thank you for being a critical part of the school improvement group. Your hard work and leadership at different stages of the game are appreciated. I have one last request of you. I would like to bring the team together, as one last time, to debrief and get feedback about the process because this might be something we implement again, at a later date. Once more, I thank you for all your dedication to helping Long Fork Community Schools be successful.

Sincerely,
R.C. Silva, Ed.D.
Superintendent
Long Fork Community School District

To Discuss with your team:

- What was the biggest challenge you faced while working on this project?
Appendix D. Pretest and Posttest of Student Learning

Note: The following was administered before and after the collaborative learning activity, and was delivered through the CLMS quiz functionality. The only difference between the pre and posttest was directions and the order of questions and answers. Answers are denoted with an * or are seen in ( ) at the end of a choice.

Pretest/Posttest

Directions (Pretest): Answer the following questions to the best of your ability. A grade will not be given for this quiz. This quiz is meant to assess your prior knowledge of the upcoming learning module’s content.

Directions (Posttest): You have completed a learning module focused on narrowing your research topic and conducting a review of related literature. Use the knowledge you gained during the learning module to answer the following questions. Each question is worth 2 points.

1. The first step in conducting an action research study is selecting the topic. (Remembering)
   a. True*
   b. False

2. It is not important for the action research topic to focus on a realistic classroom problem. (Remembering)
   a. True
   b. False*

3. Which of the following choices is NOT a main topic possibility for an action research project? (Understanding)
   a. Examining an area of interest
   b. Exploring education legislation*
   c. Identifying a problem
   d. Trying a new teaching method
4. Match the preliminary consideration of topic choices on the left with its essential question on the right. (Understanding)

<table>
<thead>
<tr>
<th>Personal Interest (B)</th>
<th>A. Will anyone be hurt because of my study?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importance (F)</td>
<td>B. Is the topic one I will enjoy working on?</td>
</tr>
<tr>
<td>Time (D)</td>
<td>C. Will I have enough resources to do the project?</td>
</tr>
<tr>
<td>Difficulty (E)</td>
<td>D. Will the research project interfere with my regular teaching/career duties?</td>
</tr>
<tr>
<td>Cost (C)</td>
<td>E. Do I have the skills needed to conduct the study I am considering?</td>
</tr>
<tr>
<td>Ethics (A)</td>
<td>F. Will the results of conducting this study make a difference?</td>
</tr>
</tbody>
</table>

5. You teach in a culturally diverse classroom, and you begin wondering what factors might affect learning among these culturally diverse students. In an effort to explore a more limited topic, you begin asking yourself why cultural diversity in your classroom might be a challenge. You eventually narrow your topic to studying Hispanic student’s perceptions of factors that make academic success more difficult because 42% of your students are of Hispanic origin. Why was it important to limit your topic as you did? (Thinking)

a. Narrowing the topic helps to establish research parameters.
b. Narrowing the topic helps set a focus for research.
c. Narrowing the topic helps give clarity and reduces ambiguity.
d. a and b
e. b and c
f. a and c
g. Neither a, b, or c
h. All choices a, b, and c*
6. In the table below are lists of broad topics, narrowed down to more specific versions for possible action research. For each narrowed topic, choose whether it will have a direct impact on student learning by selecting Y (Yes) or N (No). (Thinking)

<table>
<thead>
<tr>
<th>Broad Topic</th>
<th>Narrowed Version of Topic</th>
<th>Y/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>What teachers’ lives are like outside the school</td>
<td>Leisure activities of elementary teachers and the amount of time spent on them</td>
<td>(N)</td>
</tr>
<tr>
<td>Use of computers in the classroom program in helping students revise drafts of written stories</td>
<td>Effectiveness of a word processing program in helping students revise drafts of written stories</td>
<td>(Y)</td>
</tr>
<tr>
<td>Importance of reading practice in developing reading skills</td>
<td>Effect of reading practice with fifth-grade “buddies” on the developing reading skills of first-grade students</td>
<td>(Y)</td>
</tr>
<tr>
<td>What kind of food is served in the cafeteria</td>
<td>Effect of offering a salad bar to middle school students on the number of students choosing to eat school lunch versus bringing their own</td>
<td>(N)</td>
</tr>
<tr>
<td>Virtual dissection versus real dissection of lab specimens</td>
<td>Tenth-grade biology students’ perceptions of virtual and real animal dissections</td>
<td>(Y)</td>
</tr>
</tbody>
</table>

7. One way of narrowing, or “drilling down” an action research topic is using the “5 Why Process.” You have identified/observed a specific problem, “Students don’t perform well on spelling tests.” Using the “5 Why Process” put the following reasons (Whys) for the spelling problem in order from broadest to narrowest. (Using)
   a. Why - They don’t understand the rules of spelling. (4)
   b. Why - They don’t study in preparation for the tests. (1)
   c. Why - I have not taught them in a way that helps them to understand the various rules of spelling. (5)
   d. Why - They don’t learn the spelling rules; they just rely on trying to memorize each word. (3)
   e. Why - They assume that the tests will be easy and that they don’t need to study. (2)

8. The process of taking time to reflect on your own beliefs and to gain a better understanding of the nature and context of your research problem is called ____________________. (Remembering)
   a. interpersonal communication
   b. introspection
   c. personal reflection
   d. reconnaissance*
9. After narrowing your action research topic, it is important to gather preliminary information. To start, it is suggested you talk with other teachers, administrators or counselors in your school/district. (Understanding)
   a. True*
   b. False

10. When gathering preliminary information, which of the following elements is NOT included in a descriptive analysis? (Understanding)
   a. How is ________ done?
   b. What evidence exists that ________ is a problem?
   c. When is ________ taught or used? OR When is ________ an issue?
   d. Where does ________ fall in the scope of the curriculum? OR Where does the problem presented by ________ occur?
   e. Who is affected by ________?
   f. Why does ________ occur?*

11. Which is NOT true of a literature review? (Remembering)
   a. It is an examination of journal articles, ERIC documents, books, and other sources related to your action research project.
   b. It is an opportunity to locate examples of data collection, and data analysis techniques.
   c. It is a step in which the researcher may narrow the focus of the project.
   d. It is a step that is not required if the project concentrates on classroom techniques that are familiar.*

12. You know that you have done a reasonably good job of reviewing literature on a given topic when you begin to see the same articles and the same authors being cited in those articles. (Understanding)
   a. True*
   b. False

13. When looking for literature to review, you should search for literature having each of the following criteria: (Understanding)
   a. quality, objectivity, quantity
   b. quality, objectivity, timeliness*
   c. quality, subjectivity, timeliness
   d. quantity, objectivity, timeliness
   e. quantity, subjectivity, timeliness
14. Which of the following is NOT a good question to use when evaluating your literature review? (Thinking)
   a. Do I understand the current trends in the field?
   b. Do I understand the historical context of your topic?
   c. Have I included research that predominantly examines the side of an issue in which I most agree?*
   d. Do I believe that I have enough information to design a good action research project?

15. You are proposing to study the effectiveness of whole-language instruction. Because the focus of your study rests in whole-language instruction there is no need to search literature related to the effectiveness of phonics instruction. (Thinking)
   a. True
   b. False*

16. Examine the two citations and abstracts below. Keeping in mind the criteria for choosing literature to review, which of the articles should you select when reviewing the literature related to an action research project focused on, “Strategies for improving the effectiveness of parent-teacher conferences in the American public high school?” (Using)
      **Abstract:** The literature on parent involvement in education contains many implications for teacher education. Numerous studies have established that different approaches to parent involvement produce various outcomes for parents and students, including different achievement for elementary students. The teacher’s role, particularly in the elementary school, interacts with 6 types of parent involvement: (1) parent as audience, (2) parent as volunteer, (3) parent as paraprofessional, (4) parent as teacher of own child, (5) parent as learner, and (6) parent as decision maker. Unfortunately, the number of courses and professional experiences in parent involvement included in the preservice and in-service preparation of teachers is insufficient. 10 recommendations for teacher education are drawn from the literature.
      **Abstract:** Parent-teacher conferences offer an opportunity to cooperatively prevent and solve learning and behavior problems. The phases of a parent-teacher conference include: preconference phase (notification, preparation, agenda planning, and arranging environments); conference phase, which utilizes a problem-solving approach; and post conference phase, which includes conference evaluation and communication with the student.
17. Consider the following scenario, “Kathleen would like to try something new this year with her students in order to improve their reading comprehension skills. Currently, she relies on both oral and written comprehension questions – asked of students on an individual basis – following a reading assignment, as well as small-group discussions and book projects that focus on comprehension skills. One day during her planning time, she conducted a brief search of ERIC in the computer lab. She found several articles that provided her with ideas for ways to improve her students’ comprehension skills. Several of the techniques showed promise, although she read a number of articles that also criticized the potential effectiveness of those techniques.” Which of the following would NOT be a benefit of reviewing related literature? (Using)
   a. The search of literature can help establish a connection to what others have already done.
   b. The search of literature offers ideas for replication in the current classroom setting.
   c. The search of literature does not offer any examples of classroom applications to help solve the problem.*
   d. The search of literature may not provide easy answers to the problem, but allows for better focus.

