2021

Comparing the Moderating Effects of Military Rank on Absorptive Capacity

Allen Brannan
Walden University

Walden University

College of Management and Technology

This is to certify that the doctoral dissertation by

Allen Guy Brannan

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Maja Zelihic, Committee Chairperson, Management Faculty
Dr. Bryan Forsyth, Committee Member, Management Faculty
Dr. Robert Haussmann, University Reviewer, Management Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2021

Abstract

Comparing the Moderating Effects of Military Rank on Absorptive Capacity

by

Allen Guy Brannan

MA, Naval Postgraduate School, 1999

BS, McMurry University, 1988

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

Walden University

May 2021

Abstract

Many tactical-echelon military unit training programs do not reach their stated objectives for growth in organizational skills and increased mission capability due to a less than complete understanding of how the training audience transfers the training program's new knowledge into operational processes. The subsequent squandering of valuable resources, such as time, people, and materials, limits the unit's ability to accomplish its assigned tasks and overall mission. Cohen and Levinthal's absorptive capacity theory describes how organizations transfer new knowledge. Their theory is applied here to better understand how soldiers in tactical-echelon military units perceive the transfer of knowledge from external sources. The dependent variables were absorptive capacity's four components, acquisition, transference, assimilation, and exploitation, and the independent variable was U.S. Army military rank, with two subsets, officers, and enlisted soldiers. Recruited through personal connections and online survey source, the 401, who were a combination of reserve and national guard soldiers, participated in the study. A MANCOVA was used for data analysis. The results of the study indicated that military rank did not significantly impact the perception of the dependent variables, acquisition, transference, assimilation, and exploitation. An increased understanding of the variables affecting knowledge transfer in military units would benefit the soldier's task performance. The improved task performance would then manifest itself in overall mission performance supporting civil governance, protecting civil rights, upholding democracy worldwide, and will greatly reinforce positive social change.

Comparing the Moderating Effects of Military Rank on Absorptive Capacity

by

Allen Guy Brannan

MA, Naval Postgraduate School, 1999

BS, McMurry University, 1988

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

Walden University

May 2021

Dedication

This research effort, and my growth along the way, is dedicated to my family. Firstly, to my mother and father, Carolyn and Clark Brannan, for instilling a lifelong curiosity for learning new things and the desire to develop a better understanding of what is happening all around me.

I would also like to acknowledge and thank my friend and mentor Don E. Brown of Des Moines, IA. The timely collection of the requisite number of surveys and data points would not have been possible without his energy and help in reaching out to his network of service members. I am glad Don Brown knows paper!

Next, to my children, Brittne, Deric, and Shelli, who kept me centered and for not letting me think too much of myself and for often reminding me “Dad you need new jokes!”

And, lastly, to my wife, Lori, for leading the way during my innumerable deployments and our many family relocations, supporting me during this academic effort, and especially being my forever love and the engine that keeps all ofU.S.powered up. I love you.

Thank you.

Acknowledgments

I want to thank the faculty, student support staff, and other staff who make Walden University a great place to learn, study, and grow. In particular, the Walden University Library staff was extremely helpful. They aided greatly in my searches and discovery of the requisite articles needed to support this research effort.

I would also like to express my gratitude to the soldiers, noncommissioned officers, and officers of the U.S. Army National Guard who participated in this study. Your participation enabled a higher level of understanding of how knowledge management works in your units. The knowledge gained could help leaders to develop better training programs. Thank you for your time and your service.

I am also extremely grateful for the guidance, patience, and mentoring of my faculty chairperson, Dr. Maja Zelihic, and my committee member, Dr. Brian Forsyth. I appreciate the candid editorial suggestions, unwavering support, and unflagging encouragement during the entire process. All were paramount in me reaching the final objective.

Thank you.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

Many training and education programs continue to fall short of their stated objectives for both the individual and the collective institution. The shortfall in reaching program goals often results in significant losses in critical resources such as time, material, and personnel hours (Cicmil et al., 2016). Kotter (2007) examined this issue in his study of how organizations function when launching developmental programs. Kotter's work was among the earliest to quantify success rates hovering near an average of 15%. Other studies by Lee and Newcomer (2008) and, more recently, Tobias (2015) and Beer et al. (2016), all reinforce Kotter's original findings of weak performance trends in training programs across a broad spectrum of organizations. These researchers recorded patterns that were not limited to the business community. Beer et al., for instance, discovered that service-oriented organizations were not immune to the same insufficient performance numbers and that training and developmental programs in governmental, service, and nonprofit training plans fall short of expectations more than 75% of the time. These reduced success rates are not sustainable for any organization and often lead to repeated attempts of the same training program, which exacerbates the organization's turbulence. The self-inflicted turmoil further reduces the capacity of the unit to focus on the execution of the program.

In this research study, I attempted to identify possible relationships among the knowledge transfer steps and the organization's hierarchy to help raise the success rate.

Background of the Study

They are several factors that can contribute to the failure of training and education programs, no matter the type of organization. Leadership, management of people, resources, time, formal and informal organizational structures, and prioritization of tasks are all possible factors in why a particular training effort can fail to reach its stated goals and objectives (Cicmil et al., 2016). The collective body of literature has overlooked the collective understanding of how a service organization, defined for this study as a tactical-echelon military unit, absorbs new information and impacts the management process. In this study I used battalions and brigades to represent tactical-echelon units. There are numerous research efforts regarding knowledge transfer and absorptive capacity in the business community (Malik & Kanwal, 2018; Wahda, 2017). I applied Cohen and Levinthal's (1990) knowledge transfer theory of absorptive capacity defined by its four components of acquisition, assimilation, transference and exploitation. In this research, I used previous academic efforts as a means to explore how knowledge transfer occurs in a service organization, namely a U.S. Army National Guard tactical military unit.

The predominance of absorptive capacity applications is in the business sector. I examined how well absorptive capacity might connect to applications in tactical-echelon military units in the U.S. Army National Guard. Tobias (2015) provided some additional insight and background information on training management's success by concentrating on the attainment of objectives by measuring potential versus realized capabilities using

investment dollars, positive social change, and leadership development as possible factors. Tobia's study correlates with McEvoy et al.'s (2017) survey on absorptive capacity in identifying several shortfalls in understanding how public service organizations differed from the private sector. Like many in the business community, the civil service sector did not perform well in their collective attempts to surmount the difficulties present in establishing an efficient, sustainable knowledge management process. I applied absorptive capacity, Cohen and Levinthal (1990) as the theoretical bridge from applications in service organizations to military organizations.

Garrido et al.'s (2017) description of how absorptive capacity is an important management tool in the development and performance of service organizations supports the application of absorptive capacity as a management tool by tactical-echelon military leaders. Additionally, previous research from Yang et al. (2017) established the disciplined application of absorptive capacity as a management tool to improve an organization's overall operational processes. When identified and understood at both the individual and the collective level, absorptive capacity reflects a positive impact on firms' operational procedures (Yang et al., 2017). In response to the question of absorptive capacity being a viable tool for managers and leaders, Yang et al. established that absorptive capacity can be a tool to improve the knowledge management process in an organization.

