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A STUDY OF THE EFFECTIVENESS OF GROWING LEADERS THROUGH TEAM BUILDING AND CONTINUAL LEARNING

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A STUDY OF THE EFFECTIVENESS OF GROWING LEADERS THROUGH TEAM
BUILDING AND CONTINUAL LEARNING

By

BRUCE R. LOTARSKI

A doctoral dissertation
submitted to the College of Education
in partial fulfillment of the requirements
for the degree of Doctor of Education
in Organizational Leadership

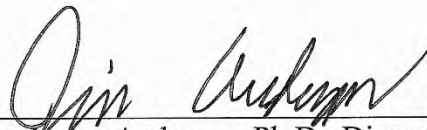
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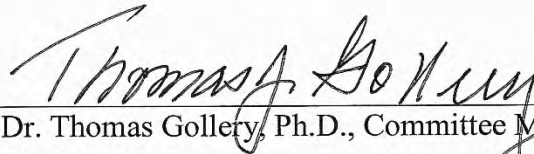
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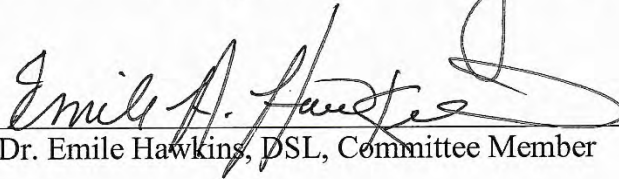
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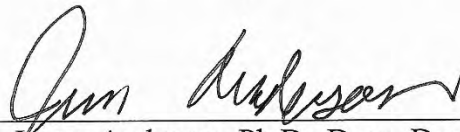
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DEDICATION

With love and heart-filled appreciation to my family, friends, and colleagues:

“Twenty years from now you will be more disappointed by the things you didn't do than by the ones you did do. So throw off the bowlines. Sail away from the safe harbor. Catch the trade winds in your sails. Explore. Dream.”

--Mark Twain

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ABSTRACT

Team building and continual learning methods have become transdisciplinary, and the effectiveness of these approaches have yet to be fully appreciated across industries. Training, coaching, and team building may alleviate many of the challenges for positioning talent with organizational change. Organizational leaders should provide direction and support with team building by clarifying and prioritizing goals before inducing innovative initiatives (Peralta, Lopes, Gilson, Lourenço, & Pais, 2014). Setting transparent goals and commitment is characteristic of mature groups, which team building may help develop (Peralta et al., 2014). Four goals for team members at the group level are to set goals, assign responsibilities, observe processes, and reflect on social relationships (Burke, 2018). As more organizations embrace the importance and benefits of continual learning, taking the initiative of team building may be the foundation for growing leaders and organizational success. Organizations that provide the leadership and opportunities of team building with the time and effort needed to promote organizational change may reap the benefits of creativity and innovation and prosper with the advantages of a changing global environment.

Keywords: teams, teamwork, team building, transformational leadership, trust building, continual learning, team innovation, organizational leadership, organizational success, organizational change, leadership development, growing leaders

TABLE OF CONTENTS

DEDICATION	iii
ACKNOWLEDGMENTS	iv
ABSTRACT	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES	ix
LIST OF ABBREVIATIONS.....	x
I. INTRODUCTION	1
Statement of Purpose	2
Research Questions	3
Contribution.....	4
Elements of Leadership with Team Building	5
II. LITERATURE REVIEW	7
Organizational Leadership and Team Building	7
Change Leaders and Team Building.....	9
Training, Coaching, and Team-Building Challenges	10
Continual Learning and Team Development.....	12
Large Organizations and Team Building.....	15
Leading Team Building in Group-Level Change	18
Organizational Design and Team Building	18
The Star Model and Structure	20
Processes of the Star Model	21
Why Reward Systems are Important	22

Human Resource Management	23
Challenges to Organizational Change and Team Building.....	24
Organizational Change and Teamwork	25
III. METHODOLOGY	26
Methods.....	26
Sample Selection.....	27
Instrumentation	27
Procedures.....	29
Data Analysis.....	31
IV. RESULTS.....	33
UW Logistics Course Comparisons.....	34
Findings by Research Question	34
V. DISCUSSION.....	41
Overview.....	41
Preliminary Analysis.....	42
Findings.....	42
Research Limitations	49
Practical Implications.....	49
Future Directions	50
Conclusion.....	50
REFERENCES	52
APPENDICES	57
Appendix A.....	59

Appendix B.....	59
Appendix C.....	60
Appendix D.....	61

LIST OF TABLES

Table	Page
1. Essential Data Points: Descriptive Statistical Analyses and Findings.....	34
2. Effect of Participant Course.....	35
3. Treatment Effect of Targeted Instruction for the Domain of “Originality”.....	36
4. Treatment Effect of Targeted Instruction for Domain of “Rule/Group Conformity”.....	37
5. Treatment Effect of “Originality”.....	38
6. The Greatest Treatment Effect Manifested of “Rule/Group Conformity”.....	39
7. Greater Treatment Effect of “Originality” or “Rule/Group Conformity”.....	40
8. Treatment Effect Comparison by Gender and Domain.....	41

LIST OF ABBREVIATIONS

IBM – International Business Machines (Corporation, est. 1911)

IRB – International Review Board

KAI – Kirton Adaption-Innovation

UW – Unconventional Warfare

SPSS – Statistical Package for Social Sciences (Software, 2017, v 25)

I. INTRODUCTION

Leadership growth, team building, collaboration, and continual learning are topics that are interconnected. An example is growing leaders in the United States military, which has been an institutional initiative since the founding of the nation's armed forces. Team building and continual learning initiatives may be considered the most effective means to grow leaders in the United States military. A relatively new development, delivered at a military school of higher education involving an unconventional warfare (UW) logistics program, fundamentally instructs advanced specialized trained logisticians in a UW environment how to move equipment and people around the world in the most austere and challenging scenarios. The innovation and collaboration involved to accomplish the demanding logistics processes involve a high level of teamwork, innovation, collaboration, and adaptation.

The UW logistics courses were graduate-level, specialized training instructed by senior-level subject matter experts in logistics who were correspondingly seasoned military leaders. The program consisted of two weeks of intensive training: one week of self-study and essay writing followed by the second week of in-residence instruction of approximately 50 contact hours. Classroom instruction consisted of 15 modules of specialized logistics-related lesson objectives. Upon successful completion of the UW logistics program, each student received a certificate denoting specialized logistics military training. The UW logistics program is the premier program to identify and instruct unconventional warfare operations in logistics. Prior to the UW logistics program, the only programs available to logisticians were conventional military logistics training that did not specifically assess austere and challenging environments with the difficulties associated with complex military scenarios around the world.

Statement of Purpose

The purpose of this quantitative research was to examine the effectiveness of growing leaders through team-building and continual learning within the UW logistics program used by a military school of higher education. The students began the UW logistics program as intellectually strong, competitive, independent thinkers who have found leadership success primarily through their ambitious achievements. The UW logistics program provided a venue for teamwork, team building, collaboration, and relationship building that provided the structure for the students to grow in the logistics field and as military leaders working in teams.

The UW logistics program focuses on using modern methods of instruction through interactive exercises and training modules, applied tests, group evaluations, and relationship building with teamwork. Research data were collected through five pre- and post-course surveys with a sample population of 125 logistics students in fiscal years 2016 and 2017. The pre-course surveys focused on a conceptual instrument called the Kirton Adaption-Innovation (KAI) theory, which were a series of 32 questions consequent to an individual's cognitive preference of adaption or innovation thinking (Kirton, 1999). Kirton's KAI instrument was used because it reflects a 40-plus-year study determining an individual's cognitive preferences of adaption or innovation relating to "individual development, group training, personal awareness with the management of diversity, management training and change, enhancement of group cohesion and effectiveness, leadership development, problem solving with team building, team building development, and problem management" (Kirton, 2019, para. 1-8).

The posttest scores were achieved through rigorous post-course evaluation by the UW logistics program director and senior instructors. Posttest scores reflected the after-effect of team-building exercises, leadership development through teamwork, and scores achieved in the

study. Speculatively, the general research questions included: What are the effects of growing relationships with team building? How does team building grow leaders? How does team building and continual learning grow leaders? These general research questions were predominantly refined to specifically focus on the overture of the study. After the evolution of two years in the UW logistics courses and analysis of the effects of team building with leadership growth, six clearly defined questions accurately depicted the dissertation study as follows.

Research Questions

From the general questions previously listed in the purpose of the study, more precise questions from the analysis arose, which were more conducive to understanding the nature of growing leaders through team building and continual learning. The questions used for the analysis were:

Research Question 1: Did targeted instructional programming exert a statistically significant effect upon participant performance in the domain of “Originality”?

Research Question 2: Did targeted instructional programming exert a statistically significant effect upon participant performance in the domain of “Rule/Group Conformity”?

Research Question 3: In which course was the greatest treatment effect manifested from the pretest to posttest condition of the study of “Originality”?

Research Question 4: In which course was the greatest treatment effect manifested from the pretest to posttest condition of the study of “Rule/Group Conformity”?

Research Question 5: Was the study’s treatment effect greater for the domain of “Originality” or for the domain of “Rule/Group Conformity”?

Research Question 6: Was there a treatment effect difference for male and female study participants in the two domains represented in the study?

These questions were ultimately derived from the methods used to address the research problem and fulfill the research purpose.

There is no universal operating procedure or manual for growing leaders, team building, or continual learning. Although there are many sources to demonstrate how to grow leaders, perform team building, and foster continuous learning, no one source or sole authority is considered the foundation for growing leaders or team building. Therefore, the effectiveness of this dissertation study is to emphasize how team building and continual learning may grow leaders by using various techniques for leadership development, team building, and relationship building demonstrated in the UW logistics program.