18. Primary sources of information are not first-hand accounts; they do not consist of original research. (Understanding)
   a. True
   b. False

19. Which of the following can be considered a primary source? (Understanding)
   a. Newspaper stories
   b. Original research articles*
   c. Reference books such as Review of Educational Research
   d. Textbooks

20. When searching online databases for literature related to your action research topic, it is best to limit your search terms using BOOLEAN operators. BOOLEAN operators consist of the following: (Thinking)
   a. +, -, =
   b. ALWAYS, SOMETIMES, NEVER
   c. AND, OR, NOT*
   d. YES, NO, MAYBE
21. You have decided to focus your action research topic on the effects of extrinsic rewards on intrinsic motivation by examining how the elimination of a token economy affects participation in math enrichment activities. You’ve just read an article by Mark R. Lepper titled “Extrinsic Reward and Intrinsic Motivation: Implications for the Classroom.” While fascinating, you know a good review of related literature means perusing more than one source. Turning to the Reference section of the paper, you locate several other articles that may be of interest. Choose the articles that may help you conduct a more thorough review of related literature (there may be more than one correct answer).

(Using)


22. While perusing the reference section of a recently read article pertinent to your action research project, you discover other articles to explore as you continue a review of the related literature. Which of the following is NOT a good place to start when looking for a copy of the articles? (Using)

a. ERIC
b. Google Scholar
c. Interlibrary loan desk*
d. Reference desk in the university library
e. University library website

23. As a distance education student you cannot access the university library and must rely on your local, public library or what you can find using online resources. (Using)

a. True
b. False*
24. A literature review is best organized as an annotated list of summaries of research. (Understanding)
   a. True
   b. False*

25. The purpose of the literature review is to convey historical context of the topic, trends experienced by the topic, how theory has informed practice, and vice versa. (Thinking)
   a. True*
   b. False

26. When should direct quotes be used in a written review of literature? (Thinking)
   a. There should be a direct quote in every paragraph of the review.
   b. Interspersed throughout the body of the review.
   c. If at all possible, direct quotes should be avoided.*

27. Choose the correctly written APA citation. (Thinking)

28. The literature review is meant to... (Thinking)
   a. …explain concepts, define terms, and teach the reader about previous studies related to the chosen topic.
   b. …analyze the literature, based on earlier findings and what will most influence your study.*
   c. …build an annotated list of literature related to the proposed study.
   d. …reveal the author’s opinion about the problem proposed in the study.
29. Choose the paragraph that represents good structure for a written literature review.

(Using)

a.

Until recently many researchers have shown interest in the field of coastal erosion and the resulting beach profiles. They have carried out numerous laboratory experiments and field observations to illuminate the darkness of this field. Their findings and suggestions are reviewed here.

JACHOWSKI (1964) developed a model investigation conducted on the interlocking precast concrete block seawall. After a result of a survey of damages caused by the severe storm at the coast of USA, a new and especially shaped concrete block was developed for use in shore protection. This block was designed to be used in a revetment type seawall that would be both durable and economical as well as reduce wave run-up and overtopping, and scour at its base or toe. It was proved that effective shore protection could be designed utilizing these units.

HOM-MA and HORIKAWA (1964) studied waves' forces acting on the seawall which was located inside the surf zone. On the basis of the experimental results conducted to measure waves forces against a vertical wall, the authors proposed an empirical formula of wave pressure distribution on a seawall. The computed results obtained by using the above formula were compared well with the field data of wave pressure on a vertical wall.

SELEZOV and ZHELEZNYAK (1965) conducted experiments on scour of sea bottom in front of harbor seawalls, basing on the theoretical investigation of solitary wave interaction with a vertical wall using Boussinesque type equation. It showed that the numerical results were in reasonable agreement with laboratory experimental data.

b.

Automated storage and retrieval systems (AS/RS) are being introduced into the industry and warehousing at an increasing rate. Forecasts indicate that this trend will continue for the foreseeable future (see [1]). Research in the area of AS/RS has followed several avenues. Early work by Hausman, Schwarz and Graves [6, 7] was concerned with storage assignment and interleaving policies, based on turnover rates of the various items. Elsayed [3] and Elsayed and Stern [4] compared algorithms for handling orders in AR/RS. Additional work by Karasawa et al. [9], Azadivar [2] and Parry et al. [11] deals with the design of an AS/RS and the determination of its throughput by simulation and optimization techniques.

Several researchers addressed the problem of the optimal handling unit (pallet or container) size, to be used in material handling and warehousing systems. Steudel [13], Tanchoco and Ager [14], Tanchoco et al. [15] and Grasso and Tanchoco [5] studied various aspects of this subject. The last two references incorporate the size of the pallet, or unit load, in evaluation of the optimal lot sizes for multi-inventory systems with limited storage space. In a report on a specific case, Normandin [10] has demonstrated that using the 'best-size' container can result in considerable savings. A simulation model combining container size and warehouse capacity considerations, in an AS/RS environment, was developed by Kadosh [8]. The general results, reflecting the stochastic nature of the flow of goods, are similar to those reported by Rosenblatt and Roll [12]. Nevertheless, container size was found to affect strongly overall warehousing costs.

In this paper, we present an analytical framework for approximating the optimal size of a warehouse container. The approximation is based on a series of generalizations and specific
30. Match the part of the literature review, on the left, with its brief description, on the right.

(Using)

**Introduction (D)**

A. A summary of prior research and its contributions to the field. Identifies and discusses the pros/cons, strengths/weaknesses of the body of literature. Expresses what is missing from the literature and serves as a focus for the proposed study/methodology.

**Body (C)**

B. A list of each piece of literature that was cited throughout the literature review. The list should be formatted as specified by the publisher’s requested style.

**Purpose Statement (A)**

C. Breaks down major themes into chunks, synthesizing subsets of the literature. As each theme is explored, the focus of the literature narrows to subtopics most related to the study.

**In-line citations (E)**

D. Describes the overall topic and its importance to you and the profession. Should discuss any major themes, subtopics, or trends in prior research.

**References (B)**

E. Annotations within the literature review designed to direct the reader to the original source of information. Annotations should appear for each statement of fact presented by the author.
### Appendix E. Table of Specifications for Pre and Posttests

<table>
<thead>
<tr>
<th>Content</th>
<th>Skills</th>
<th>Remembering</th>
<th>Understanding</th>
<th>Thinking</th>
<th>Using</th>
<th>Content Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic Identification</td>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Gathering Preliminary information</td>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Review of Related Literature</td>
<td></td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Library Skills</td>
<td></td>
<td>2</td>
<td>1</td>
<td></td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Writing a formal Literature Review</td>
<td></td>
<td>1</td>
<td>4</td>
<td>2</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Skills Totals</td>
<td></td>
<td>4</td>
<td>9</td>
<td>9</td>
<td>8</td>
<td>30</td>
</tr>
</tbody>
</table>
### Appendix F. Pre and Posttest Expert Evaluation Matrix

<table>
<thead>
<tr>
<th>Instructor Comments</th>
<th>Instructor 1</th>
<th>Instructor 2</th>
<th>Revisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stem for #3 is confusing.</td>
<td>X</td>
<td>X</td>
<td>Rewrite stem for #3</td>
</tr>
<tr>
<td>There are two possible answers for #19, the way it’s written.</td>
<td>X</td>
<td></td>
<td>Ask both instructors, together to look at #19 and make a suggestion, if needed.</td>
</tr>
<tr>
<td>There are a lot of True/False questions.</td>
<td>X</td>
<td>X</td>
<td>Considered reasoning for using T/F questions. Changed 3 questions to regular multiple choice.</td>
</tr>
<tr>
<td>You give options for more than one answer on a couple of questions. Have you included all possibilities?</td>
<td>X</td>
<td></td>
<td>Ask Instructor 2 to check multiple answer options. Verified all options were present.</td>
</tr>
<tr>
<td>How are you going to present the table question (#6) in Canvas?</td>
<td>X</td>
<td>X</td>
<td>Checked Canvas. Made the question a multiple answer having BROAD and NARROW in each answer possibility.</td>
</tr>
<tr>
<td>How are you going to present the ranking question (37) in Canvas?</td>
<td>X</td>
<td>X</td>
<td>Checked Canvas. Decided the best way to present the question was as a matching question, with rank on the left and choices on the right.</td>
</tr>
<tr>
<td>Several questions ask students to consider the NOT of the question. How will you make that clear?</td>
<td>X</td>
<td></td>
<td>Made sure the word “not” was capitalized when it played a crucial role in knowing the correct answer.</td>
</tr>
<tr>
<td>Questions are presented in order of textbook and content instruction. Will you mix questions?</td>
<td>X</td>
<td>X</td>
<td>Told both instructors that questions would be rearranged (in random order) when put in Canvas.</td>
</tr>
</tbody>
</table>

### Questions

1. Were directions clear? Yes Yes

| 2. Did the questions meet the specified objectives? | I think there’s an overemphasis on the lit review. | Yes. Can I use this in my class? | After the first instructor commented, I reviewed the questions and found I agreed. Changed the Table of Specs and test items to reflect a more balanced view of the learning content. |

3. Did the questions address higher order thinking, even though they were all multiple choice? | The difficulty is good, but you might consider making a couple of questions more rigorous – maybe more using? | I would like to see more thinking questions. | Added both a using and a thinking question, eliminated/revised one remembering and one understanding question |
Appendix G. Pre-Assessment Questionnaire

Note: Section 2 of this questionnaire is based on the MOGQ instrument used by Demetrovics, et al. (2011). Section 3 of this questionnaire is based on the SIMS instrument used by Guay, Vallerand and Blanchard (2000).