The second task is finding a common operating picture of measuring absorptive capacity. Flatten et al.'s (2011) work was the first to refine the metrics for measuring

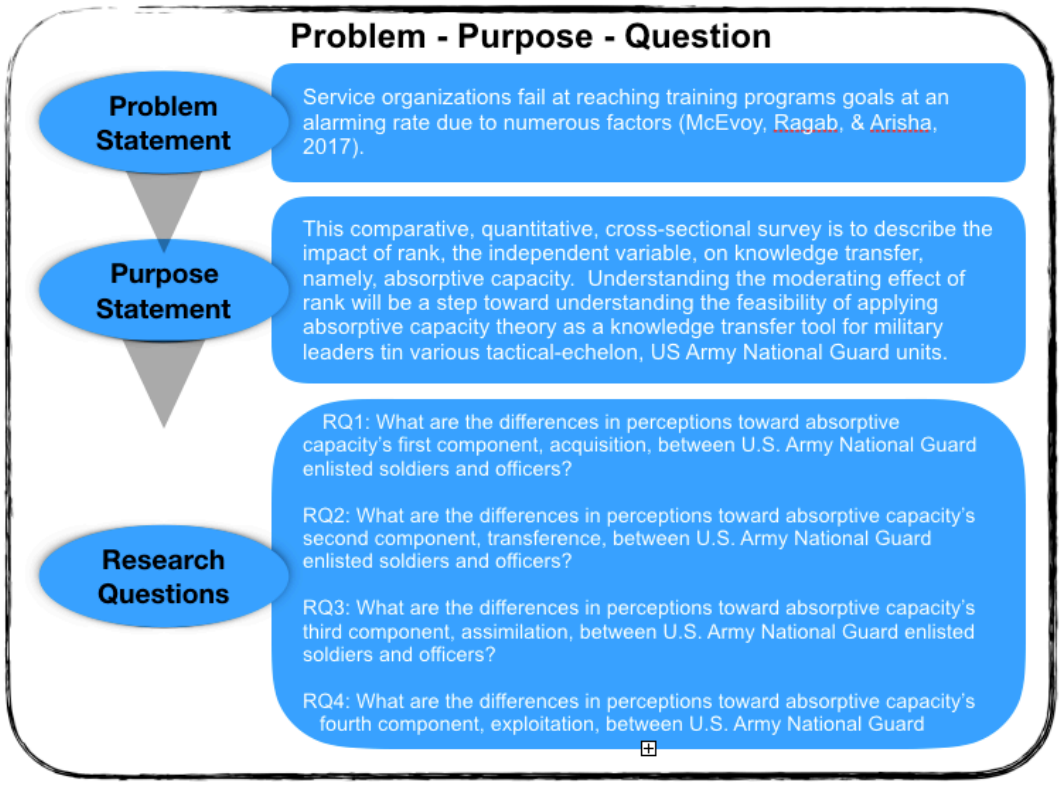
absorptive capacity. Their work established that the four components of absorptive capacity were useful in framing the parameters (Flatten et al., 2011). Because the operating environment differed across each of the organizations using the absorptive capacity, Flatten et al. offered a multidimensional set of measures to capture the implementation. The first measure looked at how often new information came into contact with the individual during a specified period. The second was to capture how the individual presented with new externally sourced information and acted given the organization's operational processes for knowledge transfer. The research instrument's two metrics are included in Appendix A.

Real-world events, both wartime and in support of civil authorities during disaster relief efforts, exacerbate the issue of training programs not reaching their full potential. U.S. Army tactical-echelon units, the focus of this study, are particularly hard-pressed to find the time and resources given their ever-expanding set of missions and responsibilities to their respective state and in the event of federalization. This research effort was a unique opportunity to explore the correlation of military rank, which encompasses officers, noncommissioned officers, and soldiers, with the four components of absorptive capacity: acquisition, transfer, assimilation, and exploitation. The literature is rich with theories, applications, case studies, and meta-analyses of how well and how poorly absorptive capacity works in various operational environments (Cohen and Levinthal, 1990). What was not as abundant in the literature searched for and reviewed were quantitative research efforts that revolved around the relationship among the

components of absorptive capacity and soldiers' ranks in military units. Accordingly, more research effort is needed to quantitatively explore how absorptive capacity's four elements relate to military ranks in tactical-echelon units and how it might positively impact the leadership's management of training and development programs. Figure 1 includes a graphical interpretation of the problem, purpose, and research questions (RQs).

Figure 1

Problem - Purpose - Question Nesting Diagram



Problem Statement

U.S. citizen-soldiers' engagement in missions supporting peace and the rule of law around the globe can enable the conditions for positive social change (Cicmil et al., 2016). In his 2007 study, Kotter was among the first to identify that only 15% of the organizations undertaking developmental programs were successful. Kotter (2007) also found that high failure rates also plague training programs in organizations ranging from the business sector to service-oriented and nonprofit areas and government sectors. Other studies by Kee and Newcomer (2008) and Tobias (2015) reflect the same trend that up to 75% of governmental, service, and nonprofit training programs fall short of expectations. McEvoy (2017) further refined the general management problem with a thorough meta-analysis of 3,000 articles and found that being in the public service sector added additional stress to and lowered the success rates of adopting new knowledge management processes to levels near or below Kotter's 2007 findings.

Several factors can contribute to the failure of a training and education programs; leadership, management of people, resources, time, formal and informal organizational structures, prioritization of tasks, and knowledge transfer capabilities are all possible factors in why a particular training effort fails to reach its stated goals and objectives. According to Dyson (2019), there are few empirical studies focused on the specific management problem of describing the organizational conditions that facilitate military learning. A more robust understanding of how a tactical echelon military organization absorbs new information may enable the programs' management to reduce the negative

returns. The loss of valuable training resources such as time, personnel, material, and operational capability are common manifestations. Degradations in any of these factors will significantly lessen the soldier's ability to accomplish the mission unit's mission.

Purpose of the Study

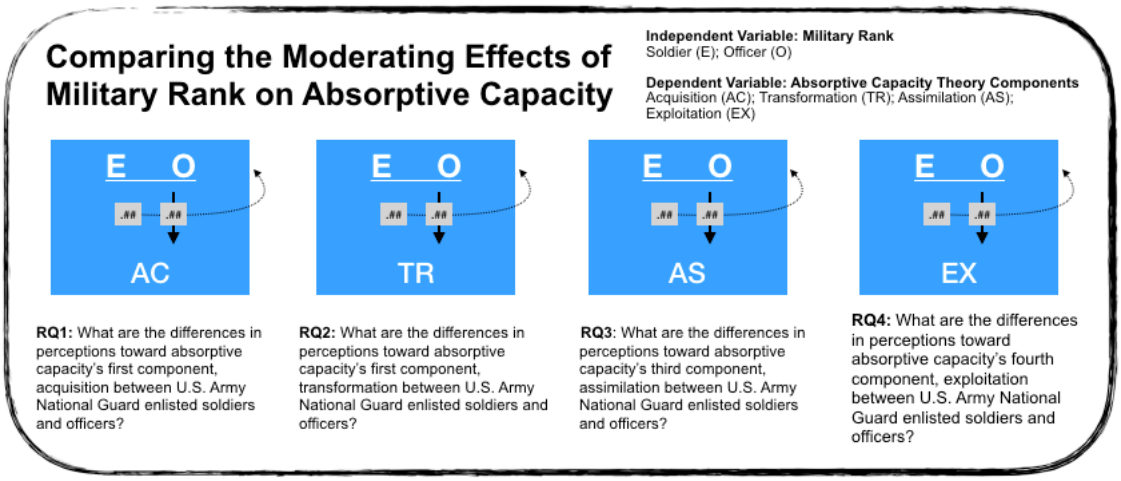
The purpose of the quantitative, cross-sectional comparative survey was to describe the impact of rank, the independent variable, on the dependent variable of the knowledge transfer theory of absorptive capacity. Understanding the potential moderating effect of rank will clarify the feasibility of applying absorptive capacity theory as a knowledge transfer tool for military leaders in various tactical-echelon, U.S. Army National Guard units. The independent variable was military rank. For added fidelity, soldier (E), and officer (O) represent military rank in this research effort. The dependent variables were the four components, acquisition (AC), transference (TR), assimilation (AS), and exploitation (EX), of absorptive capacity theory. Reducing the gap between potential and realized knowledge might manifest itself in the increased success rate of training programs, growth of leaders and followers alike, the shepherding of limited amounts of time and dollars, the increase in operational capability, and the accomplishment of missions supporting peace and the rule of law, all of which in turn may enable the conditions for positive social change (Cicmil et al., 2016).

Research Questions and Hypotheses

Figure 2 provides a graphical interpretation of the RQs and the supporting hypotheses.