Contribution

The analysis of growing leaders through team building demonstrated that the interaction of students with team building, collaboration, and continual learning were conducive to growing leaders. The analysis attempted to demonstrate that military logistics students entering the UW logistics program as competitive, independent thinkers have grown as leaders through teamwork, collaboration, and continual learning methods. Prior to the UW logistics program implementing the team-building methods, military logisticians did not have specialized training with modern instructional and interactive methods. The impact was that these leaders accomplished better logistics solutions with collaboration and team-building techniques, specifically dealing in austere environments, and developed as military leaders. The results of this study should enlighten leaders to the importance and potential of modern methods of instruction, interactive training, team building, continual learning, and relationship building using military logistics as an example for other disciplines and industries to emulate.

Elements of Leadership with Team Building

The defined attributes or qualities of a leader vary from different scholars to different institutions such as in the military, businesses, or universities. Some examples of leader attributes may clarify in the study what defines a leader who is ultimately part of a team with team-building processes. Garrett (2009) explained that some of the “qualities of a leader are to be ethical, professional, and honest to the public as a public servant” (pp. 154-155). The measure of being a successful leader is the ability to work in teams and partake in the continual process of learning his or her trade. Leaders who can integrate with teams and build their effectiveness are essentially in the process of continual learning and fostering relationships.

Team learning and team building take a great deal of time and effort. In order for team learning and team building to take place and continue past initial efforts, members must learn to trust and respect each other as contributing members of the team and organization (Senge, 2006). Garman (2006) stated that leadership is a “competency” described in the health care field, which entails a “compelling vision, energizing goals and an environment that a leader develops its culture as a team” (p. 360). Garman used terms of leadership as “developing a culture of mutual trust, motivation, and teamwork” (p. 360), which should be part of a leader’s job.

Specific domains of team building particularly used in the current study are conformity to rules, group conformity, and collaboration. Definitions of terms deemed central to the investigation are worth noting. Originality in the context of the study is how well an individual or group performs with creativity as part of a working team. Conformity to rules is described as how an individual is willing to conform to a group making rules to abide by. Group conformity relates to how well members of a group are willing to work together, collaborate, and adapt to specific challenges. The KAI instrument referred to in the study provides some insight on how

effective and cohesive groups performed with challenges requiring adaptation and how leaders were able to develop their skills through teamwork and team-building exercises. Research on leadership suggests that growing leaders and team building are gradual initiatives, leadership requires continual learning, and leadership is a collaboration process composed of constructive and progressive attributes.

II. LITERATURE REVIEW

Organizational Leadership and Team Building

Linking the topics of teamwork, interoperability, integration, innovation, and creativity with team building is desirable to adapt to the many organizational changes which lead to mission success. Organizational teams are often designed to meet and lead an organization's plan for innovative performance (Sperber & Linder, 2016). Effective team leaders are those "who can simultaneously explore and exploit the creative capacity" of teams within an organization to ensure mission success (Sperber & Linder, 2016, p. 286). Talented leaders may often identify gaps in organizational processes with the organization's mission, but only skilled and knowledgeable teams are equipped to fill these gaps (Sperber & Linder, 2016). Skilled teams exert a certain amount of power within an organization for its knowledge base and successful processes that may be exploited through team building with other individuals and organizational teams (Sperber & Linder, 2016). Team empowerment is learned through team-building techniques and leaders who are willing to empower their teammates (Jiang, Flores, Leelawong, & Manz, 2016). Leaders who provide team empowerment increase knowledge sharing and group conflict resolution in working teams (Jiang et al., 2016). Team building combines leadership initiatives to apply organizational techniques for team growth while simultaneously growing leaders through group interaction.

Team building provides a venue for shared interests, experience, values, and leadership communication leading to transparency (Sperber & Linder, 2016). Team leaders must provide accountability, support and resources, feedback mechanisms, effective collaboration, honest communication, and a sense of team value to establish team effectiveness (Irving &

Longbotham, 2007). Leaders who use team building establish a team culture that provides the cohesion necessary to resolve group challenges and conflict (Barrett, Piatek, Korber, & Padula, 2009).

Team leaders must deal with a variety of challenges and employee issues. For example, employee tenure within organizations may lead to the status quo of doing business, whereas team building with tenured employees may provide an avenue for new approaches with younger employees, new routines, and innovation (Sperber & Linder, 2016). Effective teams use adaptable team-building techniques with progressive leaders who enable teams for success (Irving & Longbotham, 2007). Leaders are as unique as teams, all comprising of individuals who must learn to work together to adapt to changes in the environment or organization and increase productivity.

Senge (2006) referred to learning organizations as “systems thinking” or “team learning” whose members expand their knowledge of how to learn with the ability to create desired results. Torlak (2004) stated that leaders must make the right decisions based on skill and sound judgment that leads to trust among workers and supporting organizations. A learning organization’s members are able to adapt to a changing environment, whether by technology or competition, due to the ability to continually learn and transform (Kotter, 2012). By creating a learning environment, leaders must also be willing not only to accept success, but also to accept failure in the learning process, which involves a certain amount of risk for both leaders and their members. Ingle (2017) assured leaders that failure is all part of the process of positive change, professional success, and even personal greatness (pp. 84-86). To learn from one’s mistakes and successes is part of continual learning, but reflection during these times is necessary for learning to take place. With reflection on successes and mistakes, leaders must provide opportunities for

continuous learning for their people to reach their personal and organizational goals (Rowden, 2001). Creating an environment of dialogue among employees, leaders encourage sharing, educated risk taking, and high performance (Rowden, 2001).

Senge (2006) described five disciplines: systems thinking, personal mastery, mental models, shared vision, and team learning. Senge described team learning as “the process of creating results its members develop together, by building on shared vision and personal mastery” (p. 218). Part of the motivation to be a leader in the military is to motivate a team that is willing to work together, take on the challenges of demanding scenarios, and find productive solutions. To build synergy, a team must not only work together, they must have a collective discipline of dialogue and discussion (Senge, 2006). Leaders must be willing to adapt, change, and transform with their teams to apply organizational transformation with innovative approaches.

Change Leaders and Team Building

Transformational leaders, or leaders who are adaptable to organizational change, often provide a flexible approach to teams and team building that enhance innovation (Sperber & Linder, 2016). Transformational leaders may provide teams motivation and creativity with new approaches to reframe problems of old situations (Sperber & Linder, 2016). Transformational team building provides new perspectives and a basis for positive relationships that cross cultural boundaries, which is needed in a globalized environment (Darling & Heller, 2012). People often attach emotional and interpersonal importance to a group or team and pursue the team’s collective welfare (Cai, Jia, & Li, 2016).

Team leaders must understand the relationships between individuals and teams to develop and relate to team dynamics (Cai et al., 2016). Team building and the mentoring process result

in enhanced trust, respect and support, and improved individual and collective performance (Darling & Heller, 2012). An effective team leader understands he or she is a member of the team and works together to build the team for success (Adamchik, 2007). Team development and team building are ongoing processes that are crucial for organizational success (Akhavan Tabassi, Roufechaei, Bakar, & Nor' Aini, 2017). Several attributes have been found that relate to team-building success: team contribution, communication, accountability, creativity, conflict resolution, and interpersonal relationships (Akhavan Tabassi et al., 2017). Transformational leaders exhibit individualized attention with team members to transform individuals to “exceed beyond the status quo” purposefully to improve innovation in the team environment (Akhavan Tabassi et al., 2017, p. 29). Each one of these attributes may be a challenge for leaders in the team-building process.

Training, Coaching, and Team-Building Challenges

Although team building has been explored in many studies, formal processes or best practices do not exist to ensure team success from team-building techniques (Akhavan Tabassi et al., 2017). The link between team building and organizational success is related to leadership success with teams (Akhavan Tabassi et al., 2017). Organizations must manage and develop teams to coordinate individual skills with team strategies (Akhavan Tabassi et al., 2017).

Training, coaching, and individual development are purposeful for organizational improvement (see Appendix B). Training, coaching, and team building may alleviate many of the challenges for positioning talent with organizational change. During the team-building processes, leaders and teams identify with their strengths and weaknesses, which may help people to integrate teamwork in their jobs.

Organizations that are oriented for tasks with project life-cycles must develop team-building practices that align with overall project performance (Akhavan Tabassi et al., 2017). Since teams are the backbone of organizations, leaders must develop, train, and provide team-building processes to support and lead their teams (Akhavan Tabassi et al., 2017). Project performance within teams and during team building is directly associated with effective open and participative communication that leaders must enforce with their teams (Hirst & Mann, 2004). Teams must be committed to the group effort, distributed leadership, and adequate problem solving procedures for an inevitable changing environment (Akhavan Tabassi et al., 2017). Training and coaching should have an ongoing and interactive involvement to fully develop personnel and provide direction, motivation, and assistance with organizational change.

Although there are a number of definitions describing teams such as quality circles, cross-functional teams, self-managing teams, virtual teams, or co-located teams, the overall effort of team development and team building for the unique team structure existing in different organizations is necessary for teams to be successful in an organization (Akhavan Tabassi et al., 2017). “Successful team leaders combine individual knowledge, skills, and abilities to obtain team outputs that are superior to individual outcomes” with organizational changes (Akhavan Tabassi et al., 2017, p. 28). A study on organizational change explained that teams require development stages before they can operate effectively through continual learning and relate to organizational changes (Raes, Kyndt, Decuyper, Bossche, & Dochy, 2015). The ability to adapt to organizational challenges requires a seasoned team that works well in identifying and resolving issues.