Instructions: This questionnaire is designed to measure your perceptions on various aspects of this class. There is no right or wrong answer for each question. Your participation is entirely voluntary and will in no way affect your grade in the course. We will use the information you provide to add to our understanding of online collaborative learning from the student perspective. All your answers will, of course, be kept confidential. It should take you about 10-15 minutes to complete the survey.

We are conducting this research with Professor Ginger Watson of Old Dominion University. If you have any questions concerning your rights as a research participant that have not been answered by the investigator or if you wish to report any concern about the study, you may contact Ed Gomez the current Human Subjects Chair for the Darden College of Education at 757-683-6309, edgomez@odu.edu at Old Dominion University. By clicking the submit button at the end of the survey you confirm that you have read and understand this section and consent to participate in the survey.

When you have finished, be sure to use the "Submit Survey" button (located at the bottom of this form). Thank you for your cooperation and assistance.

SECTION 1: General Information

The following questions are related to your background and experience with the concepts of gaming and online collaborative learning. Please read and answer the questions carefully.

1. What is your gender?
   a. Male
   b. Female

2. What is your age
   a. Under 18
   b. 18-25
   c. 26-35
   d. 36-45
   e. 46-55
   f. Over 55

3. What is your predominant ethnic background?
   a. Caucasian
   b. African-American
   c. Latino
   d. Asian Pacific/Islander
   e. Native American/American Indian
f. Other

4. Please estimate your level of gaming experience.
   a. No experience
   b. Novice
   c. Intermediate
   d. Expert

5. How many hours a week do you spend playing games? (video games, board games, role-playing games, social games, etc.)
   a. 0
   b. 1-3
   c. 4-6
   d. More than 6

6. Up to now, in how many online courses have you participated?
   a. 0
   b. 1-3
   c. 4-6
   d. More than 6

7. In how many online collaborative learning activities have you participated?
   a. 0
   b. 1-3
   c. 4-6
   d. More than 6

SECTION 2: Perspectives of Gaming

People play games for different reasons. Some reasons are listed below. Please indicate why you think people play games for the reasons listed by circling the appropriate response -- almost never/never (1), some of the time (2), half of the time (3), most of the time (4), almost always/always (5). There is no right or wrong answer! We are only interested in your perspectives of gaming.

1. I play games because I can get to know new people.
2. I play games because gaming helps them to forget about daily hassles.
3. I play games because I enjoy competing with others.
4. I play games because gaming helps me get into a better mood.
5. I play games because gaming sharpens my senses.
6. I play games because I can do things that I am unable to do or I am not allowed to do in real life.
7. I play games for recreation.
8. I play games because I can meet many different people.
9. I play games because it makes me forget real life.
10. I play games because I like to win.
11. I play games because it helps me get rid of stress.
12. I play games because it improves my skills.
13. I play games to feel as if I am somebody else.
14. I play games because it is entertaining.
15. I play games because it is a good social experience.
16. I play games because gaming helps me escape reality.
17. I play games because it is good to feel that I am better than others.
18. I play games because it helps me channel my aggression.
19. I play games because it improves my concentration.
20. I play games to be somebody else for a while.
21. I play games because I enjoy gaming.
22. I play games because gaming gives me company.
23. I play games to forget about unpleasant things or offences.
24. I play games for the pleasure of defeating others.
25. I play games because it reduces tension.
26. I play games because it improves my coordination skills.
27. I play games because I can be in another world.

SECTION 3: Motivation

Read each item carefully. Using the scale below, please choose the number that best describes the reason why you are currently engaged in collaborative online learning. Answer each item according to the following scale: 1: corresponds not at all; 2: corresponds a very little; 3: corresponds a little; 4: corresponds moderately; 5: corresponds enough; 6: corresponds a lot; 7: corresponds exactly.

Why are you currently engaged in collaborative online learning?

1. Because I think that collaborative online learning is interesting
2. Because I am doing it for my own good
3. Because I am supposed to do it
4. There may be good reasons to do collaborative online learning, but personally I don’t see any
5. Because I think that collaborative online learning is pleasant
6. Because I think that collaborative online learning is good for me
7. Because collaborative online learning is something that I have to do
8. I do collaborative online learning but I am not sure if it is worth it
9. Because collaborative online learning is fun
10. By personal decision
11. Because I don’t have any choice
12. I don’t know; I don’t see what collaborative online learning brings me
13. Because I feel good when doing collaborative online learning
14. Because I believe that collaborative online learning is important for me
15. Because I feel that I have to do collaborative online learning
16. I do collaborative online learning, but I am not sure it is a good thing to pursue it

NOTE: Participants must provide a response to each survey item.
Appendix H. Post-Assessment Questionnaire

Note: Section 1 of this questionnaire is based on the CLSS instrument used by So and Brush (2008). Section 2 of this questionnaire is based on the SIMS instrument used by Guay, Vallerand and Blanchard (2000). Section 3 of this questionnaire is based on the IMMS instrument by Keller (2008).

Instructions: This questionnaire is designed to measure your perceptions on various aspects of this class. There is no right or wrong answer for each question. Your participation is entirely voluntary and will in no way affect your grade in the course. We will use the information you provide to add to our understanding of online collaborative learning from the student perspective. All your answers will, of course, be kept confidential. It should take you about 10-15 minutes to complete the survey.

We are conducting this research with Professor Ginger Watson of Old Dominion University. If you have any questions concerning your rights as a research participant that have not been answered by the investigator or if you wish to report any concern about the study, you may contact Dr. George Maihafer the current IRB chair at 757-683-4520 at Old Dominion University. By clicking the submit button at the end of the survey you confirm that you have read and understand this section and consent to participate in the survey.

When you have finished, be sure to use the "Submit Survey" button (located at the bottom of this form). Thank you for your cooperation and assistance.

SECTION 1: Collaborative Online Learning

Instructions: This questionnaire is designed to measure your perceptions on the level of collaborative learning in this course. There is no right or wrong answer for each question. However, it is important for you to respond as accurately as possible by checking the most appropriate response. Respond to each statement using the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

1. Collaborative learning experience in the online learning environment is better than in a face-to-face learning environment.
2. I felt part of a learning community in my group.
3. I actively exchanged my ideas with group members.
4. I was able to develop new skills and knowledge from other members in my group.
5. I was able to develop problem solving skills through peer collaboration.
6. Collaborative learning in my group was effective.
7. Collaborative learning in my group was time consuming.
8. Overall, I am satisfied with my collaborative learning experience in this course.
SECTION 2: Individual Motivation

Directions: Read each item carefully. Using the scale below, please choose the number that best describes the reason why you were recently engaged in collaborative online learning. Answer each item according to the following scale: 1 = corresponds not all, 2 = corresponds a very little, 3 = corresponds a little, 4 = corresponds moderately, 5 = corresponds enough; 6 = corresponds a lot, 7 = corresponds exactly.

Why are you currently engaged in collaborative online learning?

1. Because I think that collaborative online learning is interesting
2. Because I was doing it for my own good
3. Because I was supposed to do it
4. There may be good reasons to do collaborative online learning, but personally I don’t see any
5. Because I think that collaborative online learning is pleasant
6. Because I think that collaborative online learning is good for me
7. Because collaborative online learning is something that I have to do
8. I do collaborative online learning but I am not sure if it is worth it
9. Because collaborative online learning is fun
10. By personal decision
11. Because I don’t have any choice
12. I don’t know; I don’t see what collaborative online learning brings me
13. Because I feel good when doing collaborative online learning
14. Because I believe that collaborative online learning is important for me
15. Because I feel that I have to do collaborative online learning
16. I do collaborative online learning, but I am not sure it is a good thing to pursue it

SECTION 3: Impact of Motivational Design

Read each item carefully. Using the scale below, choose the number that best describes your perception of the instructional materials provided during your collaborative learning activity. Answer each item according to the following scale 1 = not true, 2 = slightly true, 3 = moderately true, 4 = mostly true, and 5 = very true.