Figure 2

Military Rank Related to Absorptive Capacity



RQ1: What are the differences, if any, in perceptions toward absorptive capacity's first component, acquisition, between U.S. Army National Guard enlisted soldiers and officers?

$H_0$1: There are no differences in perceptions toward absorptive capacity's first component, acquisition, between U.S. Army National Guard enlisted soldiers and officers.

H_a1: There are differences in perceptions toward absorptive capacity's first component, acquisition, between U.S. Army National Guard enlisted soldiers and officers.

RQ2: What are the differences, if any, in perceptions toward absorptive capacity's second component, transformation, between U.S. Army National Guard enlisted soldiers and officers?

$H_0$2: There are no differences in perceptions toward absorptive capacity's second component, transformation, between U.S. Army National Guard enlisted soldiers and officers.

H_a2: There are differences in perceptions toward absorptive capacity's second component, transformation, between U.S. Army National Guard enlisted soldiers and officers.

RQ3: What are the differences, if any, in perceptions toward absorptive capacity's third component, assimilation, between U.S. Army National Guard enlisted soldiers and officers?

$H_0$3: There are no differences in perceptions toward absorptive capacity's third component, assimilation, between U.S. Army National Guard enlisted soldiers and officers.

H_a3: There are differences in perceptions toward absorptive capacity's third component, assimilation, between U.S. Army National Guard enlisted soldiers and officers.

RQ4: What are the differences, if any, in perceptions toward absorptive capacity's fourth component, exploitation, between U.S. Army National Guard enlisted soldiers and officers?

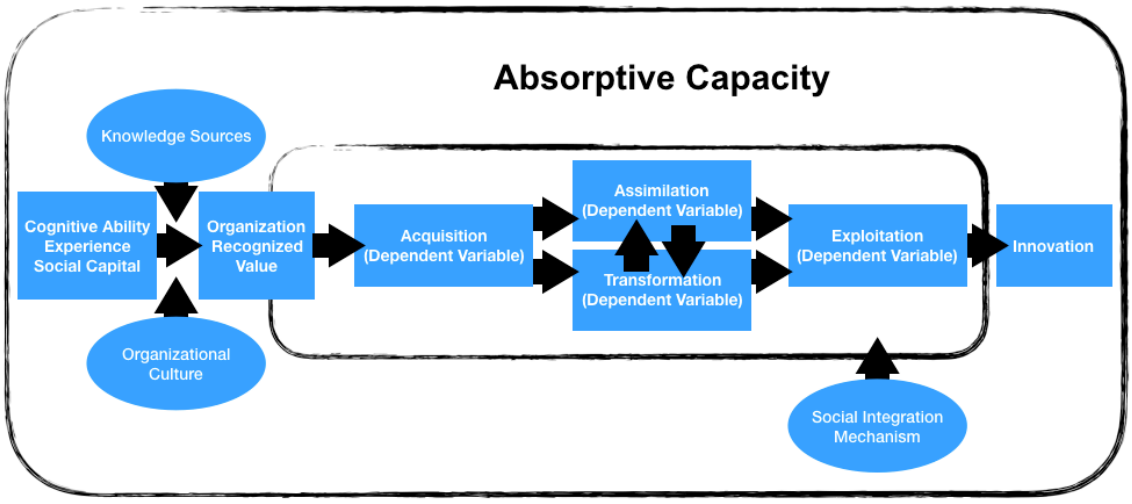
$H_0$4: There are no differences in perceptions toward absorptive capacity's fourth component, exploitation, between U.S. Army National Guard enlisted soldiers and officers.

H_a4: There are differences in perceptions toward absorptive capacity's fourth component, exploitation, between U.S. Army National Guard enlisted soldiers and officers.

Figure 3 illustrates Ziam et al.'s (2009) model as applied to the study variables.

Figure 3

Absorptive Capacity Diagram



Note. Adapted from "Knowledge Brokers: A Winning Strategy of Improving Transfer and Use of Knowledge in the Health Field," by S. Ziam, R. Landry, and N. Amara, 2009,

International Journal of Innovation and Technology Management, 10(3), p. 495, www.researchgate.net, in the public domain.

Theoretical Foundation

Absorptive capacity is a widely accepted theory in moderating how well innovation and strategic management develop and enable performance (Garrido, et al., 2017; Lane, et al., 2006). Starting with Cohen and Levinthal's (1990) original definition, through Zahra and George's (2002), Todorova and Durisin's (2007) and lastly, in Lichtenthaler's (2009) refinements absorptive capacity theory remains an organization's ability to recognize, adapt, and use external knowledge in furthering their operational capabilities. The expansion of absorptive capacity's application aperture to include military units and their training and development programs could further our understanding of the relationships among military rank and the components of absorptive capacity and the eventual development of absorptive capacity as a managerial tool.

Nature of the Study

A cross-sectional comparative design focuses on answering the question, to what extent does military rank impacts the knowledge transfer theory's, absorptive capacity, four components. This study is a description of the relationships between military rank and absorptive capacity components and the resultant feasibility of applying absorptive capacity as a tool that could aid the leadership in the improvement of training and development programs in tactical-echelon military units (Pinto, et al., 2017). O'Leary (2017) and Nardi (2018) asserted that the baseline for academic quality research is an

accepted, time tested theory that you can engage within a study and adapt to a specific set of conditions. I used Cohen and Levinthal's (1990) theory, absorptive capacity, as the baseline for further deductive reasoning to generate further thoughts on resulting behaviors. Lowhorn (2007) and Martin and Bridgmon (2012) described a quantitative experimental research effort, common to this study, as a means to determine if the independent variable, military rank, results in a significant level of effect on the four dependent variables (Denzin & Lincoln, 2013; Erickson, 2011).

The proposed analysis process is a multivariate analysis of covariance (MANCOVA) via the IBM Statistical Package in the Social Sciences (SPSS) v.27 statistical program (Field, 2013).

Is it feasible to apply absorptive capacity as a tool that could aid the leadership in the improvement of training and development programs in tactical-echelon military units (Pinto, Lourenço, & Mónico, 2017)? O'Leary (2017) and Nardi (2018) assert that the baseline for academic quality research is an accepted, time tested theory that you can engage within a study and adapt to a specific set of conditions. The baseline theory proposed for this research is Cohen and Levinthal's (1990), absorptive capacity, for further deductive reasoning to generate additional thoughts on resulting behaviors. Lowhorn (2007) and Martin and Bridgmon (2012) describe a quantitative experimental research effort, common to this study, as a means to determine if the independent variable, military rank, results in a significant level of effect on the four dependent variables (Denzin & Lincoln, 2013; Erickson, 2011).

Additionally, two covariates of age and gender were considered due to their possible confounding impacts on the results. The proposed analysis process is a multivariate analysis of covariance (MANCOVA) via the IBM Statistical Program for Social Sciences (SPSS) v.27 statistical program (Field, 2013).

A quantitative approach was proposed based on the research question and its search for statistically significant outcomes regarding the study's population (Lowhorn, 2007). Increased observation, less control, dispersed unit locations, and field locations provided additional weight for the choice of a quantitative study (Lowhorn, 2007; Martin & Bridgmon, 2012; O'Leary, 2017). The study's size is relative to a simple random sampling of tactical-echelon military units in the U.S. Army National Guard. The mission sets of different types of military units, such as aviation, infantry, or artillery of the military units, are random. The population for this study included National Guard battalions in Kansas, Louisiana, Georgia, Alabama, Mississippi, Puerto Rico, Louisiana, Arkansas, and Florida. The proposed margin of error is .05%. The confidence level is 95%. The sample population is, based on the current unit posture, approaching 10,000 personnel. The anticipated response rate is 50% based on the proposed use of paper and pencil surveys administered by me and the application of an online survey tool. The sample size is a range from 275 to 300. The actual distribution is unknown, so the application of 50% allows for the largest sample size. The recommended sample size, via raosoft.com - sample size calculator, is ~277. The equations used to calculate the targeted sample size (n) and margin of error (E) are: $x = Z(c/100)^2r(100-r)$; $n = Nx/((N-1)E^2+x)$;

and E = Sqrt[(N-n_x/n(N-1)]. This number is the minimum amount of complete data entries. It is the intent to maximize the percentage of respondents per the recommended sample size. I assumed that a larger sample size with a lower percentage would lessen the probability of receiving a complete response. I administered the survey instruments at using my own email and contact network and by using an on-line survey. For this research, a tactical-echelon unit is a battalion consisting of approximately 300 military personnel across two military types of rank: officer and enlisted.