Continual Learning and Team Development

Continual learning is necessary to remain effective through team building (Raes et al., 2015). Team building and the learning process involve information sharing, learning tasks, and constructive conflict resolution (Raes et al., 2015). During the developmental stages of team building, team members learn as a team, collaborate, and shape a shared knowledge base constructed from their individual experiences (Raes et al., 2015). In the developmental stages of team building, every team member learns individually and then collectively as a team, resulting in higher individual and team performance (Raes et al., 2015).

As members of a team, most individuals will not be motivated in socially risky behaviors because it could pose a significant threat to a member's inclusion in the group (Raes et al., 2015). The group pressure of team acceptance exceeds individual acceptance, leading to teamwork and success (Raes et al., 2015). During the team-building phases, power struggles, role identity, specialization, and trust are all factors for effective teams (Raes et al., 2015). "Trust is identified as the basic ingredient for collaborative learning," knowledge sharing, and overall team learning (Raes et al., 2015, p. 11). Trust also leads to improved creativity, conflict management, and knowledge sharing (Raes et al., 2015). "Overt disagreements are not seen as detrimental or damaging to team coherence, instead disagreements are the start of deeper and more meaningful team level communication" (Raes et al., 2015, p.11).

Through team building in the developmental phases, shared norms characterize increased productivity, better decision making, and improved problem solving skills (Raes et al., 2015). As teams work together and continually learn and build their team skills, the group is more capable to deal with conflicts and change at the group-level in organizations (Raes et al., 2015). Effective teams receive and give constant feedback on productivity and skill development

leading to efficiencies and innovation (Raes et al., 2015). Through team collaboration of problems and decision making, continuous learning is occurring with team member recognition (Raes et al., 2015).

The Raes et al. (2015) study described four phases of team building and learning at the group level. Phase 1 incorporates dependency and inclusion described as the fragmented learning stage. Phase 2 explains how teams have counter-dependency and in-fighting or conflict may occur, leading to a pooled learning stage. Phase 3 involves trust and team structuring that lead to synergistic learning or continuous learning. Phase 4 describes working together that involves team learning and group development, which positively effects group-level change. The four phases the Raes et al. (2015) study depicted was continual learning and adaptation that team members acquire individually and as a group, leading to effective working experiences and increased productivity.

The team-building process in every organization is unique and unpredictable. Team leaders are essential to assist team member awareness of the team development process, which helps members deal with uncertainty (Raes et al., 2015). Team leader transparency of the team-building process helps members build the trust factor that is necessary for collaboration and learning (Raes et al., 2015). Teams that are aware of the team-building developmental phases are able to navigate through the process more efficiently and effectively while also improving the overall team knowledge (Raes et al., 2015). Team leaders, coaches, and managers must understand the developmental phases in order to translate the processes with team members, guide them, and collaborate effectually (Raes et al., 2015). Team leaders should exemplify the desired outcomes of the developmental phases, be accessible for questions, show commitment to

the team, provide feedback, have feedback mechanisms, and demonstrate constructive criticism (Raes et al., 2015).

Team performance and reputation may be measured by team innovation processes and effectiveness (Peralta, Lopes, Gilson, Lourenço, & Pais, 2014). Goal clarity and commitment provide better team innovation and performance (Peralta et al., 2014). Team building is an effective tool for evaluating and enhancing team reputation (Peralta et al., 2014). For example, in call center organizations' team reputation and commitment, although considered subjective, provides the group tone for innovation and overall performance (Peralta et al., 2014). A team's affective tone may be rallied and developed through team building's socialization construct (Peralta et al., 2014). Teams that engage in team building, innovation, and creative solutions may induce admiration, pride, and positive feelings that result in improved team reputation and commitment (Peralta et al., 2014).

Daily team meetings and group-level incentives give team members motivation to work together toward common goals fostering teamwork and team-building initiatives (Peralta et al., 2014). For example, performance in call center organizations is critical because it is highly competitive with quantifiable results (Peralta et al., 2014). "Good reputations are important because it attracts new business by word of mouth, retains existing clients, and attracts quality employees" (Peralta et al., 2014, p. 86). Developing positive team reputations through team building transcends to operations inside and outside of organizations, attracting new customers and encouraging support from other business-related organizations (Peralta et al., 2014).

Organizational leaders should provide direction and support with team building by clarifying and prioritizing goals before encouraging innovative initiatives (Peralta et al., 2014). Setting transparent goals and commitment is characteristic of mature groups, which team

building may help develop (Peralta et al., 2014). Organizational leaders who coach teams to manage their emotions and reputations develop “emotional intelligence” that reinforces productive and positive interactions among organizational groups and clients (Peralta et al., 2014, p. 100).

Large Organizations and Team Building

In larger organizations such as in multinational corporations consisting of geographically dispersed teams, empowering leadership also empowers team members (Hill & Bartol, 2015). Geographically dispersed teams require distributed leadership and team-building tools to help create a structure of virtual collaboration and improved performance (Hill & Bartol, 2015). With large organizations “challenging initiatives of globalization, outsourcing, strategic partnering, and the necessity of dispersed teams,” empowered teamwork is essential to success (Hill & Bartol, 2015, p. 159). Team-building efforts of information-sharing and communication methods may provide the practice environment for dispersed inter-operational teams (Hill & Bartol, 2015).

The Hill and Bartol (2015) study indicated that empowering leadership appears to transcend to team members to meet collaboration demands in a dispersed environment (pp. 159-160). Developing team members through team-building efforts provides settings to share leadership decision-making in a supportive environment (Hill & Bartol, 2015). Team training efforts are necessary and useful for dispersed environments because team members face unique challenges in their different locations (Hill & Bartol, 2015). Team members learn to regulate their behaviors and performance, leading to team success (Hill & Bartol, 2015). Hickman (2016) described a variety of organizations that already demonstrate collaboration and collective multi-firm networks, such as in the medical and technology industries.

The wave of the future is information-sharing, with teamwork and collective decision making across industries to make cost efficiencies and higher profits (Hickman, 2016). Kotter (2012) referred to the increasing amount of teamwork in organizations as productive, while Hickman (2016) explained teamwork as collaboration among organizations and a profitable process. Kotter (2012) expressed the fact that dynamic environments will motivate leaders to participate in life-long learning and empower team members to adapt with continual organizational change (pp. 173-177). Hickman (2016) referred to team learning and team building as a “holistic process in that all members of the team experience learning together” (p. 681). Hickman explained that team building involves developing team members through coaching, mentorship, and role modeling.

An effective team-building strategy would be to present team members with case studies that provide scenarios of common challenges within their industry and organization (Hill & Bartol, 2015). A growing sector for teamwork is in healthcare, and organizational leaders must train, support, and provide incentives for team development to be effective in the industry (Taplin, Foster, & Shortell, 2013). Leaders must create supportive environments for the high expectations that teamwork demands by setting the relative industry conditions during team-learning (Taplin et al., 2013). Leaders should look for new hires who display both team and technical skills and promote teamwork as a daily process (Taplin et al., 2013). Organizational leaders should encourage team building by delegating authority, clarifying roles, involving teams in decision making, and creating a culture of safe risk taking (Taplin et al., 2013).

Virtual teams utilizing the newest technologies is a growing development of teamwork in organizations (Liao, 2017). The need to share information using telecommunication technology due to increasing pressures for organizations to compete around the world “requires flexibility to

reduce operating costs, share knowledge, and build relevant teams efficiently” (Liao, 2017, p. 648). Virtual teams have the advantages and flexibility to work practically anywhere, to work as distant teams, and to participate in team building despite distant locations (Liao, 2017). Subject matter experts from around the world may participate in team-building efforts on a regular, low-cost basis that was unrealistic in the past (Liao, 2017). Virtual organizational leaders must proactively guide the relationships within the team-building processes on multiple organizational levels (Liao, 2017). Virtual leaders must conform to being change-oriented because changes in technology and the organizational environment occur rapidly, which corresponds to how leaders must train teams and enforce teamwork (Liao, 2017). Modern virtual teams are “individuals that share degrees of interdependence and mutual accountability to accomplish a goal” (Liao, 2017, p. 650). Organizational leaders must train and organize team-building scenarios to accompany virtual reality (Liao, 2017). Setting clear team objectives, goals, and expectations create opportunities for team members to share experiences and build trust (Liao, 2017). Transparency among leaders and teammates particularly during team building creates an environment of trust necessary to lay a foundation of communication and team growth (Liao, 2017).

Change-oriented leadership helps in the learning process and when combined with team learning becomes a positive indicator of team performance (Ortega, Bossche, Sánchez-Manzanares, Rico, & Gil, 2013). For example, teamwork has become an essential component of healthcare organizations, and team building is necessary to increase adaptability, productivity, and creativity (Ortega et al., 2013). In healthcare organizations, hospital performance is directly tied to service effectiveness, and continual team learning is required to adapt to a changing environment (Ortega et al., 2013). Team leaders may provide an environment safe for risk taking, which is part of a team’s exploration of creativity and adaptability as it responds to

changes (Ortega et al., 2013). Team building may provide an appropriate setting to practice risk taking and team negotiation. In a study of healthcare systems and organizations, Ortega et al. (2013) found a positive link between leadership that supports change orientation in organizations and team performance. The Ortega et al. (2013) study indicated results that teamwork is critical in health care organizations and that team performance may be enhanced through team building.

Leading Team Building in Group-Level Change

Group-level change involves team-building activities, which may support the larger organizational change (Burke, 2018). There are four purposes for team building at the group level: “to set goals and priorities, designate roles and responsibilities for team members, observe group’s processes, and to understand interpersonal relationships among group members” (Burke, 2018, p. 117). Cooperation at the group level involves all group members to have at least one goal in common, and the accomplishment of that goal requires cooperative interdependent behavior (Burke, 2018). It is critical in team interaction for everyone to pull in the same direction and continually communicate, because group-level change involves as much group interaction as possible to embrace the organization’s effort (Burke, 2018).