1. There was something interesting at the beginning of the online collaborative activity that got my attention.
2. The online collaborative activity was more difficult to understand than I would like for it to be.
3. After reading the introductory information, I felt confident that I knew what I was supposed to learn from the online collaborative activity.
4. Completing the exercises in the online collaborative activity gave me a satisfying feeling of accomplishment.
5. It is clear to me how the content of the online collaborative activity is related to things I already know.
6. Many of the pages had so much information that it was hard to pick out and remember the important points.
7. The online collaborative activity pages are eye-catching.
8. Completing the online collaborative activity successfully was important to me.
9. The quality of the writing helped to hold my attention.
10. The online collaborative activity is so abstract that it was hard to keep my attention on it.
11. As I worked on the online collaborative activity, I was confident that I could learn the content.
12. I enjoyed the online collaborative activity that I am anticipating learning more about this topic.
13. The design of the online collaborative activity looks dry and unappealing.
14. The content of the online collaborative activity is relevant to my interests.
15. The way the information is arranged in the online collaborative activity helped keep my attention.
16. The exercises in the online collaborative activity were too difficult.
17. The online collaborative activity has things that stimulated my curiosity.
18. I really enjoyed studying the topic during the online collaborative activity.
19. The amount of repetition in the online collaborative activity caused me to get bored sometimes.
20. The content and style of writing in the online collaborative activity convey the impression that its content is worth knowing.
21. I learned some things that were surprising or unexpected.
22. After working on the online collaborative activity, I was confident that I would be able to pass a test on the lesson’s content.
23. The working of feedback after the exercises, or of other comments in the online collaborative activity, helped me feel rewarded for my effort.
24. The variety of reading passages, exercises, illustrations, etc. helped keep my attention during the online collaborative activity.
25. The style of writing is boring.
26. I could relate the content of the online collaborative activity to things I have seen, done or thought about in my own life.
27. There are so many words on each page that it is irritating.
28. It felt good to successfully complete the online collaborative activity.
29. The content of the online collaborative activity will be useful to me.
30. I could not really understand quite a bit of the material in the online collaborative activity.
31. The good organization of the content helped me be confident that I would learn this material.
32. It was a pleasure to work on such a well-designed project.

NOTE: Participants must provide a response to each survey item.
Appendix I. Personal Interview Questions

1. Tell me about your experience working on the collaborative project you were assigned during this course.
2. Part of collaborative activities is dividing labor to create the finished product or solve the problem. How was labor divided in your group and why was it divided as it was?
3. If you could change anything about the group project you participated in, what would it be? Why?
4. Tell me about your reaction whenever a professor says there will be a group project in one of your online classes. How did your feelings differ after taking part in your most recent collaborative experience?
5. What do you find most beneficial about working in online groups?
6. What do you find least beneficial about working in online groups?
7. Tell me how you overcame hurdles, like everyone being in different locations, while working in online groups.
8. Share any ideas you have for making online group work/collaboration more successful and beneficial to your learning.
9. (Gamified students only) What was your perception of the gamified learning experience?
Appendix J. Common Instructional Materials for both Traditional and Gamified Collaborative Teams

Note: Instructional materials and instructions presented to both groups during each week of the online collaborative project are presented here. Each week begins on a new page.

I. Week 1

Step 1: Week 1 – Module at a Glance Page

Module Objectives: Upon completing this module the learner will...

- Understand the differences between traditional educational research and action research.
- Articulate what action research is and is not.
- Know why action research is important for connecting theory and practice.
- Name ways action research can be applied.
- Explore ways to assure rigor is observable in action research projects.
- Generate ideas for possible action research projects that could contribute to school improvement efforts.
- Discuss ideas for action research projects that would contribute to personal growth and development as an educator.

Module At a Glance:

1. Take PreTest.
2. Take PreAssessment Questionnaire
3. Go to the The Problem page, no later than Friday, February 6.
4. Complete any and all assigned tasks as presented on your Long Fork Group Projects Large Group page.
   1. Note: Some tasks are date specific, so please check your Group pages regularly and make note of when items are due to be completed.
   2. Communicate with group members as specified on your Group page, no later than Saturday, February 7.

Group Area Navigation (IMPORTANT!)

- When entering the group area you will see the Activity feed.
  - The FIRST thing you should always do is check for Announcements.
  - ALWAYS start navigating in the group areas by checking Announcements.
- Each page should have a link to another page within the group area.
  - Make sure you follow the links on each page.
  - Use the provided links to navigate through the content.
  - The links are provided because the Canvas group area does not allow me to rearrange pages in the order I want them. So, USE THE LINKS!
- Make sure you view ALL videos and read ALL content so that you understand the learning content being presented.
- Make sure to check the group area at least every 3 days to ensure you do not miss important directions.
Step 2: Week 1 – The Problem (set the stage for all students)

The problem presented here was given to both the gamified and traditional groups. The newspaper clipping was created using the online application fodey.com. The application can be found at http://www.fodey.com/generators/newspaper/snippet.asp.
II. Week 2

Step 1: Week 2 – Module at a Glance

Brainstorming (Part 2) - START HERE

Module Objectives: Upon completing this module the learner will...

- Create a list of possible action research topics.
- Understand the 4 stages of action research.
- Be introduced to the 9 steps in the action research process.
- Discuss how the 4 stages of action research can be applied to a real-life problem.

SCROLL DOWN. There's been a Navigation Checklist added, so don't forget to scroll to the bottom of the page. :-) 

Module at a Glance:

1. More specific directions will be given in your 80s movie or fictional school group site.
   1. Explore Chapter 2
   2. Participate in Week 2 Team discussion
   3. Complete Challenge #1

Navigation Checklist

- From this page go directly to your 80s movie or fictional school group page.
  - Read the Announcement: Week 2: Reading for Understanding
  - Visit the Ch 2 Presentation Overview hyperlink to move forward in the content.
  - Once you have completed that page, use the Exemplar of Action Research hyperlink to navigate forward in the content.
  - Visit the Examples of Action Research page and follow the directions there.
  - Once you have completed that page, use the Week 2 Team Discussion hyperlink to navigate forward in the content.
  - Participate in the Week 2 Team Discussion
  - Visit the Brainstorming Ideas collaboration page, adding and revising ideas as necessary.

Challenge #1 Reminder (from Sunday)

1. Go to your SMALL group team page. The name of the group should be either a classic 80s movie or a fictional school.
   1. NOTE: Unless I tell you otherwise you will now do all your work within the small group area in Canvas. If I want you to visit another page I will give you specific directions.
2. Check the Announcement titled “What do I do now?” that appears in your small group space.
3. Follow the link from the Announcement to more specific directions.
4. Find a scoring rubric and a Completion Checklist on the Challenge #1 assignment page.
III. Week 3

Step 1: Week 3 – Module at a Glance

**Topic Refinement - START HERE**

Module Objectives: Upon completing this module the learner will...

- Choose one topic for the focus of the individual action research project.
- Understand the process of refining the individual action research topic.
- Discuss the process of refining the individual action research topic.

**SCROLL DOWN**. There’s been a Navigation Checklist added, so don’t forget to scroll to the bottom of the page. :-) 

**Module at a Glance:**

1. I am conducting some preliminary research. If you choose to participate in the surveys, please go to the Survey page and follow the link for access.
2. CONTENT learning for Module 7 - More specific directions will be given in your 80s movie or fictional school group site (NOTE: I hope you’re not looking for groups with these specific names, the groups will be actual titles of 80s movies or a fictional school).
   1. Explore Part 1 of Chapter 3
   2. Participate in Week 3 Team discussion
   3. Begin Challenge #2

**Navigation Checklist**

- From this page go directly to your 80s movie or fictional school group page.
  - Read the Announcement: Week 3: Reading for Understanding
  - Once you have completed that page, use the Ch 3 Presentation Overview hyperlink to move forward in the content.
  - Visit the Ch 3 Presentation Overview page and follow the directions
  - Once you have completed that page, use the Tools for Topic Refinement hyperlink to navigate forward in the content.
  - Visit the Tools for Topic Refinement page and follow the directions there.
  - Once you have completed that page, use the Challenge #2 hyperlink to navigate forward in the content.
  - Complete instructions for Challenge #2
    - Revisit the Brainstorming Place collaboration page, to choose the topic you want to focus on for your individual research project and to help you with Challenge #2.
    - Once you have completed Challenge #2 instructions, use the Week 3 Team Discussion hyperlink to navigate forward in the content.
  - Participate in the Week 3 Team Discussion

**NOTE:** On your team page a Navigation page has been added. I recommend that you use the hyperlinks FIRST. Once you have navigated the hyperlinks you can use the Navigation page. Access the page by clicking Pages on the left side of your team site.
IV. Week 4

Step 1: Week 4 – Module at a Glance

Review of Related Literature - START HERE

Module Objectives: Upon completing this module the learner will...

- Choose one topic for the focus of the individual action research project.
- Understand the process of refining the individual action research topic.
- Discuss the process of refining the individual action research topic.

SCROLL DOWN. There's been a Navigation Checklist added. So don't forget to scroll to the bottom of the page. ;-) 

Module at a Glance:

1. IMPORTANT! If you are willing to take part in the surveys I am administering, please take time this week to complete them.

   1. For those who have participated, thank you! If you thought last week you wouldn't participate, but have since changed your mind, then you are welcome to go back and participate.
   2. If you choose to participate in the surveys, please go to the Survey page and follow the link for access.
   3. (All of this information has been pulled into Module 8.)

2. CONTENT learning for Module 8 - More specific directions will be given in your 80s movie or fictional school group sites.