Definitions

Absorptive capacity: A knowledge transfer theory that describes how organizations acquire, transform, and exploit new externally sourced data (Cohen & Levinthal, 1990).

Acquisition: The first component in absorptive capacity theory. Acquisition is when an organization recognizes new data available from an external source (Cohen & Levinthal, 1990).

Assimilation: The third component in absorptive capacity theory. Assimilation is when organizational leaders integrate new, externally sourced information in the organization's operational processes (Cohen & Levinthal, 1990).

Battalion: A tactical-echelon military unit that is usually composed of three companies, varying in size from 250 to 700 personnel and consisting of soldiers, noncommissioned officers, and officers (Klimas & Gentile, 2018).

Company: A tactical-echelon military unit ranging in size from 75 to 200 personnel and consisting of enlisted soldiers, noncommissioned officers, and officers (Klimas & Gentile, 2018).

Drill weekend: A 2-day event each calendar month when the personnel of a U.S. National Guard unit reports for duty in support of the individual's service obligation.

Exploitation: The fourth component in absorptive capacity theory. Exploitation is when an organization uses the new data as a part of its internal processes to enable further innovation and/or development (Cohen & Levinthal, 1990).

Military rank: A hierarchy describing U.S. Army personnel (Weigley, 2016); also, the independent variable set for this study. In the tactical-echelon units surveyed for this research, the rank will range from E1, private, to O6, colonel.

Multiple Unit Training Assembly (MUTA): A personnel accounting system used by the U.S. Army National Guard to aid in accountability. An accounting system generally defines a MUTA as a 4-hour training period. In the system, there is one morning and one-afternoon MUTA session per day. For instance, a MUTA 4 is a 2-day weekend drill period.

Noncommissioned officer (NCO): One of three delineations of military rank from sergeant to command sergeant major, E5 to E9 (Wardynski, 2010). The rank of NCO is a subset of the independent variable, enlisted, for this study (see Hogan et al., 2006).

Officer (O): One of three delineations of military rank from second lieutenant to colonel, O1 to O6 (Wardynski, 2010). The rank of officer is an independent variable for this study (see Hogan et al., 2006).

Soldier (E): One of three delineations of military rank from private to specialist, E1 to E4 (Wardynski, 2010). I used soldier rank as an independent variable for this study (see Hogan et al., 2006).

Transformation: The second component in absorptive capacity theory. Transformation is when an organization changes the lexicon of the newly acquired data to a more familiar form used in the respective organization's lexicon and processes (Cohen & Levinthal, 1990).

Assumptions

Assumptions included in this study refer to conditions that were not confirmed to be factual via the analysis of peer-reviewed journals or other accessed sources. The premises were made to further the study and assumed to be true solely for their application in support of this research effort. I assumed the use of tactical-echelon military units, primarily in the U.S. Army National Guard, to be generally the same size and composition as described in the earlier definition section of this chapter. I also assumed the military rank hierarchy relationship to be generally the same across all like-sized units where the officer corps acts in the primary command roles, the NCO corps provides the expertise and transformational leadership, and the soldiers are the primary workforce (Klimas, & Gentile, 2018). My final operational assumption has two facets.

The first is that the units contacted during this research effort would be available to me in a timely enough fashion to support the study's timeline. The second facet is that the units have limited contact with each other during normal operating conditions. This last assumption is vital as a validity and reliability measure to ensure the units contacted are not all the same type and that they, the groups, are not members of a typical, higher echelon command.

Scope and Delimitations

The proposed research engaged with separate companies and battalions to support the assumption regarding the types and echelons of units contacted. The range of this study included units from various states that support the proposed objective of testing for the impact of the independent variables on a regional scale. Data collected will be restricted to a single primary period, a drill weekend or *MUTA 4*, of collection in an attempt to avoid impacting the data longitudinally. This research proposed a single application of the survey instrument at each location. The data collected in support of this research was a single-use application. The first delimitations are the self-imposed limits of one echelon of military units in the state-oriented U.S. Army National Guard over a controlled, short duration time frame. This research did not address operational or strategic echelons of military units. The study did not survey or conduct research on federal U.S. Army active-duty units.

The focused aperture on tactical-echelon U.S. Army National Guard units and personnel limit the generalizability of this research effort. Many military units of

comparable size and echelon indeed share standard operational procedures and processes. The research paradigm of this study does not support the generalization of the findings across groups of differing status, active duty versus part-time service. To do so could add risk to the reliability of the findings. This research study does not support the assumption that possible similarities in the results from other types of military organizations outside the scope of this research, theU.S.Navy, andU.S.Marine Corps, could be generalized.

Limitations

The primary limitation to external validity for the study was its reliance on military units with a clearly defined command structure. The random, non-mandatory selection of personnel to participate in the study required a significant level of energy to ensure the command does not directly order the soldiers to complete the research. Access to the requisite number of soldiers in a timely fashion presented an additional challenge to the research effort. Another logistical challenge to the research was the dispersion of the military units across various states in the southeastern portion of the United States. Transportation cost associated with airline flights or driving, and requisite lodging could prove a barrier to the research effort. The current public heath emergency is a recent development that could impact the timelines of the collection effort. A concerted effort to reach out to unit commander's providing a written explanation and a link to an on-line survey tool was used as a work-around.

Changes in the independent variables contribute to the judgment of the internal validity of the results. The literature review described alternative factors outside the scope

of this study, such as education, health at the time of the survey, employment location. The limitation was that there could be unknown factors or factors impacting the absorptive capacity of the individuals participating in the study.

I used validated instrument and its modifications supported the construct validity and enabled the nesting the device with the audience's military lexicon. Adapting the work of Jimenez-Barrionuevo, Garcia-Morales, and Molina (2010), Camisón and Forés (2010) and, Flatten, Engelen, Zahra, and Brettel (2011), to this research effort, will provide a robust start to alleviating the limitation. Their work has been cited multiple times in the literature on the application of absorptive capacity. Finally, biases could have crept in during the stat collection or analysis phases. The collection process will be controlled and will include validation gates at regular intervals to ensure that data ties back to the sources.

Significance of the Study

A quantitative survey that works to form better an understanding of absorptive capacity's effectiveness in organizations that are averse to change and innovation and is also characterized by low technique and low-income workers will work to solve the problem of how military units learn when absorbing new knowledge (Schweisfurth & Raasch, 2018). Setting the stage begins with Tobias' (2015) and Carucci's (2016) research efforts in the business community in establishing failure rates of training programs at or near 75%. Recently, Schweisfurth and Raasch's (2018) work pinpointed the critical antecedents for an organization's successful application of absorptive capacity in its

training and education programs. Schweisfurth and Raasch's (2018) study furthered the links in how an organization processes new information, knowledge transfer in the form of absorptive capacity, and the success or failure of a unit's training and education program. Two essential tasks present themselves at this juncture. The first is establishing how the field applies absorptive capacity as a management tool. The second is how the area views the metrics of measuring absorptive capacity

I used the work of Pinto, et al. (2017), in a group, focused knowledge management, as the start point for this research effort. It represents an opportunity to determine if absorptive capacity proves to be complementary to military units in a training environment as a possible catalyst for improved efficiencies. Hernández-Perlines, et al. (2016), and Garrido, et al., (2017), both found that training positively moderates organizational performance if absorptive capacities mediate knowledge transfer. My application of absorptive capacity could provide a means of reducing the gap from what the training program intends to develop, the potential growth in capabilities for that particular task, versus what the unit is capable of accomplishing, the realized outcome in capability. Understanding the factors involved is the first step in reducing the gap between potential and realized outcomes of training programs and raising the overall success rates (Kotter, 2007). A reduction could directly lead to gains invaluable resources such as personnel, time, money, and material (Martin, et al., 2003). An antecedent condition for positive social change is a realized increase in the efficient use of and practical application of an organization's resources (Martin, et al., 2003). The resultant

increase in the operational capability of a National Guard unit could enable the accomplishment of their missions here and abroad that, in turn, further peace and stability.