Group planning may eliminate interpersonal problems among the group and provide a foundation of understanding (Burke, 2018). The effort leads to group members learning to manage their own efforts. Group-level change involves team building, cooperation, team interaction and effective communication, team planning and coordination of processes, and the emphasis to become a self-directed group, which activities may support the larger organizational change (Burke, 2018). Team building is the foundation for teamwork and the interpersonal relationships necessary to be effective as individuals and with group interaction when adapting to a changing global environment.

Organizational Design and Team Building

Organizational design is necessary to frame organizational changes effectively and provide a path for success. “Organizations are products of design with the goal of improving organizations and their effectiveness” (Buchanan, 2008, p. 2). Organizational design may be viewed as activities of decision-making with advanced communication and information-sharing (Buchanan, 2008). Organizational design is essential due to the effects of continual organizational changes that occur in industries with globalization and advances in technology (Galbraith, 2014). Organizational change may be a complex process and difficult to sustain (Burke, 2018). At the organization level, “change focus, processes, and inter-organizational issues on a large scale between groups are necessary to develop purpose, mission, strategy, and culture of an organization” (Burke, 2018, p. 136). Organizational design and systems serve the purpose from individual to collective interactions in complex environments (Buchanan, 2008).

Strategy, structure, processes, reward systems, and human resource management come together in a framework called the Star Model that is a holistic view of organizations (Galbraith, 2014). Organizations are complex social systems that require leaders and managers to use the Star Model when they consider changing organizations (Galbraith, 2014). Organizing may be defined as “developing an organizational structure and allocating human resources to ensure the accomplishment of objectives” (Saylor Academy, 2018, p. 17). This ties into the importance of team building, strong relationships, and the Star Model of incorporating organizational changes by taking care of the people who make these operations work. “Strong leadership at the organizational level is imperative for organizational strategy and change to be effective” (Burke, 2018, p. 138). The elements of the Star Model may be understood as a framework of a systems

view of the organization (Galbraith, 2014). Each of the elements of design models consist of the holistic view that are jointly designed and mutually support one another (Beckman, 2009).

A joint military division, consisting of an organization of specialized training that deals with challenging and continually changing environments, requires a holistic approach and may be illustrated by the Star Model. The vision behind the UW logistics program is to develop premier logisticians globally to increase operational readiness in support of U.S. priorities. The UW logistics program's vision and mission provide the direction for its advanced training.

The Star Model and Structure

An illustration using the Star Model may provide insight on how to structure team building within organizational challenges to sustain team and leadership growth. New organizational strategies are necessary with new organizational structures to adapt to the ever changing organizational environment (Beckman, 2009). "Organizations struggle to rapidly adapt to emerging technologies with a broader variety of markets in a dynamic global marketplace" (Beckman, 2009, p. 7). Covey (2003) stated that leaders should involve people in the solution of the task or problem at hand, creating empowerment, team effort, and the essence to lead by example. Organizational success stems from the leader's clear vision and drive to make the organizational change occur by employing strategy, governance, and structures (Beckman, 2009). Covey (2014) illustrated that interactive learning begins with an interactive leader who empowers employees and proactivity and creates a circle of influence, which ultimately leads to synergy of the team.

Part of the Star Model is the structure of the organization that describes the power and authority of the organization (Galbraith, 2014). The free movement of information flow with employees gives them both the responsibility and the freedom to make decisions in real time

(Beckman, 2009). Empowering employees gives them the authority to make decisions on their own. Change at the personal level indicates individual commitment with thought processes, behavior patterns, and values that transforms the entire organization's operations (Covey & Gullledge, 1994). Kotter (2012) explained that organizational change or transformation requires "sacrifice, dedication, and creativity" (p. 32), and many people in an organization must help with the leadership task, not just one single leader's effort. The shared authority of decision-making and leadership tasks identifies the structure of the organization as successful in sharing and processing information.

Processes of the Star Model

Interdependence with teams and functions in an organization is the degree to which systems rely on each other to be successful (Galbraith, 2014). Information and decision processes comprise one of the factors of the Star Model that are more efficient with effective teams (Galbraith, 2014). Cooperation in an organization involves all group members to work toward common goals, and the accomplishment of team goals require cooperative behavior (Burke, 2018, p. 116). "Group planning by clarifying goals and responsibilities, or team procedures and processes, may eliminate interpersonal problems among the group and provide a foundation of understanding and cooperation" (Burke, 2018, p. 117).

Innovation requires significant cross-work between functions that comprise the organizational network processes (Beckman, 2009). Organizational members must learn to be self-managed, or as Burke (2018) called a "self-directed" group, because organizations must be flexible and adaptable to be competitive. "Self-directed groups allow quicker and more efficient decision-making with less bureaucracy" (Burke, 2018, p. 119). The capability to collaborate across organizational functions, industry, and geographic boundaries is the network

encompassing the successful processes and organizations (Beckman, 2009). The challenge to organizational change in UW logistics is that it occurs quite frequently with a change in mission needs and operational requirements. The mission of the training process in the UW logistics program should have an ongoing and interactive involvement throughout the organization to fully develop personnel, provide direction, rewards for good work, motivation, and assistance that comprise the network supporting organizational change.

Why Reward Systems are Important

The development of organizational capabilities and processes changes an organization's values (Beckman, 2009). Information-sharing is highly valued because it enables teams to be empowered to make decisions on their own (Beckman, 2009). With the advent of empowerment and making self-directed decisions, the probability for rewarding team members for good work is more likely. Burke (2018) suggested that some key points to sustaining progress with organizational change include "keeping people informed of the changes, measuring and giving praise for achievements, and experimenting or taking risks with different ways of rewarding people" (p. 370).

The purpose behind reward systems in an organization is to motivate teammates and align the goals of individuals with the goals of the organization (Galbraith, 2014). Leaders must motivate their teams to exhibit behaviors that incorporate successful implementation of the organization's strategy (Galbraith, 2014). In the UW logistics organization, promotion, team recognition, and time-off rewards are a few of the dominant forms of compensation for successful team members that provide an ongoing motivation for continued success. Rewarding team members for their hard work and commitment to the organization builds trust and a platform for motivation, creativity, and future collaboration (Covey, 2014).

Human Resource Management

People are the most valuable resource an organization has. Recruiting, selecting, and managing the right people in the right positions of an organization facilitates the larger change effort (Burke, 2018, p. 102). Saadat and Eskandari (2016) described the importance of managing an organization's talent and strategically placing personnel in the right positions and at the right times for organizational success (pp. 103-105). Organizational leaders must preserve the organization's talent to provide momentum for organizational change (Saadat & Eskandari, 2016).

An example of talent development in a U.S. military combatant command is through leader mentoring, regional studies and foreign language education, and inter-operable training assessments with team leaders. Enablers for development and success of the UW logistics program include continual learning from training doctrine, wargames and experiments, and the ongoing integration of women in combat roles. Talent development in the UW logistics program is essential for long-term organizational success.

The Star Model consists of strategy, structure, processes, reward systems, and human resource management that represents a holistic view of organizations (see Appendix B). Incorporating the Star Model in the UW logistics organization provides a framework for a systems view that leaders may use to support organizational changes. The Star Model is one example of the organizational design models available to improve and make organizations more efficient. Leadership and empowerment among team members is essential to establishing the holistic approach with the Star Model to incorporate organizational success.

Challenges to Organizational Change and Team Building

Individual and team responses to organizational change may be “shock and denial, anger, attempts to bargain out of the change, depression, and possibly overall acceptance” (Burke, 2018, p. 110). Despite an organization’s and a team’s best efforts, resistance to organizational change may be present in a variety of forms, from individual protection and competition to allegiance with a group, team, or particular leader (Burke, 2018). “The more groups in an organization are involved with planning and implementing change, the more likely the effort will be cooperative with less resistance” (Burke, 2018, pp. 121-122).

Strong leadership at all levels among the group-level interaction is imperative for the organizational change and team development to be effective (Burke, 2018). Team building is the instrument for teamwork that “provides a better work environment, job satisfaction, social networks, and interpersonal relationships,” which are the tools to adapt to organizational changes (Toofany, 2007, p. 24). “Organizational leaders must be aware of their members’ abilities to maintain and retain the organization’s talent, establish team-building tools, provide an environment for teamwork, provide momentum for organizational change, and identify overall cost savings” (Saadat & Eskandari, 2016, p. 106).

An example of understanding team member’s attitudes and learning preferences is through Kirton’s Adaption-Innovation (KAI) process (Kirton, 1999). KAI assumes that “all people are able to solve problems and are creative,” and the theory attempts to explain differences in cognitive style as that of adaptors or innovators (Kirton, 1999, p. 1). In organizations, adaptors are more adept to continual functions, whereas innovators excel in times of change or crisis (Kirton, 1999). “Groups need both adaption and innovation to be effective

teams over time” (Kirton, 1999, p. 3). Understanding people’s cognitive preferences helps teams and leaders better understand each other and how individuals and teams work together.

Organizational Change and Teamwork

Higgins, Weiner, and Young’s (2012) study on teams leading institutional change explained that the diversity in ideas that make up the team leads to the benefits of team member learning that become critical factors in sustaining organizational change. Group-level change is beneficial in an organization because the long-term rewards may provide team-building opportunities, competitive advantage, innovative achievements, and creative thinking at the individual and group level (Burke, 2018; Watson & Geest, 2014). Organizational change provides opportunities for teamwork, team building, and collaboration. “Leaders must emphasize collaboration versus competition between groups to alleviate obstacles in organizational change and reap the benefits of teamwork” (Hogg, Knippenberg, & Rast, 2012, p. 236). Organizations that provide the leadership and opportunities for team building with the time and effort needed to promote organizational change, may reap the benefits of innovation, creativity, and advantages of a changing global environment.