   1. Explore Part 2 of Chapter 3
   2. Participate in Week 4 Team discussion
   3. Complete Challenge #2
   4. Begin Challenge #3
   5. Familiarize yourself with Challenge #4

Navigation Checklist

- From this page go directly to your 80s movie or fictional school group page.
  
  - Read the Announcement: Week 4: Reading for Understanding
  
  - Once you have completed that page, use the Ch 3 (P2) Presentation Overview hyperlink to move forward in the content.
  
  - Visit the Ch 3 (P2) Presentation Overview page and follow the directions.
  
  - Once you have completed that page, use the Sources for Related Literature and/or the University Library hyperlink to navigate forward in the content.
  
  - Visit the Sources for Related Literature and/or the University Library page and follow the directions there.
  
  - Once you have completed that page, use the Researching and Referencing hyperlink to navigate forward in the content.
  
  - Visit the Researching and Referencing page and follow the directions there.
  
  - Once you have completed that page, use the Challenge #3 hyperlink to navigate forward in the content.
  
  - Complete instructions for Challenge #3
  
  - Once you have completed Challenge #3 instructions, use the Challenge #4 hyperlink to navigate forward in the content.
  
  - Read the Challenge #4 instructions. You will probably not start on this project this week, but I wanted you to be familiar with it so you have time to make a plan with your team.
  
  - Once you have read the Challenge #4 information use the Week 4 Team Discussion hyperlink to navigate forward in the content.
  
  - Participate in the Week 4 Team Discussion

NOTE: On your team page a Navigation page has been added. I recommend that you use the hyperlinks! FIRST: Once you have navigated the hyperlinks you can use the Navigation page. Access the page by clicking Pages on the left side of your team site. (There's a video below. If you can't see it, click the little gray shade on the address bar.)
V. Week 5

Step 1: Week 5 – Module at a Glance

Review of Related Literature, Pt 2 - START HERE

Module Objectives: Upon completing this module the learner will...

- Understand the process of reviewing literature for an action research topic.
- Create an Annotated Bibliography of literature related to the chosen action research topic.
- Create a presentation, defending topic choice and chosen literature.
- Discuss the process of finding literature for an individual action research topic.

SCROLL DOWN. There’s been a Navigation Checklist added, so don’t forget to scroll to the bottom of the page. :-) 

Module at a Glance:

1. CONTENT learning for Module 9 - More specific directions will be given in your 80s movie or fictional school group sites.
   1. Participate in Week 5 Team discussion
   2. Complete Challenge #3
      1. Make sure to check your Completion Checklist (found in the Canvas assignment), the project rubric, and the Completion Timeline
   3. Along with your team, complete Challenge #4
      1. Make sure to check your Completion Checklist (found in the Canvas assignment), the project rubric, and the Completion Timeline

Navigation Checklist

- From this page go directly to your 80s movie or fictional school group page.
  - Read the Announcement: Week 5: Final Team Meeting
    - Follow the Final Team Meeting hyperlink.
  - Attend the Final Team Meeting by following any directions given on the page.
    - Once you have completed the Final Team Meeting, use the Week 5 Team Discussion hyperlink to access this week’s topic.
  - Participate in the Week 5 Team Discussion.
  - To navigate through the content, click on Pages at the left of your screen. Use the main navigation page to work through the Week 5 content.
    - Read the Announcement for Week 5
    - Participate in the Final Team Meeting
    - Visit Challenge #3
    - Visit Challenge #4
    - Complete Week 5 Team Discussion
Appendix K. Navigation Maps for Traditional and Gamified Collaboration Teams

Note: Starting in Week 3, the instructor added navigation maps to help students locate material within the CLMS group pages. The Traditional group navigation maps are on this page, and the Gamified group navigation maps are on the next page.

Traditional Collaborative Team – Navigating the Project

Navigating the Project

Use this page ONLY AFTER you’ve navigated through the content using the provided hyperlinks.

Week 5:

The following pages are what should be visited to complete content learning and activities for Week 5 of the Long Fork Project. They should be accessed in the order provided.

- Week 5: Final Team Meeting
- Final Team Meeting
- Week 5 Team Discussion
- Challenge #3
- Challenge #4

Week 4:

The following pages are what should be visited to complete content learning and activities for Week 4 of the Long Fork Project. They should be accessed in the order provided.

- Week 4: Reading for Understanding
- Ch 3 (Pt 2) Presentation Overview
- The University Library
- Researching and Referencing
- Challenge #2
- Challenge #4
- Week 4 Team Discussion

Week 3:

The following pages are what should be visited to complete content learning and activities for Week 3 of the Long Fork Project. They should be accessed in the order provided.

- Week 3: Reading for Understanding
- Ch 3 Presentation Overview
- Tools For Topic Refinement
- Challenge #2
- Week 3 Team Discussion
- You’ll also need to submit to the Challenge #2 assignment in the main Canvas area.
Gamified Collaborative Team – Navigating the Game

Navigating the Game

Use this page ONLY AFTER you've navigated through the content using the provided hyperlinks.

Week 5:

The following pages are what should be visited to complete content learning and activities for Week 5 of the Long Fork Project. They should be accessed in the order provided.

- Week 5: Final Team Meeting
- Final Team Meeting
- Week 5 Team Discussion
- Challenge #2 (Fax)
- Challenge #4 (Letter)

Week 4:

The following pages are what should be visited to complete content learning and activities for Week 4 of the Long Fork Project. They should be accessed in the order provided.

- Week 4: Reading for Understanding
- Ch 1 (Pt 2) Presentation Overview
- Sources for Related Literature
- The University Library
- Researching and Referencing
- Fax (Challenge #3)
- Letter (Challenge #4)
- Week 4 Team Discussion

Week 3:

The following pages are what should be visited to complete content learning and activities for Week 3 of the Long Fork Project. They should be accessed in the order provided.

- Week 3: Reading for Understanding
- Ch 3 Presentation Overview
- Tools For Your Badminton
  - Each individual will also need to visit their Character group to complete this page.
- Inbox (Challenge #2)
- Week 3 Team Discussion
- You'll also need to submit the Challenge #2 assignment in the main Canvas area.
Appendix L. Challenge #1 for Traditional and Gamified Collaboration Teams

Note: Both groups were assigned to complete Challenge #1. The challenge was identical for both groups; the difference was in how it was presented. The challenges are presented on separate pages.

Traditional Collaborative Team

I. Directions as seen upon entering the Traditional Collaborative team’s area in the CLMS.

Challenge #1 Brainstorming Research Topics

STEP 1:

- Recall the goal of the group project,

  Create a proposal for an action research project, exploring an instructional solution to…

  - Ensure effective education for minority children, helping to increase graduation rates for the Long Fork Community School District.
  - Instill cultural awareness in the entire school community, creating a climate of unconscious competence towards cultural uniqueness.

STEP 2: Use the Brainstorming Ideas document (italicized text was hyperlinked) found under the Collaborate tab to complete Challenge #1. (The following document was what students see when they access the Google document.)
STEP 3: Complete Challenge #1 by [Insert due date]. The Challenge is complete when all members of the team have contributed at least 5 different ideas addressing the problem presented in STEP 1. Note: Nothing will be submitted in Canvas. The instructor will award each person 2 points for each idea contributed.
Gamified Collaborative Team – Challenge #1

I. Announcement as seen upon entering the Gamified Collaborative team’s area in the CLMS.

You’re probably wondering what in the world you’re supposed to do now. There’s a letter for you at Your Starting Point that might help! (Italicized text was hyperlinked to a content/wiki page in the group area.)

II. Directions as seen upon entering the Gamified Collaborative team’s area in the CLMS.

This letter arrived for you today.

1/12/2015

TO: School Improvement Team
FROM: Dr. R. C. Sloan
RE: Getting Started and Brainstorming

Dear Sir,

Dr. Sloan would like to once again convey thanks for your agreement to serve on this valuable team. We understand your time is valuable, and it is in the best interest of the district to begin moving forward on the project. The Superintendent has asked me to convey expectations for the first task so you can get started. Dr. Sloan is confident the team has taken time to communicate with each other, and everyone is anxious to begin.

The first item of business Dr. Sloan would like you to tackle is brainstorming ideas for the project. The Superintendent asked that you be reminded of the goal of this project. Your task is to create a proposal for an action research project, exploring an instructional solution to...

- Ensure effective education for minority children, helping to increase graduation rates for the Long Fork Community School District.
- Instill cultural awareness in the entire school community, creating a climate of unconscious competence towards cultural uniqueness.

To help facilitate collaboration between you and your team members, Dr. Sloan asked our Chief Information Officer to create a Google document editable by the entire team. An invitation to access the document has been sent to the primary email address you provided. Dr. Sloan has added more detailed instructions for your team on that document. If you have trouble accessing the document, or have not received an invitation, please contact me so I can promptly rectify any possible technical issues.

Sincerely,

Ms. Allison Newscomb
Administrative Assistant to the Superintendent
Long Fork Community Schools

Sincerely,

Ms. Allison Newscomb
Administrative Assistant to the Superintendent
Long Fork Community Schools

Sincerely,
STEP 1: Use the *Brainstorming Ideas* document (italicized text was hyperlinked) found under the Collaborate tab to complete Challenge #1. (The following document was what students saw when they access the Google document.)