Significance to Theory

Hernández-Perlines, et al. (2016), and Garrido, et al. (2017), both found that training positively moderates organizational performance if absorptive capacities mediate knowledge transfer. The proposed application of absorptive capacity could provide a means of reducing the gap from the skills the training program develops, the potential growth in capabilities for that particular task, versus what the unit is capable of accomplishing, the realized outcome in capability growth respective to the specific job. The research leverages a quantitative design. The research could fill a literature shortfall by engaging with the question of absorptive capacity as a management tool in military units. The study uses an empirical approach focused on military units their hierarchal rank structure and how it relates to absorptive capacity.

Significance to Practice

Jimenez-Barrionuevo, et al. (2010) provide further refinement for this research effort in their work in validating an instrument to measure absorptive capacity. Their work differentiates between the four phases of absorptive capacity, acquisition, assimilation, transformation, and exploitation, as well as the two dimensions, potential and realized (Jimenez-Barrionuevo, et al., 2010). Their proposed research instrument reflects pertinent terms and processes of the management framework of implementing

absorptive capacity. The coupling of these two works provides the foundation for this research effort. The survey tools used in this study will need some level of adjustment to reflect the military lexicon and the U.S. Army military rank structure.

Understanding the factors involved is the first step in reducing the gap between potential and realized outcomes of training programs. This reduction will directly lead to gains invaluable resources such as personnel, time, money, and material (Martin, et al., 2003). The proposed application of absorptive capacity to the military training audience could lead to a better understanding of how the unit and its personnel transfer new knowledge provided in an externally sourced training program, which in turn could potentially decrease the delta between potential and realized capabilities. I hope for readers in both the private as well as the public sector. Local unit leadership and training program developers could use the collected data from this research to further other respective programs looking at how the data and advanced analysis in this study impact the overall outcomes of the programs and could be used by government agents to promote higher efficiencies in the expenditure of limited valuable resources.

Significance to Social Change

The stated objective of this study was to identify the relationships among military rank and the four components of absorptive capacity theory. With the ability of the Army units being the common denominator, the goal of this research effort is to add to the literature on applying absorptive capacity to service organizations. As these organizations work to produce their product of peace and support to citizens here and abroad, thus

enabling positive social change, even the slightest reduction in the gap between potential and realized knowledge is a significant issue due its manifestation as gains in opportunities for positive social change, leadership and follower-ship growth, and investment dollars (Cicmil, et al., 2016)**.**

Summary and Transition

Organizations continue to fail at their attempts to implement meaningful training and development programs that support the unit's long-term objectives. This study represented an effort to reduce the oft studied failure rate by increasing our collective understanding of how military organizations transfer knowledge from external sources. This research effort attempted to fill a gap in existing research related to quantitative analysis and the application of absorptive capacity in a military setting.

Chapter 1 defines the problem as to whether absorptive capacity can be implemented as a tool for leaders and managers, thus reducing the rates of failures in training and development programs. Cohen and Levinthal's (1990) description of knowledge transfer, known as absorptive capacity, provides the theoretical background for this study. This study has significant long term social implications as it works to solve issues in training and to develop the soldiers of the National Guard as they execute their missions supporting civil governance, protecting civil rights, and upholding democracy around the globe, all of which reinforce positive social change.

In Chapter 2, The literature review looks at various ways of applying absorptive capacity in multiple organizations in varying operational environments. The literature

review reduces the aperture to examining how leveraging the existing body of knowledge can augment our understanding of absorptive capacity's application to a military environment. The goal of the literature review was two-fold. The first was exploring the current body of literature and its relationship with this study's proposed research question and supporting hypotheses. Secondly, was to provide a historical to current cross-walk of information regarding absorptive capacity as a theory and its recent past application.

Furthermore, the chapter includes descriptions of the research gap and the variable derivation process used in this research effort.

Chapter 2: Literature Review

The overarching purpose of this quantitative study was to explore the possibility of using absorptive capacity theory and its components as a tool for improved management of training programs in service-oriented organizations, namely tactical-echelon military units, brigades, battalions and, separate companies in the U.S. Army National Guard. Empirical and theoretical knowledge concerning the application of knowledge transfer theories, like absorptive capacity, in service-oriented organizations, including military, business, nongovernmental, and civilian, is relevant to better understanding the elements of this investigation. My review of past research focused on the past applications of absorptive capacity theory and how it might possibly bridge to an application in this study. The primary objective of this literature review is to understand better, visualize, and describe the data, both empirical and theoretical, in the applications of absorptive capacity. The second objective is to understand how the application alters the organizational processes.

The specific problem remains the failure of training and education programs in service-oriented industries. U.S. Army National Guard tactical level units such as brigades, battalions, and companies as service organizations were the focus of this research effort. There is a need for a more robust understanding of the factors that can contribute to the failure of training programs. I searched for previous academic endeavors that used leadership, management of people, resources, time, formal and informal organizational structures, and prioritization of tasks and how they interact with the

theoretical foundations of absorptive capacity. This knowledge is critical in developing ways forward for improved performance and efficiencies. The shrinking of the gap between potential knowledge and realized knowledge used in operational processes manifests itself as higher efficiencies and in leader and follower growth and shepherding of limited amounts of time and dollars (Cicmil et al., 2016; Fox, 2016).

The literature review chapter begins with a description of the search strategies, including the databases and sources, that framed this research effort. I then describe the seminal theoretical framework, including the original definition of absorptive capacity by Cohen and Levinthal (1990). The first segment includes significant adaptations to the original theory that have shaped the current model and its application in the academic and business environments. Additional discussion furthers the exploration of how absorptive capacity works in service-oriented organizations and academic settings. The literature research is threaded with the primary objective in mind as to how absorptive capacity theory might bridge to an application of managing training development in a tactical military such as a U.S. Army National Guard battalion or company. The chapter concludes with an explanation of the research variables.

Readers in both the private as well as public sectors are the intended audience. Local unit leadership and training program developers could use the data captured in this study in the management of their respective programs. A secondary audience is scholars and the academic community in management (Randolph, 2009).

Literature Search Strategy

The subsequent literature review argues the importance of additional research, academic effort, and investigation in the application of absorptive capacity on military organizations. The peer-reviewed journal articles included in the review include support for and against the use of absorptive capacity as a management tool in the community of service-oriented organizations. The searches narrowed from a focus across the entire management spectrum to specific articles or products on the application of absorptive capacity in a military setting. This literature review described here is intended to be exhaustive in its scope and breadth of the current literature available on the application of absorptive capacity to service and military organizations. I intended to locate and consider all available articles, papers, and other sources on the topic of absorptive capacity applied to service organizations and/or military units. The lack of results in the earliest searches for absorptive capacity's use in military units, including those searches enabled by the Walden University Library staff, led to the use of *service organization* as a synonym for military and or military units.

This review effort began with a wide-ranging general query of peer-reviewed articles and information available in the academic and professional databases housed on the Walden University Library site. The searches included the Walden University databases, ProQuest Central, Thoreau Search, and Business Source Complete. I also used Google Scholar to cross-reference for additional information regarding recent books and author or title clarification and refinement, and also to aid in the completion of several

additional searches of the Walden Library's databases. Last, I employed alerts services in a limited fashion for absorptive capacity coupled with military units, via the Walden University Library service, EBSCOhost and Google Scholar, in an attempt to capture the most recent publications.