III. METHODOLOGY

Methods

The subjects of this experiment were students from an unconventional warfare (UW) logistics program associated with a military school of higher education. The school of higher education is a premier educational facility for military personnel with specialized training from all four military branches: the Army, Navy, Air Force, and Marines. A quasi-experimental study was employed to ascertain the effects of team building and continual learning to grow leaders. The working definition of a quasi-experiment is that participants are not randomly assigned to either a control group or the research group like they would be in a true experiment (Reichardt, 2002). The subjects of this research study, students at the military school, randomly registered for the UW logistics program and were arbitrarily divided into groups; a control group was not assigned.

Pre- and post-course surveys were gathered from students in five courses over a period of two years. Data collected included student perceptions on the effectiveness of the UW program and demographic information such as gender, branch of military service, and years of specialized experience (see Appendix C). This information was important to establish a baseline for how many years of experience the students had in leadership roles. The surveys prominently included questions about how willing the students were to work in groups, collaborate in professional settings, and work in teams using team-building initiatives. The pre- and postsurvey instruments were implemented by the UW logistics program director who had over 14 years of logistics and 25 years of military experience. The validity of measurement was determined by consensus from subject matter experts and leaders in the field of military logistics.

The study was considered quasi-experimental, employing a within-subjects, repeated measures design approach. Specifically, a pretest and posttest format was utilized to assess the effect of the study's treatment variable, instruction. The study's data set was completely intact, thereby avoiding any consideration of missing data imputation for analytical purposes. The study's essential data points were evaluated using descriptive statistical techniques including frequency counts (n), measures of central tendency (mean scores), variability (standard deviations), and measure of exclusive range measures (minimum and maximum).

Sample Selection

The study's data were archival in nature. Pretest and posttest scores from participants enrolled in five distinct UW logistics courses were used for the research. The sample was considered non-probability broadly and more specifically convenient and purposeful by definition. Participants were enrolled in the study's coursework from November 2015 through April 2016. A total of 125 participants comprised the study's sample; approximately eight in 10 or 82.4% ($n = 103$) participants identified as male, and the remaining 17.6% ($n = 22$) identified as female (see Appendix C).

Each UW logistics course had approximately 25 military students as participants who voluntarily completed the pre- and postsurveys, concluding with 100% participation. The surveys were hand-delivered to the students in class at the beginning of the course and at the end of the final course exercise. The surveys were anonymous with no personal, financial, military, or academic reward for participating.

Instrumentation

The instrument used in the study was the KAI survey of 32 questions regarding adaptation and innovation preferences that determined the cognitive inclinations of the

participants as-well-as creativity and group conformity preferences. The KAI surveys performed were the basis for the pretest measures and were used to measure four constructs of adaptation, innovation, creativity, and conformity. Adaptation denoted participants who preferred to solve problems by “following the rules” or organizational processes already defined for them (Kirton, 1999). Innovation described participants who preferred to determine their own way of solving problems that did not necessarily follow pre-determined rules or organizational processes (Kirton, 1999). Creativity referred to participants who preferred to be original in their thought process and not to follow group-think. The on-line dictionary definition of group-think is “the practice of thinking or making decisions as a group in a way that discourages creativity or individual responsibility” (Dictionary.com, 2018).

The terms creativity and originality in the study referred to the same idea of participants who preferred not to follow group-think. Conformity referred to participants as those who preferred to work in groups or teams. The pretest KAI survey questions equated creativity or originality to content planning and group conformity to collaboration, respectively, in the posttest survey with the same scaling (see Appendix D).

The population mean of the KAI scores was 99 from a normal range of 32 to 160 (Kirton, 1999). Five cohorts were developed within each course of 125 participants; the cohorts were organized so that each had two students above the KAI population mean score of 99 (more innovative) with three students below the population mean score of 99 (more adaptive). The raw pretest scores ranged from 32 to 160, but these scores were adjusted to a final scale from 0 to 100 by proprietary algorithm to enable comparable computations. Sub-scores of Originality and Rule/Group Conformity were calculated from the pretest and posttest scores.

The cohorts were developed to make equivalent teams in terms of adaptive and innovative participants. Between the pretest and posttest measures, students were engaged in numerous group and team exercises. The exercises encouraged teamwork through team-building events closely monitored by the program instructors. Program instructors initiated team behavior with inspired collaboration and encouraged teamwork, but they did not make groups working as teams compulsorily. Individuals and groups made their own choices regarding extent of teamwork, collaboration, and whether team-building techniques were actually employed. Instructors also did not inform students that teamwork, collaboration, or team-building initiatives were necessary to get a passing grade in the course. Instructors purposefully monitored teamwork to identify student preferences during and after the course.

The posttest scores were achieved through rigorous post-course evaluation by the UW logistics program director and senior instructors (see Appendix D). Posttest scores were created by the UW program instructors, averaged on a 10-point scale, and then multiplied by 10 to achieve the 0-to-100 final scale. Posttest scores reflected the after-effect of team-building exercises and leadership development through teamwork, including individual and group scores achieved in the study. Posttest scores identified creativity through content planning measures and rule/group conformity through collaboration measures in the students' final evaluation (see Appendix D). Instrumentation was carefully aligned to comprehend the before- and after-effects of team-building initiatives.

Procedures

The study began with approval from the Institutional Review Board (IRB) at Southeastern University. The data collection occurred over a two-year period with five distinct UW logistics courses. Data were collected from archival collections retrieved from the course

director from past courses (fiscal years 2016-2017). The UW logistics course began with a KAI survey, which was the pretest measure for the research. Approximately 50 hours of instruction was provided with individual and group exercises promoting teamwork. The UW logistics course culminated with an equivalent posttest instrument. The data were anonymized by the researcher through the deletion of names, locations, and affiliations with any organizations. Hard copies of the data were used to ensure security and later destroyed (shredded). Pretest and posttest scores were then recorded in an Excel spreadsheet and prepared for subsequent analysis in IBM SPSS Version 25, congruent with the study's research questions. The questions specifically related to the research and analysis were:

Research Question 1: Did targeted instructional programming exert a statistically significant effect upon participant performance in the domain of "Originality"?

Research Question 2: Did targeted instructional programming exert a statistically significant effect upon participant performance in the domain of "Rule/Group Conformity"?

Research Question 3: In which course was the greatest treatment effect manifested from the pretest to posttest condition of the study of "Originality"?

Research Question 4: In which course was the greatest treatment effect manifested from the pretest to posttest condition of the study of "Rule/Group Conformity"?

Research Question 5: Was the study's treatment effect greater for the domain of "Originality" or for the domain of "Rule/Group Conformity"?

Research Question 6: Was there a treatment effect difference for male and female study participants in the two domains represented in the study?

The research questions led to further analysis, with statistical techniques employed to derive an understanding whether statistical significance could be found in developing leaders through team-building techniques.

Data Analysis

Statistical significance was measured with the elements of IBM SPSS Version 25 (IBM, 2017). Dependent *t* test analysis was conducted to find evidence of a significant difference between the population mean and the hypothesized value. The data for the variables in the study were derived from pre- and postsurvey analysis from students in the UW logistics courses, referring to the evidence of teamwork, group interaction, and collaboration.

Further analysis was conducted to determine the magnitude of effect sizes from the pretest to posttest conditions of the study and using *t* test of independent means techniques to determine if there were significant differences of the impact of team building, group interaction, collaboration, and continual learning on growing leaders in the UW logistics program.

The study's proposed research questions were addressed broadly using a variety of descriptive, associative, predictive, and inferential statistical techniques. Frequency counts (*n*), measures of central tendency (mean scores), and variability (standard deviation) represented the primary descriptive statistical techniques used to address the six research questions. Three specific preliminary analyses primarily applied descriptive techniques with emphasis upon the issue of central tendency and variability.

Research Questions 1 and 2 involved the assessment of treatment effects across the pretest and posttest conditions. The *t* test of dependent means was used to assess the statistical significance of mean score change from the pretest to posttest condition of the two research questions. The threshold for statistical significance of finding in Research Question 1 was $p <$

.05. The magnitude of treatment effect (effect size) was evaluated using Cohen's *d*. Cohen's conventions of effect size interpretations were employed for the qualitative descriptions of effect size in Research Questions 1 and 2.

Research Questions 3 and 4 addressed comparisons of treatment effect across the five participant courses with respect to the study's domains of "Originality" and "Rule/Group Conformity." Glass' delta (Δ) was primarily applied along with *t* test values to assess treatment effect in light of standard deviation differences in the pretest/posttest mean scores within the five courses in both research questions. Cohen's conventions of effect size interpretations were employed for the qualitative descriptions of effect size in Research Questions 3 and 4.

Research Questions 5 and 6 were considered between-subjects by research design, and as such, the statistical significance of mean score differences between the two independent groups in each research question was assessed using the *t* test of independent means. The threshold for statistical significance of finding was $p < .05$. The magnitude of treatment effect (effect size) was evaluated using Cohen's *d*. Cohen's conventions of effect size interpretations were used for the qualitative descriptions of effect size in Research Questions 5 and 6.