![Brainstorming Ideas document](image.png)

STEP 2: Complete Challenge #1 by [Insert due date]. The Challenge is complete when all members of the team have contributed at least 5 different ideas addressing the problem presented in the letter you read in STEP 1. *Note:* Nothing will be submitted in Canvas. The instructor will award each person 2 points for each idea contributed.
## Appendix M. Challenge Timeline for Students

The upcoming group project includes 4 separate Challenges. Each Challenge should be completed by the date specified.

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge #1 – Brainstorming Research Topics</td>
<td>[Insert due date]</td>
</tr>
<tr>
<td>Challenge #2 – Refining Your Topic</td>
<td>[Insert due date]</td>
</tr>
<tr>
<td>Challenge #3 – Annotated Bibliography</td>
<td>[Insert due date]</td>
</tr>
<tr>
<td>Challenge #4 – Presentation Defense</td>
<td>[Insert due date]</td>
</tr>
</tbody>
</table>

The upcoming group project includes 5 weekly discussions. Discussions will be graded based on presented guidelines. You should complete discussions by the following dates.

<table>
<thead>
<tr>
<th>Discussion</th>
<th>Discussion Closes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1 Discussion</td>
<td>[Insert due date]</td>
</tr>
<tr>
<td>Week 2 Discussion</td>
<td>[Insert due date]</td>
</tr>
<tr>
<td>Week 3 Discussion</td>
<td>[Insert due date]</td>
</tr>
<tr>
<td>Week 4 Discussion</td>
<td>[Insert due date]</td>
</tr>
<tr>
<td>Week 5 Discussion</td>
<td>[Insert due date]</td>
</tr>
</tbody>
</table>
Appendix N. Completion Checklists for all Project Challenges

I. Challenge #1 – Completion Checklist

Directions: Use the following checklist to help guide you through the completion of Challenge #1.

General Items Needing Attention
- Read any relevant information introducing the challenge.
- Note the due date and add it to personal calendar.
- Check the rubric for scoring guidelines.
- Check that everyone on the team is participating.
- Encourage teammates who have not posted yet, using a positive message.

Project Specific Items Needing Attention
- Revisit Project Goals.
- Locate the Brainstorming Ideas Google document.
- Contribute 5 ideas to the team.
  - Idea 1
  - Idea 2
  - Idea 3
  - Idea 4
  - Idea 5

II. Challenge #2 – Completion Checklist

Directions: Use the following checklist to help guide you through the completion of Challenge #2.

General Items Needing Attention
- Read any relevant information introducing the challenge.
- Note the due date and add it to personal calendar.
- Check the rubric for scoring guidelines.

Project Specific Items Needing Attention
- Revisit Project Goals.
- Access Topic Refinement signup sheet in Google.
- Sign-up for a time to Skype and add it to personal calendar.
- Attend Skype session.
- Record revised topic for action research topic.
- Submit revised topic statement/question/problem to Challenge #2 assignment.
III. Challenge #3 – Completion Checklist

Directions: Use the following checklist to help guide you through the completion of Challenge #3.

General Items Needing Attention
- Read any relevant information introducing the challenge.
- Note the due date and add it to personal calendar.
- Check the rubric for scoring guidelines.

Project Specific Items Needing Attention
- Revisit Project Goals.
- Examined provided examples of Annotated Bibliographies.
- Accessed and opened Annotated Bibliography template to see expectations of final submission.
- At least 10 resources using correct APA citation format
  - Resource 1
  - Resource 2
  - Resource 3
  - Resource 4
  - Resource 5
  - Resource 6
  - Resource 7
  - Resource 8
  - Resource 9
  - Resource 10
- Each resource has a personal annotation
  - Annotation 1
  - Annotation 2
  - Annotation 3
  - Annotation 4
  - Annotation 5
  - Annotation 6
  - Annotation 7
  - Annotation 8
  - Annotation 9
  - Annotation 10
- Created final submission using Annotated Bibliography template.
  - Deleted italicized text on the template that was for example only.
  - Submitted final document to the Long Fork Group Project – Challenge #3 assignment
IV. Challenge #4 – Completion Checklist

**Directions:** Use the following checklist to help guide you through the completion of Challenge #4.

**General Items Needing Attention**
- ☐ Read any relevant information introducing the challenge.
- ☐ Note the due date and add it to personal calendar.
- ☐ Check the rubric for scoring guidelines.
- ☐ Check that everyone on the team is participating.
- ☐ Encourage teammates who have not posted yet, using a positive message.

**Project Specific Items Needing Attention**
- ☐ Revisit Project Goals.
- ☐ Complete Presentation defense of project
  - o Names of each team member
  - o Occupation/position of each team member
  - o Three slides for each individual topic
    - ☐ Question or problem of focus and name of individual tackling the problem
    - ☐ Statement of purpose for the proposed question/problem
    - ☐ Literature related to the topic (citations only)
  - o Proposed timeline for completion
  - o Other information as needed
- ☐ Submit Final Proposal and Presentation Defense to the Long Fork Group Project – Challenge #4 assignment
Appendix O. Scoring Rubrics for all Project Challenges

I. Challenge #1 – Scoring Rubric

Scoring Rubric for Challenge #1 – Brainstorming Research Topics

*Note: The following rubric was used to score all student work for Challenge #1.*

<table>
<thead>
<tr>
<th></th>
<th>10</th>
<th>8</th>
<th>6</th>
<th>4</th>
<th>2</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity of Ideas Shared</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 ideas shared</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>4 ideas shared</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 ideas shared</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 ideas shared</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 idea shared</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No ideas shared</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

II. Challenge #2 – Scoring Rubric

Scoring Rubric for Challenge #2 – Topic Refinement

*Note: The following rubric was used to score all student work for Challenge #2.*

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skype Appointment made</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Skype Appointment kept</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Refined topic submitted to Canvas on time.</td>
<td>10</td>
<td>0</td>
</tr>
</tbody>
</table>
### Scoring Rubric for Challenge #3 – Annotated Bibliography

*Note: The following rubric was used to score all student work for Challenge #3.*

<table>
<thead>
<tr>
<th>At least 10 resources are submitted, using proper APA citation format.</th>
<th>Yes</th>
<th>Partial 1</th>
<th>Partial 2</th>
<th>Partial 3</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>(10)</td>
<td>(7-9)</td>
<td>(4-6)</td>
<td>(1-3)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>7</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>All resources have a personal annotation</th>
<th>Yes</th>
<th>Partial 1</th>
<th>Partial 2</th>
<th>Partial 3</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Annotations evaluate the authority or background of the author, comment on the intended audience, compare or contrast this work with another you have cited, or explain how this work illuminates your bibliography topic.</th>
<th>Exemplary</th>
<th>Satisfactory</th>
<th>Needs more time</th>
<th>Unsatisfactory</th>
<th>No evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>15</td>
<td>10</td>
<td>5</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proper use of Annotated Bibliography template</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
IV. Challenge #4 – Scoring Rubric

### Scoring Rubric for Challenge #4 – Presentation Defense

*Note: The following rubric was used to score all student work for Challenge #4.*

<table>
<thead>
<tr>
<th>Presentation Defense – Names and Occupations of each team member are present in the presentation</th>
<th>Yes</th>
<th>Partial</th>
<th>No</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>3</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Presentation Defense – Individual Slides: 3 slides containing the information specified in the Challenge guidelines.</th>
<th>Excellent</th>
<th>Meets Standard</th>
<th>Needs More Time</th>
<th>No evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15</td>
<td>12</td>
<td>8</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Presentation Defense – Presentation includes timeline for completion</th>
<th>Yes</th>
<th>No</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Presentation Defense – Presentation design is consistent throughout, is pleasing to view, and is readable by the audience</th>
<th>Excellent</th>
<th>Meets Standard</th>
<th>Needs More time</th>
<th>Lack of attention to presentation design</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>8.5</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Presentation Defense – All team members make significant contributions (more than 3) to the presentation.</th>
<th>SUPERSTARS!</th>
<th>GOOD WORK!</th>
<th>Making the effort!</th>
<th>A few good men!</th>
<th>Where is everybody?</th>
<th>No evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
Appendix P. Directional Feedback for Traditional and Gamified Collaboration Teams

Note: During each phase of the group project, members of both the gamified and traditional groups received specific feedback. The gamified group received feedback specific to the narrative and objective of the gamified challenge. The traditional group received feedback specific to successful completion of the non-gamified challenge. The following table outlines the specific feedback given each week.