My first search was a simple absorptive capacity query using the Walden University Library. This initial search was not limited to a specified date of publication range. The search resulted in many relevant articles, including the seminal work of Cohen and Levinthal (1990), who developed he absorptive capacity theory. Using the keywords from the seminal article and more current efforts such as O'Mahony et al. (2017) provided the impetus to continue my search from the seminal application to the most recent application of the theory. For follow-up searches, I used the document and survey databases at Walden University Library. I collected, collated, and organized the keywords and phrases used in the search in an Apple Numbers spreadsheet. The working spreadsheet includes a short description of each article, its possible application to the study, and its citations. Follow-up searches for additional definitional information on critical variables and methodology were performed using the Walden University Library databases and Google Scholar. See Table 1 for the results of the literature search by keyword and source type.

Table 1

Literature Search Results by Keyword Combination

Keywords	Peer reviewed journal articles	Books/ Reference books	Website/ Electronic sources	Total
Absorptive capacity	21	0	0	21
Absorptive capacity and training military units	0	0	0	0
Absorptive capacity, Knowledge management, and military units	1	0	0	1
Knowledge management and military units	42	7	0	49
Knowledge management and service organizations	63	0	0	63
Absorptive capacity and service organizations	11	0	0	11
Training development, absorptive capacity, and failure	0	0	0	0
Absorptive capacity antecedents and components	11	0	0	11
Other keywords	31	5	1	37
Total	180	12	1	193

Note. Numbers reflect the number of articles collected for review. The raw search yield is higher than the number present in the research based on relevancy to the research effort.

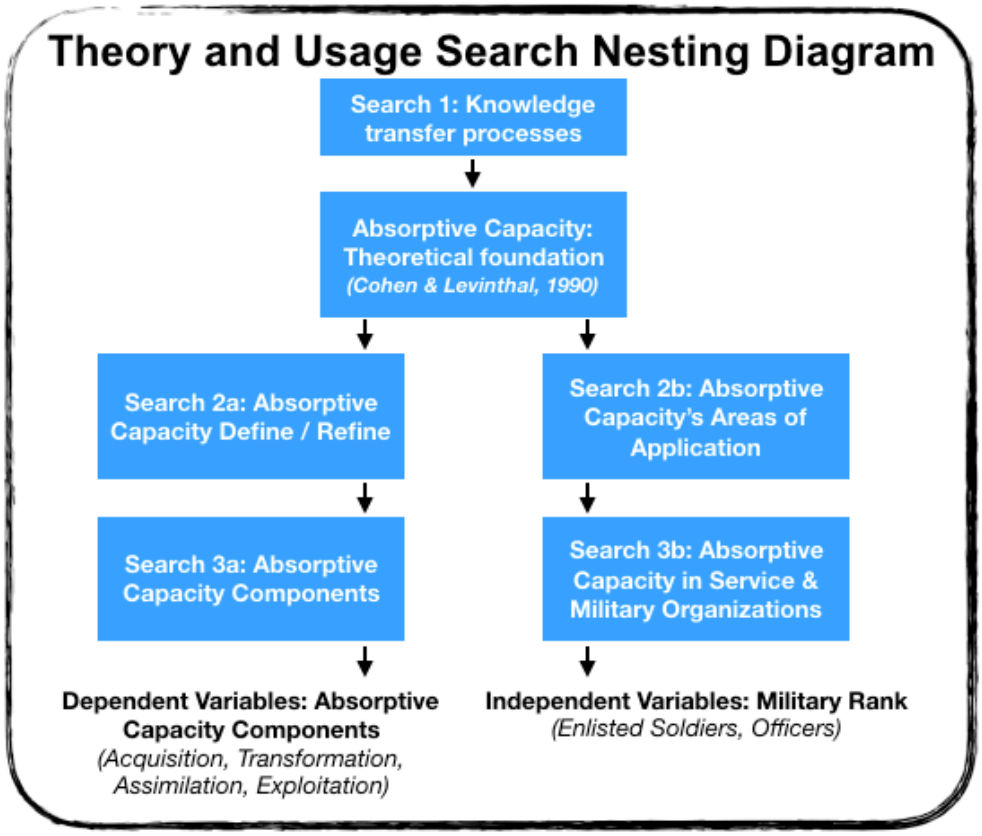
The original series of searches focused on discovering the seminal works. As stated previously, the search was not limited to a specified date of publication. The search found a series of works ranging from Cohen and Levinthal (1990) to current. The seminal work of Cohen and Levinthal (1990) established absorptive capacity theory. From this theoretical baseline, the research effort branched along two primary axis of advance. The first axis focused on searching for any scholarly modifications to the theory from its conception in 1990 to this current study. The second axis was the search for applications of the theory in the management of knowledge processes in service organizations, including military units from 1990 to current.

The vast preponderance of works found focused on the use of absorptive capacity in the business community. The number of works applying absorptive capacity to service organizations was far smaller. The searches for absorptive capacity linked with military unit resulted in a farther reduction of results. The lack of findings prompted two additional telephonic engagements and numerous electronic requests with the Walden University Library staff. Even with this boost, the percentage of articles exploring absorptive capacity in a military setting remained a fraction of the overall available works. The nesting of the searches, coupled with the collaboration of the Walden University Library staff provided the most complete, robust, literature review possible. Figure 4 is a graphical depiction of how the search terms nest from knowledge management to absorptive capacity to service organization. The nesting diagram includes

a path from service organizations, to military units, and then finally to their hierarchical rank structure.

Figure 4

Theory and Variable Search Nesting Diagram



Note. Nesting diagram of search flow pattern (from top left to bottom right) from knowledge transfer in service organizations through to the four absorptive components and military rank structure.

After the initial search yielded the seminal products, the search efforts shifted to more refined parameters in order to capture the most current applications of absorptive capacity. The subsequent searches bracketed with a date range of not more than five years since publication to current. These searches yielded a new series of articles aligned with

the purpose of this study. This collection of articles was then cross walked for additional common associations, products, new avenues to search, and citations of other pertinent products. The articles included in this proposal reflect the current, relevant articles within this research studies scope.

This literature review begins with the building of the theoretical foundation. Seminal articles, such as Cohen and Levinthal (1990), from across the academic community, including dissertations and peer-reviewed journals alike, are used to establish a sound understanding of the foundation. The build of the theoretical foundation follows the same model found in the derivation of the search effort pictured in figure 3.0.

Theoretical Foundation

At the center of this study is the effort to find a tool to aid in understanding how knowledge management impacts training programs in military units. At the center of the search effort was Cohen and Levinthal's (1990) fundamental theory of absorptive capacity. The baseline theory's refinement continued with Zahra and George's (2002), Todorova and Durisin's (2007) modifications, and finally, with Lichtenthaler's (2009) adaptations. Cohen and Levinthal's model for absorptive capacity is a knowledge transfer theory that labels, then works to describe the process in three subcomponent steps. The theory describes an organization's ability to recognize the value of externally resourced knowledge and then process it for exploitation in the gaining organization's operational processes (Cohen & Levinthal, 1990). The subsequent sections of this chapter articulate

the theory, including its sub-parts, as well as an in-depth look at recent research efforts in the application of the theory to the service organization sector and military units.

Since Cohen and Levinthal's (1990) initial conception, the theory's original idea remains unchanged. The idea is that companies, either profit or service-oriented, need to search out and use new information to keep them, as a collective, relevant in a complex modern operating environment. Since their original publication, the academic community established the absorptive capacity theory as an exceedingly adaptive in understanding how knowledge management practices moderates the level to which an organization embraces innovation and develops strategic management that enables improved performance (Lane, et al., 2006; Garrido, et al., 2017). The academic community supports absorptive capacity as a workable model for knowledge management; however, its application to a military context is severely limited. This review addresses the previously the this shortfall in the literature. The theory has proven to be viable in other organizations and various operating environments outside the original business application. Further exploration into absorptive capacity's application to a tactical military unit is a natural progression in the development of Cohen and Levinthal's (1990) theory.