IV. RESULTS

In advance of addressing the formally stated research questions of the study, three specific preliminary analyses were conducted: missing data, essential data points, and KAI. The study’s data set was completely intact, therefore eliminating the consideration of data imputation techniques. Regarding the study’s essential data points, Table 1 contains a summary of the descriptive analyses and findings related to the fundamental data of the study:

Table 1

Descriptive Statistical Analyses and Findings

Identifier	<i>n</i>	Mean	SD	Minimum	Maximum
Pretest Originality	125	45.83	6.65	31	58
Posttest Originality	125	86.88	10.27	70	100
Pretest Conformity	125	36.19	7.23	20	51
Posttest Conformity	125	94.80	6.55	80	100
KAI	125	98.19	14.52	66	139

Two analyses were conducted regarding the KAI survey: normality of participant score distribution and course comparison for statistical significance of difference. The mean KAI score was 98.19 (SD = 14.52). Nearly half of study participants (44%) scored above the mean (99-139) within the data’s array. Using the one-sample Kolmogorov-Smirnoff (K-S) test, the data array for KAI was found to be statistically significant (K-S₍₁₂₄₎ = 0.10; *p* = .002).

UW Logistics Course Comparisons

Using a one-way analysis of variance (1 x 5 ANOVA), the effect for participant course upon KAI score was found to be non-statistically significant ($F_{(4, 120)} = 0.16; p = .96$). Table 2 contains a summary of findings for the effect of participant course:

Table 2

Effect of Participant Course

Course	<i>n</i>	Mean	SD	<i>df</i>	<i>F</i>
1	24	96.92	2.91	4, 120	0.16
2	25	97.48	3.14		
3	24	97.79	3.29		
4	25	98.76	2.90		
5	27	99.82	2.51		

Findings by Research Question

Research Question 1: Did targeted instructional programming exert a statistically significant effect upon participant performance in the domain of “Originality”?

Using the *t* test of dependent means to assess the statistical significance of participant performance from the pretest to posttest condition of the study, statistical significance was manifested in the mean score change of 41.05 (SD = 12.19) on the domain of “Originality.” Moreover, the magnitude of treatment effect from the pretest to posttest condition of the study is considered very large ($d \geq 1.30$). Table 3 contains a summary of finding for the effect of targeted instruction from the pretest to posttest condition of the study.

Table 3

Evaluating the Treatment Effect of Targeted Instruction for the Domain of “Originality”

Study Condition	<i>n</i>	Mean	SD	<i>t</i>	<i>D</i>
Pretest	125	45.83	6.85	37.55***	5.99 ^a
Posttest	125	86.88	10.27		

Note. *** $p < .001$ ^a Very Large Effect Size ($d \geq 1.30$)

H_{a1}: Targeted instructional programming will exert a statistically significant effect upon participant performance in the domain of “Originality.”

In consideration of the statistically significant finding, the effect of targeted instructional programming upon participant performance in the domain of “Originality,” the alternative research hypothesis (H_{a1}) for Research Question 1 is retained.

Research Question 2: Did targeted instructional programming exert a statistically significant effect upon participant performance in the domain of “Rule/Group Conformity”?

Using the *t* test of dependent means to assess the statistical significance of participant performance from the pretest to posttest condition of the study, statistical significance was manifested in the mean score change of 58.61 (SD = 9.27) on the domain of “Rule/Group Conformity. Moreover, the magnitude of treatment effect from the pretest to posttest condition of the study is considered very large ($d \geq 1.30$). Table 4 contains a summary of finding for the effect of targeted instruction from the pretest to posttest condition of the study.

Table 4

Evaluating Treatment Effect of Targeted Instruction for Domain of “Rule/Group Conformity”

Study Condition	<i>n</i>	Mean	SD	<i>t</i>	<i>d</i>
Pretest	125	36.19	7.23	70.65***	8.51 ^a
Posttest	125	94.89	6.55		

Note. *** $p < .001$ ^a Very Large Effect Size ($d \geq 1.30$)

H_{a2}: Targeted instructional programming will exert a statistically significant effect upon participant performance in the domain of “Rule/Group Conformity.”

In consideration of the statistically significant finding, the effect of targeted instructional programming upon participant performance in the domain of “Rule/Group Conformity,” the alternative research hypothesis (H_{a2}) for Research Question 2 is retained.

Research Question 3: In which course was the greatest treatment effect manifested from the pretest to posttest condition of the study of “Originality”?

Using Glass’ delta (Δ) to assess the magnitude of treatment effect in light of the noteworthy differences in the standard deviations within the five comparisons, all five courses reflected a very large magnitude of treatment effect from the pretest to the posttest condition of the study. The fifth course, however, manifested the single greatest magnitude of effect at $d = 7.55$. Table 5 contains a summary of finding for the comparison of treatment effects from the pretest to posttest condition of the study for each participating course.

Table 5

Evaluating Treatment Effect of “Originality”

Course	<i>n</i>	<i>t</i>	<i>d</i>
1	24	23.20***	7.24 ^a
2	25	13.61***	5.06 ^a
3	24	13.45***	5.66 ^a
4	25	27.03***	5.41 ^a
5	27	23.47***	7.55 ^a

Note. *** $p < .001$ ^a Very Large Effect Size ($d \geq 1.30$)

H_{a3}: The fifth course will manifest the greatest treatment effect from the pretest to posttest condition of the study of “Originality.”

In consideration of the superior treatment effect demonstrated in the performance of the fifth course in the domain of “Originality,” the alternative research (H_{a3}) for Research Question 3 is retained.

Research Question 4: In which course was the greatest treatment effect manifested from the Pretest to Posttest condition of the study of “Rule/Group Conformity”?

Using Glass’ delta (Δ) to assess the magnitude of treatment effect in light of the noteworthy differences in the standard deviations within the five comparisons, all five courses reflected a very large magnitude of treatment effect from the pretest to the posttest condition of the study. The fifth course, however, manifested the single greatest magnitude of effect at $d = 12.10$. Table 6 contains a summary of finding for the comparison of treatment effects from the

pretest to posttest condition of the study for each participating course on the domain of “Rule/Group Conformity.”

Table 6

The Greatest Treatment Effect Manifested of “Rule/Group Conformity”

Course	<i>n</i>	<i>t</i>	<i>d</i>
1	24	32.94***	6.73 ^a
2	25	35.99***	9.19 ^a
3	24	23.99***	6.24 ^a
4	25	38.43***	7.69 ^a
5	27	62.87***	12.10 ^a

Note. *** $p < .001$ ^a Very Large Effect Size ($d \geq 1.30$)

H_{a4}: The fifth course will manifest the greatest treatment effect from the pretest to posttest condition of the study of “Rule/Group Conformity.”

In consideration of the superior treatment effect established in the performance of the fifth course in the domain of “Rule/Group Conformity,” the alternative research (H_{a4}) for Research Question 4 is retained.

Research Question 5: Was the study’s treatment effect greater for the domain of “Originality” or for the domain of “Rule/Group Conformity”?

Using the *t* test of independent means to assess the statistical significance of difference in mean difference scores between the domains of “Originality” and “Rule/Group Conformity,” a statistically significant difference favoring the domain of “Rule/Group Conformity” was manifested. Moreover, the magnitude of treatment effect favoring the domain of “Rule/Group

Conformity” is considered very large ($d \geq 1.30$). Table 7 contains a summary of finding for the comparison of mean differences from the pretest to posttest conditions of the study for respective domains.

Table 7

Greater Treatment Effect of “Originality” or “Rule/Group Conformity”

Domain	<i>n</i>	Mean Diff Pre/Posttest	SD	<i>t</i>	<i>d</i>
Originality	125	41.95	12.19	12.82***	1.53 ^a
Rule/Group Conformity	125	58.61	9.27		

Note. *** $p < .001$ ^a Very Large Effect Size ($d \geq 1.30$)

H₀₅: There will be no statistically significant difference in the treatment effect for the domain of “Originality” and the domain of “Rule/Group Conformity”?

In consideration of the statistically significant treatment effect difference favoring “Rule/Group Conformity,” the null hypothesis (H₀₅) for Research Question 5 is rejected.

Research Question 6: Was there a treatment effect difference for male and female study participants in the two domains represented in the study?

Using the *t* test of independent means to assess the statistical significance of difference in mean scores in the domains of “Originality” and “Rule/Group Conformity” by gender of participant, no statistically significant difference in performance by gender was found in either of the two domains featured in the study. Table 8 contains a summary of finding for the comparison of treatment effect by participant gender in both domains featured in the study.

Table 8

Treatment Effect Comparison by Gender and Domain

Gender/Domain	<i>n</i>	Mean	SD	<i>t</i>
Originality (Male)	103	41.22	12.55	0.35
Originality (Female)	22	40.23	10.53	
Rule/Group Conformity (Male)	103	58.19	8.92	1.08
Rule/Group Conformity (Female)	22	60.44	10.80	

H₀₆: There will be no statistically significant treatment effect for gender of study participants in the two domains represented in the study.

In consideration of the non-statistically significant treatment effect for gender of study participant, the null hypothesis (H₀₆) for Research Question 6 is retained.

V. DISCUSSION

The study involved students from all military services who participated in an unconventional logistics (UW) program at a military school of higher education. The UW logistics program focused on modern methods of instruction through interactive exercises and training modules, applied tests, group evaluations, and team-building techniques. Quantitative processes were used to examine the effectiveness of growing leaders through team building and continual learning within the UW logistics program that lead to affirmative findings that were beyond the researcher's expectations.

Overview

As seen through the analysis of the study, students demonstrated increases through improvements in group conformity and creativity. Continual learning efforts are substantial characteristics of leadership development. Each of these characteristics are not singular efforts or merely independent tools as often explained in leadership development literature. Instead, these topics are comprehensive and are a collection of developmental traits for effective leaders and teams to continually explore.