<table>
<thead>
<tr>
<th>Week</th>
<th>Gamified</th>
<th>Traditional</th>
<th>Both Gamified and Traditional</th>
</tr>
</thead>
</table>
| 1    | • Using the Remind application, Dr. Sloan will send the following text message:  
  o Team – Thank you for your time. Don’t forget the importance of the challenge and getting started. Please meet with each other ASAP. Dr. S  
  • The course instructor will send the following email:  
  o All, In the Long Fork Group Project (E) area in Canvas there are directions for choosing a character and creating avatars. I need everyone to choose their character no later than [Insert date] so that I can make teams and you can begin the challenge. Thank you for making this a priority. Mrs. H | • The course instructor will send the following email:  
  o All, In the Long Fork Group Project (C) there are directions for completing the Responsible Teamwork Agreement and creating a Teamwork Pledge. Please take time within the next 24 hours to read and participate with that information. Thank you for making this a priority. Mrs. H  
  • Using the Remind application, the course instructor will send the following text message:  
  o For the next month you will be working on a group project. Please check the group area in Canvas TODAY for directions and important information. Thanks! | • Using the Remind application, the course instructor will send the following text message:  
  o All, In the Long Fork Group Project (E) area in Canvas there are directions for choosing a character and creating avatars. I need everyone to choose their character no later than [Insert date] so that I can make teams and you can begin the challenge. Thank you for making this a priority. Mrs. H  
  • Using the Remind application, the instructor will send the following text message: Don’t forget to contact me and set up a time to Skype. Available dates and times are in Canvas.  
  • Students received the following Canvas message from the instructor:  
  o I wanted to say thank you for taking time to meet with me via Skype this week. I am |
| 2    | • Using the Remind application, Dr. Sloan will send the following text message:  
  o Professor Hudiston has graciously offered her time to help each of you refine your topic. Please contact her and set up a time to Skype, ASAP. Thank you! | • Using the Remind application, the instructor will send the following text message: Don’t forget to check your Challenge Timeline and Challenge Completion Checklist. There is a Challenge due date coming very soon! | • Using an announcement in Canvas, each group received the following message:  
  o Don’t forget to check your Challenge Timeline and Challenge Completion Checklist. There is a Challenge due date coming very soon! |
| 3    | • Using the Remind application, Dr. Sloan will send the following text message:  
  o Professor Hudiston has graciously offered her time to help each of you refine your topic. Please contact her and set up a time to Skype, ASAP. Thank you!  
  o Using the Remind application, the instructor will send the following text message: Don’t forget to contact me and set up a time to Skype. Available dates and times are in Canvas.  
  o Students received the following Canvas message from the instructor:  
  o I wanted to say thank you for taking time to meet with me via Skype this week. I am | • Using the Remind application, the instructor will send the following text message: Don’t forget to check your Challenge Timeline and Challenge Completion Checklist. There is a Challenge due date coming very soon! | • Using an announcement in Canvas, each group received the following message:  
  o Don’t forget to check your Challenge Timeline and Challenge Completion Checklist. There is a Challenge due date coming very soon! |


| 4 | Students received the following email from Dr. Sloan. The email will be embedded as an image on a content/wiki page in Canvas:  
  o Thank you for making time to confer with Professor Hudiston. I know your schedule is busy, but your willingness to work with her shows great dedication to our school district. I have every confidence that your team is going to help Long Fork Community School District meet its challenges. Sincerely, Dr. Sloan  

4 | Students received the following email from Dr. Sloan. The email will be embedded as an image on a content/wiki page in Canvas.  
  o Good evening. Professor Hudiston and I spoke today. She told me one of the research librarians has offered his services to help with the next phase of the challenge. I believe the university library could be of great help as you move forward. I want to strongly encourage you to take advantage of this generous offer. Dr. Sloan  

4 | Students received the following Canvas message from the instructor:  
  o All, Don’t forget to explore the resources on the Reviewing Related Literature content page. Jorge from Axe Library has generously supplied some tutorials and information about services for online students. Mrs. H  

4 | Students received the following email from Jorge, a research librarian at the university.  
  o Thank you for visiting me at the university library. I hope the information I provided helps you successfully complete your action research. If you need any further assistance please let me or your faculty member know. Sincerely, Jorge [Insert last name]  

4 | Using the Remind application, students received the following text message (Gamified from Dr. Sloan and Traditional from the instructor):  
  o Team work is not always easy. Sometimes team members need positive encouragement from each other too! ☺  

4 | Using an announcement in Canvas, each group received the following message:  
  o Don’t forget to check your Challenge Timeline and Challenge Completion Checklist. There is a Challenge due date coming very soon!  

5 | Script for video of Dr. Sloan’s last “meeting” with the team. The video will be posted as the introduction and  

5 | Script for video of instructor’s last “meeting” with the team. The video will be posted as the  

5 | Using an announcement in Canvas, each group received the following message:
<table>
<thead>
<tr>
<th>instructions for a Canvas discussion board.</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Good afternoon! Thank you so much for being here. I know you’re working hard to get everything done and submitted to me so it’s ready for Monday night’s board meeting. The board and I are anticipating great ideas because we’ve all seen and heard about how hard your team has been working on the challenge I presented to you. I wanted to bring you together one last time before the presentation so that I could thank you in person. I also wanted to give you the opportunity to ask me any questions while we’re together, or make any requests you might need to fulfill the last part of your task. I’ve tried to provide you with different people and resources during the past few weeks, but how can I further assist you while you’re finishing up? One thing I can certainly do is encourage you. Please know how impressed I am at the way your team has worked together to attack this very serious challenge head on. It is people like you who will help our district not just survive, but thrive. Please leave your questions and I’ll see how we can best answer them. Thank you so much.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>introduction and instructions for a Canvas discussion board.</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Hello! I know you’re working hard to get everything done and submitted to me so it’s ready for the upcoming due date. I am anticipating great ideas because I’ve seen how hard your team has been working on the challenge I presented to you. I wanted to bring you together one last time before everything was due so that I could thank you in person. I also wanted to give you the opportunity to ask me any questions while we’re together, or make any requests you might need to fulfill the last part of your task. I’ve tried to provide you with different people and resources during the past few weeks, but how can I further assist you while you’re finishing up? One thing I can certainly do is encourage you. Please know how impressed I am at the way your team has worked together to attack this challenge head on. Please leave your questions and I’ll see how we can best answer them. Thank you so much.</td>
</tr>
</tbody>
</table>

| o Don’t forget to check your Challenge Timeline and Challenge Completion Checklist. There is a Challenge due date coming very soon! |
Appendix Q. Challenge #2 for Traditional and Gamified Collaboration Teams

Note: Both groups were assigned to complete Challenge #2. The challenge was identical for both groups; the difference was in how it was presented. The challenges are presented on separate pages.

Traditional Collaboration Team – Challenge #2

I. Announcement as seen upon entering the Traditional Collaboration team’s area in the CLMS.

Important information concerning the next assignment has been added to the Challenge #2 content page. Make sure you check it out because there’s a time frame you need to attend to for this one. (Italicized text was hyperlinked to a content/wiki page in the group area.)

II. Information seen when Traditional group students follow the Challenge #2 link in IV, above.

Challenge #2 Topic Refinement

STEP 1:

• Recall the goal of the group project,

Create a proposal for an action research project, exploring an instructional solution to…

• Ensure effective education for minority children, helping to increase graduation rates for the Long Fork Community School District.
• Instill cultural awareness in the entire school community, creating a climate of unconscious competence towards cultural uniqueness.
• Your proposal needs a solid, straightforward topic. This is also referred to as the research question, hypothesis, or problem of practice. In this assignment, you’ll work with your instructor to refine your topic.

STEP 2: Visit http://bit.ly/1DannMn and sign up for a time to Skype with Mrs. Hudiburg.

• Add your name to the cell corresponding to the date and time you would like to meet.
• Times are available starting tomorrow, February 10 (Tuesday).
• Times and dates are available on a first-come, first-served basis.
• Please only sign up for one time slot.

Note: The Google Sheet traditional students are directed to is the same sheet used for the gamified group. See image above.

STEP 3: After your session with Mrs. Hudiburg, go the Long Fork Group Project – Challenge #2 (italicized text was hyperlinked to the assignment page) Assignment and submit your refined topic statement/question by the due date [Insert date].
Gamified Collaboration Team – Challenge #2

I. Announcement as seen upon entering the Gamified Collaboration team’s area in the CLMS.

An important message for you, from Dr. Sloan, just arrived in your Inbox. (Italicized text was hyperlinked to a content/wiki page in the group area.)

II. Information seen when Gamified Collaboration team students follow the Inbox link in I, above.

STEP 1: Visit the link to the Topic Refinement sign-up sheet given in the email from Dr. Sloan.
Note: Students saw the following when they visited the Google Sheet. (Dates and times are subject to change.)

STEP 2: Sign up for a time to meet with Dr. Hudiston (aka Mrs. Hudiburg). Times are available on a first-come, first-served basis.

STEP 3: After your session with Dr. Hudiston, go the Long Fork Group Project – Challenge #2 (italicized text was hyperlinked to the assignment page) Assignment and submit your refined topic statement/question by the due date [Insert date].
Appendix R. Challenge #3 for Traditional and Gamified Collaboration Teams

Note: Both groups were assigned to complete Challenge #3. The challenge was identical for both groups; the difference was in how it was presented. The challenges are presented on separate pages.