This research effort simultaneously works to possibly extend the application of absorptive capacity outside of the business community and to increase the military unit's capabilities in how efficiently they can acquire, transfer, adapt, and use new information, as they work to accomplish their missions. The theoretical foundation is consisting of

both seminal works and current literature. The following sections are a review of current, relevant literature on the theory's use and modifications.

Absorptive Capacity Origins

The reason that Cohen and Levinthal's (1990) original work forms the baseline theory for this research effort is due to its description of how organizations transfer knowledge from external sources into the organization's operational processes. This understanding coupled with this study's question of absorptive capacity's possible application as a management tool for leaders in military unit training development. Cohen and Levinthal (1990) described the original construct of the theory using three distinct actions on the part of the organization gaining the new information. The first step for an organization is the acquisition of new information from external sources (Cohen & Levinthal, 1990). The acquisition process is both formal and informal. Cohen and Levinthal (1990) described the results of an official or government audit as formal.

Conversely, ideas from individuals in an organization that seeks to improve workplace efficiencies are informal (Cohen & Levinthal, 1990). Cohen and Levinthal (1990) identified the second step as assimilation. In absorptive capacity theory, the assimilation of the new data is a process of adaptation of the new information to the familiar syntax and lexicon of the gaining organization. The third, and for Cohen and Levinthal, final step, is the transformation of the new information to operational processes that, in turn, are intended to increase the efficiency of the gaining organization. The second aspect of assimilation, according to Cohen and Levinthal (1990), is an

estimation by the institution on how valuable the new information proved to be to the efficiencies and management of resources.

Refinements to Absorptive Capacity Theory

Cohen and Levinthal's (1990) initial thoughts and resultant theory continues to be a valued knowledge management theory and remains widely used in economic studies and academic endeavors. The theory's premise has mostly remained unchanged since 1990. There have been three significant modifications to the theory since its inception. In 2002, Zahra and George reevaluated the theory's baseline arrangement and furthered the theoretical development effort by separating the theory into potential and realized absorptive capacity. The adaptation to the theory argues that the information the organization identifies as essential and vital to incorporate into their operational processes varies significantly from what the gaining organization is often capable of achieving (Zahra & George, 2002). Zahra and George (2002) also provided insight as to how the operating environment, primarily new technology, could impact the ration between an organization's potential and realized absorptive capacity.

Two more adaptations shaped the current, widely accepted by the field, definition of absorptive theory. The second development builds on the work of Cohen and Levinthal (1990) and Zahra and George (2002). Todorova and Durisin's (2007) assessment of the theory and their subsequent modification represent the current apex of the analytical development process. Todorova and Durisin (2007) greatly refined the theory when they retained the three fundamental steps and the Zahra and George's (2007) definitions of

potential and realized absorptive capacity. Todorova and Durisin (2007) added higher theoretical fidelity by aligning acquisition and assimilation with potential absorptive capacity. Their work subsequently aligned transformation and their new component, exploitation, with realized absorptive capacity (Todorova, & Durisin, 2007). Todorova and Durisin's (2007) expanded the theory by adding exploitation. Which closed a gap in the process and worked to answer the question of 'what does the organization do with the new information once they have made a part of their operational processes'? Todorova and Durisin (2007) provided additional refinement to absorptive capacity by describing possible impacts of internal relationships, primarily power-oriented, and how they could impact future knowledge transformation. Their work on how the structure, power alignment of an organization is vital in this study's application of absorptive capacity as a possible management tool in military units (Todorova, & Durisin, 2007).

The third of three theoretical developments are Lichtenthaler's (2009) work with absorptive capacity. His study retained the process-oriented approach from Cohen and Levinthal (1990), Zahra and George (2002), and Todorova and Durisin (2007). Lichtenthaler's (2009) work introduced the need for an organization to have two types of antecedent knowledge before an application of absorptive capacity. He argued that the organization must have both technological knowledge, the ability and tools to acquire and transfer the new information, coupled with market knowledge, defined as an understanding of the operating environment to a degree which enables the organization to ascertain which new information is pertinent to increasing the capacity of the

organization (Lichtenthaler, 2009). The following section uses this understanding of absorptive capacity and explores current applications in various operational fields.

Theoretical Hypothesis in Applying Absorptive Capacity

Starting with Cohen and Levinthal's (1990) earliest definitions to Lichtenthaler's (2009) inclusion of market and technological knowledge, absorptive capacity's focus has remained unchanged. The *raison d'être* guiding absorptive capacity continues to be that for an organization to remain competitive in our complex, dynamic operating environments, said organization must continually identify and rapidly learn new, externally sourced information. This knowledge transfer process is critical to the long-term sustainability of an organization, both large and small, in any given operational context. Baškarada and Koronios' (2018) recent study explored the application trends for absorptive capacity. Their work confirmed previous efforts by finding numerous applications of absorptive capacity in the business community. The work also confirmed an oft-cited trend that absorptive capacity's application in a service organization, non-profit, and or military units is far less prevalent (Baškarada & Koronios, 2018). The synthesis of absorptive capacity's implementation started with Lane, et al., (2006) early exploration of how the original theory's construct singly, and then with the adjustments made by Zahra and George (2002) and Todorova and Durisin (2007) had or had not demonstrated growth of an organization's capacities. The study defined *growth* as additional adjustments and refinement, made by the organization, that demonstrated causality in a measurable increase in the theory's fidelity (Lane, et al., 2006). Their

research demonstrated that absorptive capacity theory remains much unchanged from the 2007 refinement (Lane, et al., 2006).

Stefania and Christian (2015) furthered the effort with an article that significantly expanded the literature assessment aperture from 1990 to 2013. The authors' work represents a qualitative literature review centered on the contextual use of absorptive capacity and not merely a number of times employed premise. Stefania and Christian (2015) focused on answering two primary research questions; (1) Does using absorptive capacity influence reasons behind organizational decisions? (2) When employed, what were the managements foci in the fields of knowledge management and intellectual capital? The research yielded results that nest with the proposed objectives. The organizations were looking for the most effective way to energize their workforce while maintaining the most efficient way to introduce new, relevant information (Stefania & Christian, 2015).

Another recent meta-analysis is Gao, et al., (2017) comprehensive literature review, which spans from 1990 to 2015 and includes analysis of absorptive capacity related publications, articles, and presentations from 52 academically reputable journals. The authors explore the application of absorptive capacity via four distinct headings. They use descriptive analysis of absorptive capacity, domains of absorptive capacity usage, use of absorptive capacity dimensions to aid in the development of propositions, and theory and a look at the measures most commonly applied to absorptive capacity's application. The authors describe two distinct gaps in the current literature (Gao, et al.,

2017). The first shortfall being the misalignment of absorptive capacity concepts and the relative measurement scales or tools used in the various research efforts. Moreover, the study found that the efforts to study, record, measure absorptive capacity was significantly skewed to the realized absorptive capacity, containing the primary steps of assimilation and exploitation, side of the equation (Gao, et al., 2017). Conversely, they emphasized that there remains a lack of detailed analysis in the literature focused on potential absorptive capacity and its two steps of acquisition and transformation of new data.

Literature Review

The next section of the review explores a more focused view of the application of absorptive capacity. As relayed in previous sections, the bridge from using absorptive capacity theory lags from the business community to the service organization community. This gap only increases when looking for applications of absorptive capacity to military units. The following works are a representation of absorptive capacity applications by the general topics of leadership, learning, and methodology. The works included here are not inclusive of all works in this area. The selected articles do, however, represent relevant and recent support of the overall purpose of this research effort.