Research data were collected through five pre- and post-course surveys with a sample population of 125 special operations students in fiscal years 2016 and 2017. The pretest surveys focused on an instrument based on the Kirton Adaption-Innovation (KAI) theory, which was a series of 32 questions consequent to an individual's cognitive preference of adaption or innovation thinking (Kirton, 1999). Kirton's KAI instrument helped determine an individual's cognitive preferences of adaption or innovation relating to "individual development, group training, personal awareness with the management of diversity, management training and change, enhancement of group cohesion and effectiveness, leadership development, problem

solving with team building, team building development, and problem management” (Kirton, 2019, para. 1-8).

The posttest scores were attained through rigorous post-course evaluation by the UW logistics program director and senior instructors (see Appendix D). Posttest scores reflected the outcomes of team-building exercises and leadership development through teamwork, including individual and group scores achieved in the study.

Preliminary Analysis

The internal reliability of response was consistent and statistically significant with a very large effect size for each category analyzed. The pretest and posttest analyses were valid, representing the proposed variables succinctly. The study’s data set was completely intact, therefore eliminating the consideration of data imputation techniques. Each of the research questions evaluated a specific implication of team building as it relates to leadership development.

The study was considered quasi-experimental, employing a within-subjects, repeated measures design approach. Specifically, a pretest and posttest format was applied to assess the effect of the study’s treatment variable, instruction. The study’s essential data points were evaluated using descriptive statistical techniques. Specifically, frequency counts (*n*), measures of central tendency (mean scores), variability (standard deviations), and measure of exclusive range measures (minimum and maximum).

Findings

Specific questions were poised to detect the significance of team building with leadership development. These questions are important because they discovered an in-depth analysis of

detailed team-building attributes to detect contributions for future leadership development practice in organizations.

The initial KAI pretest scores indicated that the students were willing to adapt and learn the new course material in an unfamiliar environment. The answers to the pretest questions clarified the students' willingness to work in groups, teams, and systems (or organizations), which resulted in statistical significance. Although the students were considered independently driven for success, from their initial selection criteria to attend the course, the group and team atmosphere projected within the learning environment by the instructors made a strong impression on students from the first day of instruction. Setting the scene or atmosphere for team building is essential for an environment of group learning and teamwork. The effort made by the instructional staff to create a group learning environment that emphasized teamwork made a positive impact on the students' preferences to participate in team building found in the statistical significance of the results.

The importance of the preliminary research questions and results were to see if one course had any predominant effect over another (see Table 2, Effect of Participant Course). The findings of the effect of each participant course upon pretest questions was found not-statistically significant, meaning that the pretest questions were fair and unbiased for the students in the course taking the surveys with roughly the same course structure. This finding is important because it showed that participants in each course made their own decisions and allocated preferences regarding the categories of adaptive, innovative, creativity, and conformity without any outside influences from other like-minded students of the UW logistics courses. The findings illustrated equal distributions of the KAI pretest survey. All courses started at relatively

the same point, with sample scores that corresponded closely to the population mean score of 99 (see Table 2, Effect of Participant Course).

Research Question 1: Did targeted instructional programming exert a statistically significant effect upon participant performance in the domain of “Originality”?

“Originality” was statistically significant from pretest to posttest surveys. The established mean for pretest surveys was 45.83, evolving to the posttest survey mean of 86.88, which indicated a large effect size of $d \geq 1.30$. Originality stems as a student’s willingness to come up with unique ideas unaccompanied, as opposed to working in groups to establish group consensus. Individuals working in teams still show significant gains in their creativity. The findings indicate that working in teams did not limit individual creativity; instead, the UW logistics training course with team-building initiatives enhanced creativity. The posttest results showed positive statistical significance, indicating the students’ preference to work in teams for more productive results. The UW logistics program gave students an option to work individually or within a group environment to work in teams. The finding indicated that students’ preferences and willingness to work in teams were significant when the opportunity for a team environment was established.

Research Question 2: Did targeted instructional programming exert a statistically significant effect upon participant performance in the domain of “Rule/Group Conformity”?

“Rule/Group Conformity” relates to how willing a student is to work in groups or teams and to participate in team-building exercises. The phrase “rule/group conformity” in its literal sense may seem that students conformed or followed rules or group-think, but in this research context, it means the students’ willingness to work together to achieve a desired result. There was statistical significance with a very large magnitude in effect size, $d \geq 1.30$, indicating the

posttest mean score results were significantly higher than the pretest surveys, 36.19 to 94.89, respectively.

Research Question 2 was another measure of how students preferred to work in group settings and employ team-building techniques. The findings demonstrated that, regardless of their original preferences, the students were significantly more likely to work in teams as a consequence of taking the UW logistics course. The question also indicated to the instructor staff if the team-building program initiatives were useful and worth the effort. Overall, the students did not know each other prior to the class, had no prior work experience together, and had no knowledge that they were being placed in a cohort. The students were basically strangers who worked in similar logistics jobs around the world. Team-building initiatives were advantageous when the team environment was established, the students identified themselves as team players, and the team accomplished their desired results.

Leadership development was seen through these team-building initiatives because every group required an alternating leader to present solutions, presentations, and to speak for their group when necessary. As the cohorts were building teams, they were also building working relationships that had to adapt to new leadership roles day by day. Not only did the teams become stronger as exercises progressed, students were able to learn leadership roles, practice leadership strategies, and develop with experience as future military leaders. The findings suggested that instructional programming through team-building exercises, measured by student performance in rule group conformity, was significant.

Research Question 3: In which course was the greatest treatment effect manifested from the pretest to posttest condition of the study of “Originality”?

The research question was used to test the effect between courses and if any differences could be detected by the magnitude of the pretest to posttest conditions with “Originality.” Originality stems from a student’s willingness to come up with unique ideas unaccompanied, as opposed to working in groups to establish group consensus. The finding reasserts that students’ preferences and willingness to work in teams are significant when the opportunity for a team environment was established. All five courses reflected a very large magnitude effect from pretest to posttest surveys with a very large effect size, $d \geq 1.30$, which means that not one course generally had a larger difference from pretest to posttest surveys. The fifth course had a slightly larger magnitude than the other four courses, which may be partly due to the slightly larger group ($n=27$).

Another reason for the larger magnitude effect in the fifth course may be due to the progression of the UW logistics program, the progression of the exercises, and the increased expectation by the instructor staff for students to participate more in team-building exercises. At the time, in the UW logistics program, this course in the study represented the fifth official course from when the program was established or roughly the second year of UW logistics courses. As instructors become more seasoned and comfortable with the course curriculum, the team-building exercises may become slightly more complex or challenging. For instance, as the UW logistics program continued, instructors attempted to improve courses with better procedures and lessons learned after each iteration. As with most higher education programs, instructors make efforts to improve their courses and increase student learning from past results and increased expectations for their program. In essence, instructors making program improvements are characteristics of continual learning and leadership development transcending from the instructor to the program and ultimately to the students. The data indicate that when

instructors promoted more teamwork and collaboration during the course, the student response reflected the anticipation of the instructors with the expectations to work harder within the teams. The implications of these team-building tactics and expectations are greater team participation with improved program results.

Research Question 4: In which course was the greatest treatment effect manifested from the pretest to posttest condition of the study of “Rule/Group Conformity”?

“Rule/Group Conformity” reflects how willing a student was to work in groups or teams and participate in team-building exercises. As seen in Research Question 4, the definition should be repeated for clarity: The phrase “rule/group conformity” in its literal sense may seem that students conformed or followed rules or group-think, but in the research context, it is defined as the students’ willingness to work together to achieve a desired result.

The findings from Research Question 4 reflected a very large magnitude from pretest to posttest surveys within the standard deviations of the five UW logistics course comparisons. These findings illustrate that participants in all five courses were eager to work in teams and contribute in team-building exercises, in addition the participants in the fifth course had the greatest magnitude of effect with $d = 12.10$. Perhaps the reason for the fifth course having the greatest magnitude of effect is that it had a slightly larger class size, with 27 willing participants in team-building exercises.

Similar to reasoning in the findings of Research Question 3, the larger magnitude effect in the fifth course may be due to the progression of the UW logistics program, the progression of the exercises, and the increased expectation by the instructor staff for students to participate more in team-building exercises. The increased involvement of instructors in the program and motivation of student participation may explain the largest magnitude of effect in the fifth

course. The overall implication is that all five courses had statistical significance regarding students' willingness to work in teams, participation in team-building events, and preference to achieve program requirements working in groups versus individual effort.

Research Question 5: Was the study's treatment effect greater for the domain of "Originality" or for the domain of "Rule/Group Conformity"?

Both domains portrayed necessary insight to willingness, preference, and behaviors of students working in teams and participating in team-building events. Interestingly, "originality" indicated that students' preferences and willingness to work in teams are significant when the opportunity for a team environment was established, whereas the stronger effect was produced at the completion of the UW logistics course and the program objectives were accomplished. The magnitude for the domain "rule/group conformity" was considered very large ($d \geq 1.30$), indicating that student willingness and preferences to work in teams and participate in team building increased at the completion of the course. Students were able to realize that working in teams was beneficial for individual growth as leaders and necessary to accomplish their mission effectively.

Research Question 6: Was there a treatment effect difference for male and female study participants in the two domains represented in the study?

There was no significant difference between male and female results. Research Question 6 was not the focus of the research study, but the implications of analyzing the data based on gender performance revealed the research study and the UW logistics program had no biases in data results or program objectives in reference to gender. There was a larger male population ($n=103$) versus the female population ($n=22$) of all five courses, and even with the large difference in populations, there was still no implication of significance. Gender did not play a

role in leadership development, teamwork, team-building participation, willingness or preferences to participate, or continual learning objectives in the UW logistics program.

Important to note is that the student population was random and generally there are more males than females in the military.

Research Limitations

Accumulating data for only a military setting or using only one military organization may have limited the overall effects of team-building practices. The advantages of military organizations are structure, a captive audience, and dutiful willingness to participate, which limits the external environmental variables that may affect team-building practices. The current research study focused on one program and did not compare and contrast the study with several different organizations or programs.