Traditional Collaboration Team – Challenge #3

I. Announcement as seen upon entering the Traditional Collaboration team’s area in the CLMS.

In order to help you organize and synthesize the resources you’ll choose to use for your review of literature I am going to ask you to create an Annotated Bibliography. Directions for creating the Annotated Bibliography can be found on the Challenge #3 content page in your team area. You’ll have 2 weeks to complete the challenge, but don’t put it off because there’s a lot to do.

II. Information seen when Traditional Collaboration team students follow the Challenge #3 link in IV, above.

Challenge #3 – Annotated Bibliography

STEP 1: Your task is to create an annotated bibliography of at least 10 resources to be used in the review of related literature for your specific research topic.

STEP 2: Directions for creating an Annotated Bibliography can be found at the following link: http://guides.library.cornell.edu/c.php?g=32342&p=203789.

STEP 3: Guidelines are provided:

1. No fewer than 10 credible resources.
2. Each resource should be cited using correct APA citation style.
3. Each resource should include a personal annotation.
   a. Include one or more sentences that
      i. (a) evaluate the authority or background of the author,
      ii. (b) comment on the intended audience,
      iii. (c) compare or contrast this work with another you have cited, or
      iv. (d) explain how this work illuminates your bibliography topic.
4. For your convenience, a template and one example are included here: Annotated Bibliography Template (Italicized text was hyperlinked to the Annotated Bibliography Template as pictured in the image in section III of this document.)

STEP 4: Submit your Annotated Bibliography to the Long Fork Group Project – Challenge #3 assignment by the due date. (Italicized text was hyperlinked to the assignment submission page.)
Gamified Collaboration Team – Challenge #3

III. Note seen at the bottom of the Researching and Referencing page in the Gamified Collaboration team’s area in the CLMS.

Next Step: A fax came for you this morning. It looked important so I made sure to put it on your desk. (Italicized text was hyperlinked to a content/wiki page in the group area.)
IV. Information seen when Gamified Collaboration team students follow the Fax link in II, above.

Fax

2/17/2015

From: Allison Newsom
Phone: 555-325-8912
Fax: 555-325-8901

Company Name: Long Fork Community School District

To: Members of the Long Fork Special School Improvement Team

Comments:

As per Dr. Sloan.

Please be advised that each member of the team should submit to Dr. Sloan an annotated bibliography of at least 10 resources to be used in the review of related literature for their specific research topic. Directions for creating an Annotated Bibliography can be found at the following link:


Guidelines are provided:

1. No fewer than 10 credible resources.
2. Each resource should be cited using correct APA citation style.
3. Each resource should include a personal annotation.
   a. Include one or more sentences that
      i. (a) evaluate the authority or background of the author,
      ii. (b) comment on the intended audience,
      iii. (c) compare or contrast this work with another you have cited, or
      iv. (d) explain how this work illuminates your bibliography topic.
4. For your convenience, a template and one example are included on the next page of this transmission.
5. Submit the annotated bibliography to Dr. Sloan by the agreed upon date.
STEP 1: Follow the directions in Ms. Newscomb’s fax to complete Challenge #4. The template and example she spoke of can be found by clicking this link: Annotated Bibliography Template (Italicized text was hyperlinked to the following document.)

Add your own information to this template. All italicized text should be deleted and replaced with your own.

Annotated Bibliography

Name: [Insert your name here]
Topic: [Insert your topic/research question/hypothesis/problem of practice here]

1. Citations in alphabetical order.
   a. Personal annotation
2. There should be at least 10 citations in your list.
   a. Annotations should be concise, but thorough.
   a. The authors, researchers at the Rand Corporation and Brown University, use data from the National Longitudinal Surveys of Young Women and Young Men to test their hypothesis that nonfamily living by young adults alters their attitudes, values, plans, and expectations, moving them away from their belief in traditional sex roles. They find their hypothesis strongly supported in young females, while the effects were fewer in studies of young males. Increasing the time away from parents before marrying increased individualism, self-sufficiency, and changes in attitudes about families. In contrast, an earlier study by Williams cited below shows no significant gender differences in sex role attitudes as a result of nonfamily living.

Example used with permission from
Olin Library Reference
Research & Learning Services
Cornell University Library

STEP 2: Submit your Annotated Bibliography to the Long Fork Group Project – Challenge #3 assignment by the due date. (Italicized text was hyperlinked to the assignment submission page.)
Appendix S. Challenge #4 for Traditional and Gamified Collaboration Teams

Note: Both groups were assigned to complete Challenge #4. The challenge was identical for both groups; the difference was in how it was presented. The challenges are presented on separate pages.

Traditional Collaboration Team – Challenge #4

I. Note seen at the bottom of the Challenge #3 page in the Traditional Collaboration team’s area in the CLMS.

View information for Challenge #4 and begin making plans with your team for its completion (also due ____). (Italicized text was hyperlinked to a content/wiki page in the group area.)

II. Information seen when Traditional Collaboration team students follow the Challenge #4 link in IV, above.

Challenge #4 – Presentation Defense

STEP 1: Once again, recall the goal of the group project,

Create a proposal for an action research project, exploring an instructional solution to...

• Ensure effective education for minority children, helping to increase graduation rates for the Long Fork Community School District.
• Instill cultural awareness in the entire school community, creating a climate of unconscious competence towards cultural uniqueness.

STEP 2: As a team you will need to create a presentation to defend your proposal idea. (Google has a Presentation tool that’s great for collaborating. Prezi works pretty well too.) Make sure to include all the following necessary items.

• Names and positions/occupation of each team member.
• Three slides for each individual topic.
  o One slide with the question or problem you’ll be focusing on and the name of the individual doing this part of the project.
  o One slide with the statement of purpose for your project.
  o One slide referencing the literature you’ll be using to defend your problem.
• Proposed timeline for completion.
• Any other information that will help us understand what you are planning.
Gamified Collaboration Team – Challenge #4

I. Note seen at the bottom of the Fax page in the Gamified Collaboration team’s area in the CLMS.

Next Step: You are a popular individual today! A letter arrived and I put it in your mailbox. I think it’s from the school board president. I hope you didn’t do anything you weren’t supposed to! (Italicized text was hyperlinked to a content/wiki page in the group area.)
II. Information seen when Gamified collaboration team students follow the Mailbox link in II, above.

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BARNES BROS. BANK AND TRUST
2015 N. MAGNOLIA LN. OLD MOUNTAIN, CT.

2/19/2015

Jonathon K. Barnes
Barnes Bros. Bank and Trust
2015 N. Magnolia Ln. Old Mountain, Ct.

Long Fork Community School District
Special School Improvement Team

To Whom It May Concern,

Dr. Sloan has informed the Board of Education that a team has been working to address the challenges arising from the State’s study earlier this school year. We are excited to hear that you all are making significant progress, and we hope your study to potentially help our district keep its doors open in the future.

Because what you are planning to do has the potential to impact all of our schools, the members of the school board would like you to present your plan at our next meeting. The meeting is Friday, February 27 at 7:00 PM.

We would like you to include the following in your presentation:

- Names and positions/occupation of each team member.
- Three slides for each individual topic.
  - One slide with the question or problem you’ll be focusing on.
  - One slide with the statement of purpose for your project.
  - One slide referencing the literature you’ll be using to defend your problem.
- Proposed timeline for completion.
- Any other information that will help us understand what you are planning.

Thank you for giving your valuable time to the students and staff of Long Fork Community Schools. Working together we CAN make a difference in our schools that will last a lifetime.

Sincerely,

Jonathon K. Barnes
Vice President of Operations
Barnes Bros. Bank and Trust
STEP 1: As a team you will need to create the presentation requested by Mr. Barnes. (Google has a Presentation tool that’s great for collaborating. Prezi works pretty well too.) Make sure to include all necessary items.

STEP 2: Submit your Presentation to the Long Fork Group Project – Challenge #4 assignment in the main Canvas area by the due date.
VITA

Michelle L. Hudiburg

EDUCATION

Old Dominion University, PhD candidate
Instructional Design and Technology (dissertation defended March 2016)
  Dissertation: Motivation and learning in an online collaborative project using gamification

Pittsburg State University, M.S.

Pittsburg State University, B.S.Ed.
Mathematics Education (1994)

PROFESSIONAL EXPERIENCE

Instructor, Educational Technology Master’s Degree Program  2007 – Present
Pittsburg State University, Pittsburg, KS
  Taught asynchronous, online courses for students completing a M.S. in Educational Technology, both Technology Integration and Library Media Specialist emphases
  Acted as major advisor for graduate students and undeclared undergraduate students
  Spearheaded course redesign for asynchronous graduate online education courses in educational technology

Mathematics Teacher  2006 – 2007
Fort Scott High School, Fort Scott, KS
  Taught Algebra 1 and At-Risk mathematics courses to students in grades 9-12

Mathematics and Computer Science Teacher  1995-2004
Saint Paul Junior/Senior High School, Saint Paul, KS
  Taught 7th and 8th grade mathematics
  Taught Algebra 1, Algebra 2, and Geometry
  Taught beginning and advanced computer courses, including Adobe Photoshop, Video Production, Web design, and business applications
  Assisted in the design and implementation of a junior high technology lab class
  Yearbook Advisor