The study also only tested one field or industry - logistics - and had no statistical comparison with other fields or industries with the equivalent research questions. Other delimitations were the parameters of only five separate courses with simply two major domains of leadership, which were originality and rule/group conformity. Exploring more domains of leadership and team building may have different results.

Practical Implications

The research provided in the study may help the military, group training, team-building initiatives, and leadership development by demonstrating that persistent and decisive efforts toward team building may have positive implications for leadership growth and overall development. The research decisively explored leadership development through team-building efforts that may be applied to other military fields and civilian industries with modern methods of instruction through interactive exercises and training modules, applied tests, group

evaluations, and relationship building. As seen through the literature review, the application of team-building concepts illustrated in the study with the UW logistics program may be used in other industries, such as healthcare, or in other business organizations. The UW logistics course was implemented over a two-week period, with successful results suggesting that continual initiatives for team building and leadership development could be practical endeavors for organizations desiring to develop their teams and leaders in the long term.

Future Directions

Recommendations for future research are to compare leadership development and team-building initiatives in different industries with a transdisciplinary study. Working jointly with researchers from different disciplines may create new concepts, theories, and methods of leadership development and team-building techniques yet to be identified. The social and policy ramifications of promoting team building as a leadership development requirement may broaden the individual perspective to achieve the team perspective needed in all industries. Perhaps leadership development through team building may broaden the perspectives of group-think to encourage government representatives of different nations to work together globally to invoke policies that are conducive for the majority versus individual nation-state needs.

Conclusion

The data indicated that growing leaders through team-building efforts and continual learning, as seen in the current study, is significant overall, and leadership development may be attained through team-building techniques if employed purposefully and persistently. With the team-building approach in the UW logistics courses, originality (or creativity) and group conformity have both increased in significance meaning that individuals were growing with creativity and group conformity regardless of their unique measured preferences. Leadership

development through teamwork are continual learning processes that may not be achieved through haphazard and solitary efforts. Team building does not ensure teamwork, continual learning, or leadership development if not purposefully employed and persistently developed in continual learning processes. Part of leadership and teamwork is the willingness to participate. Incentives for participation is always a concern for groups of people to work together in teams and participate in team building. The importance of using modern methods of instruction through interactive exercises and training modules, applied tests, group evaluations, and relationship building cannot be overstated. If the current research study invoked any consideration, it should be that leadership development, purposeful team-building practices, and teamwork inspire creativity and innovation and provide decisive advantages in a changing global environment.

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APPENDICES

Appendix A: The Star Model (Galbraith, 2014)

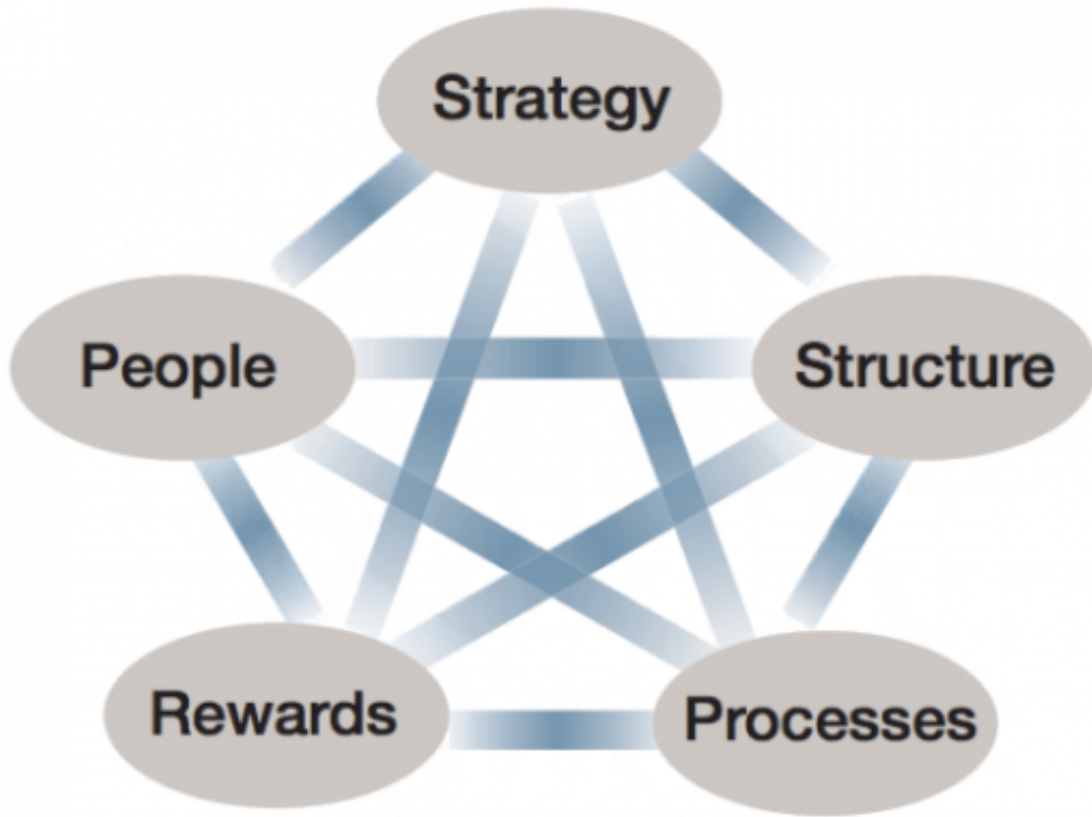
Appendix B: Group Level Change and Team Building (Burke, 2018, pp. 116-138)

Appendix C: Demographics for Participating UW Logistics Program Students

Appendix D: UW Logistics Program Evaluation Criteria and Rubric

Appendix A

The Star Model (Galbraith, 2014)



Appendix B

Group Level Change and Team Building (Burke, 2018, pp. 116-138)



Appendix C

Demographics for Participating UW Logistics Program Students

<i>n</i> = 125	# of UW Students	% Total Population
Gender		
Male	103	82
Female	22	18
Military Branch		
Army	64	51
Air Force	38	30
Navy	12	10
Marines	11	09
Years in Specialized Experience		
0-5	57	46
6-10	39	31
11-15	18	14
16-20	11	09

Appendix D

UW Logistics Program Evaluation Criteria and Rubric

Course Iteration: _____ Group: _____ Topic: <u>UW Logistics Course</u> Date: _____ Members: _____					
Students are assigned to a group (4 – 6 per group) and a group lead identified. The group selects a primary and alternate leader to analyze and present to the class. Students are graded on class participation, class exercises, class presentations, individual, and group performance.					
Criteria	Novice	Competent	Proficient	Expert	NOTES
Content Authorities	7	8	9	10	
Content Interagency	7	8	9	10	
Content Planning	7	8	9	10	
Content Support	7	8	9	10	
Presentation and Organization	6	7	8	10	
Collaboration	6	7	8	10	
References	6	7	8	10	
One page Essay	14	17	20	30	
Grade	60-69	70-79	80-89	90-100	
Overall Assessment	Grade			%	Instructor notes:
Expert	Excellent			90-100%	
Proficient	Good			80-89%	
Competent	Fair			70-79%	
Novice	Poor			60-69%	*Remedial instruction required

Criteria	Novice	Competent	Proficient	Expert
Content Authorities	7 Points No effort to identify and apply key authorities used in UW.	8 Points Minimal effort to identify and apply key authorities used in UW.	9 Points Moderate effort to identify and apply key authorities used in UW.	10 Points Expert effort to identify and apply key authorities used in UW.
Content Interagency	7 Points Comprehend requirement and process for interagency and external organization relationships NOT presented.	8 Points Comprehend requirement and process for interagency and external organization relationships minimally presented.	9 Points Comprehend requirement and process for interagency and external organization relationships mostly presented.	10 Points Comprehend requirement and process for interagency and external organization relationships expertly presented.
Content Planning	7 Points Analyze and create COAs for UW planning NOT presented.	8 Points Analyze and create COAs for UW planning minimally presented.	9 Points Analyze and create COAs for UW planning mostly presented.	10 Points Analyze and create COAs for UW planning expertly presented.
Content Support	7 Points Evaluate key UW support issues for SA NOT presented.	8 Points Evaluate key UW support issues for SA minimally presented.	9 Points Evaluate key UW support issues for SA mostly presented.	10 Points Evaluate key UW support issues for SA expertly presented.
Presentation and Organization	6 Points Neither organized nor presented well. Minimal effort.	7 Points Effort to organize and present material in coherent manner was demonstrated, but less than satisfactory.	8 Points Either presented well or organized, but improvement needed.	10 Points Expertly presented and Organized effectively.
Collaboration	6 Points Teammates never worked from others' ideas. It seems as though only a few people worked on the presentation.	7 Points Teammates sometimes worked from others' ideas. However it seems as though certain people did not do as much work as others.	8 Points Teammates worked from others' ideas most of the time. And it seems like everyone did some work, but some people are carrying the presentation.	10 Points Teammates always worked from others' ideas. It was evident that all group members contributed equally to the presentation.
References	6 Points < than 50% of references provided as directed; no annotated references used.	7 Points 50% of references provided as directed; one annotated reference used.	8 Points 75% of references provided as directed; two annotated references used.	10 Points References provided as directed; more than two annotated references used.
Essay	14 Points No references used; many grammar errors, content incomplete.	17 Points Only 1 reference used; some grammar errors; content meets minimum standard of UW knowledge.	20 Points At least 2 references used; few grammar mistakes; above standard of UW knowledge displayed.	30 Points 2 or more references used; no grammar mistakes; in-depth UW knowledge displayed with unique ideas or solutions.