Leadership, Learning Environments, and Absorptive Capacity

An exploration of the literature highlights the development of leadership and learning as crucial elements in the continued application of Cohen and Levinthal's absorptive capacity theory. The various works collected here reflect this development in

academic research effort by looking at leadership and learning environments antecedents to absorptive capacity. Leadership and learning environments and the management of them are a common thread in military units and are relevant to this study's research efforts.

Jimenez-Jimenez and Sanz-Valle's (2011) study nests with this research effort by including leadership and organizational learning as crucial variables. Jimenez-Jimenez and Sanz-Valle's (2011) empirical analysis of data from 451 Spanish firms supports their research effort which explores how the performance and innovation of an organization is due to a positive relationship with organizational leadership and an empowered learning environment. Jimenez-Jimenez and Sanz-Valle (2011) also identify other moderating factors such as maturity of the institution, the type of industry, and the operating environment dynamism. Jimenez-Jimenez and Sanz-Valle (2011) were one of the first and few to incorporate the maturity of the institution and the level of dynamic environment in the academic study.

Berghaus' (2016) work nests nicely with this line of research effort. Berghaus' (2016) searched for the relationship of authoritative leadership and how they impact training programs, specifically ethics and morality training. This work provides essential steps from the business community to service organization to military units and finally to military training with a backdrop of knowledge transfer. Berghaus (2016) provides useful insight into absorptive capacities' application to a military unit. Berghaus' (2016) argues and substantiates that the military's current processes for developing and

implementing training programs rely too heavily on the use of authority figures. Berghaus' (2016) findings further the work of Todorova and Durisin (2007) and how power relationships impact the process in a hierarchal institution. Berghaus' (2016) is an essential building block to a better understanding of how the leaders in a military unit can increase efficiencies by not relying on positional power but the capabilities of the individual soldier. Soldiers and leaders alike are included in the parameters of this research.

Flatten, et al. (2015) and Campos-Climent and Sanchis-Palacio (2017) studied the causal linkage between knowledge transfer, absorptive capacity theory, and a shared value system in a service-oriented organization. Overall, the research efforts discovered that knowledge transfer, in their case the use of new information from external sources, had a direct positive influence on the shared vision of the organization when associated with both transactional and transformational leadership styles. Flatten, et al. (2015) and Campos-Climent and Sanchis-Palacio (2017) were also pioneers in exploring three additional variables in knowledge transfer. Their work included the impacts of power relationships, the distance between nodes in an organization, and uncertain operating environments (Flatten, et al., 2015; Campos-Climent & Sanchis-Palacio, 2017).

Rai and Prakash's (2016) study continued the exploration of leadership styles impact knowledge transfer. The authors use an empirical study of 182 firms from the manufacturing and service sector in India. The authors propose that the leadership model is epistemic to the motivation and is a determinant factor for the firm and its absorptive

capacity. The authors describe the work as a self-reporting, cross-sectional design in firms working with established distances between the superiors and subordinates (Rai & Prakash, 2016). Kosecova and Grasseova-Motyckova (2017) provided a correlating study of the Czech Republic armed forces that reflects similar results. Both studies are instrumental in establishing leadership style as a determinant factor in the responsiveness and overall success of the absorptive capacity process.

Pearce and Sims' (2002) study worked to try and predict if shared leadership or vertical leadership is more predictive of organizational success given a shared operating environment. Pearce and Sims' (2002) defined shared leadership as a collective team with no specific single individual acting as the team leader. Conversely, Pearce, and Sims' (2002), defined vertical leadership as the appointment of a single leader in the team. Pearce and Sims' (2002) research effort further describes the resultant relationship across five different types of leadership. Pearce and Sims' (2002) include aversive, directive, transactional, transformational, and empowering leadership styles in their study.

More recent studies by Koronvary and Szegegidi (2018) and Méndez, et al. (2018) studied and provided updates to the application of absorptive capacity in the service community. Koronvary and Szegegidi (2018) explored the impacts of technological diversity interfaced with the knowledge management process in centralized organizations. Koronvary and Szegegidi (2018) discovered that understanding who and how knowledge management is approached in a hierarchical organization directly

impacts the respective organizational proficiencies. Koronvary and Szegegidi (2018) argue that any solution to a problem in the 21st century must include specific roles and responsibilities for knowledge management and include management of the process from acquisition to exploitation.

Méndez, et al. (2018) approached the same problem statement and research question from a different perspective. Instead of a process vantage point, Méndez, et al. (2018) used transformational leadership to understand the main determinants of successful knowledge management better. Méndez, et al. (2018) found that transformational leadership traits in the management of an organization contributed to an environment that favors learning. Méndez, et al. (2018) also found that transformational leadership, when coupled with dialogue and risk-taking, significantly impacted the positive a firm's absorptive capacity.

Gürbüz, et al. (2014) revisit the relationship of the follower's attitude with the type of leadership be it either X, a coercive leader or Y a transformational leader (Carson, 2005). The authors engaged 50 military leaders and 150 more soldiers in serving in standard units to better understand the impacts of the type of leadership on knowledge transfer and absorptive capacity. Gürbüz, et al. (2014) result discovered that the members, in their study soldiers in a particular unit, were more inclined to share information and use new information in a Y environment. The study also yielded that there were increased levels of motivation and a more robust work ethic in a Y environment (Gürbüz, et al., 2014) (Carson, 2005).

Beer, et al. (2016); and Malgorzata (2016) provide additional substantiating evidence on why the potential for absorbing new information often far exceeds the organization's ability to realize the new information to the fullest extent possible. Beer, Beer, et al. (2016) study provides empirical support to the idea that an organization with a focused learning environment that enables individual growth will raise the overall levels of exploitation for new externally sourced information.

Malgorzata's (2016) research efforts shape the need for further study on implementing absorptive capacity as a management tool in a training and education environment. Malgorzata's (2016) research fully supports Berghaus' (2016) argument that a leader centric method of training, education, and transferring knowledge is not fully efficient for the organization. Both Malgorzata (2016) and Beer, et al. (2016) reinforce the argument by empirically demonstrating that the overall operating environment is critical to the success of the program and is not solely dependent on the leadership of the organization.

The next article in the literature review examined the interaction of an enterprise's resourcing and planning knowledge transfer processes in support of the firm's strategic objectives (Shao, et al., 2017). They related the leadership model with the use of the planning systems and how those planning processes impact the absorptive capacity of the organization (Shao, et al., 2017). The author's research explored the interaction of various leadership styles and knowledge transfer processes (Shao, et al., 2017). Shao, et al. (2017) discovered that positive, enabling leadership styles impacted the success of the

planning systems (Shao, et al., 2017). The article uses the assimilation phase of absorptive capacity as the backdrop for the application of the research. Shao, et al. (2017) assume that the acquisition and assimilation, changes to the information to align with organization context, syntax, and lexicon, to the processes are complete.

The next section branches from researching articles focused on leadership and its relationship with knowledge transfer processes to including products, studies, and research that included organization learning.

Rezaei-Zadeh and Darwish's (2019) article is an example of a study that explores the relationship between absorptive capacity and organizational learning. The authors work studies the correlation among absorptive capacity and its role as an essential antecedent to organizational learning (Razaei-Zadeh & Darwish, 2019). The gaining of new information is critical to the continued success of an organization in the modern, dynamic operating environments (Razaei-Zadeh & Darwish, 2019). Their work continues the work of Sun and Anderson's (2010) study that described absorptive as a dynamic event that is integral to organizational learning and organizational learning theory. The key point to both articles is that an organization must exhibit both constructs, absorptive capacity, and a learning environment and exhibits integration for the organization to develop and progress in their market-oriented operating environment successfully. In another expansion of how best to study the application of absorptive capacity, Watson, and Cromarty (2017) added the variable of leadership. Their work on how different types of leadership, transactional versus transformations, impacts the process provides

additional support to the development of this study's use of military rank as variables in the same process.

This section of the literature review provides the necessary context to the importance of leadership and learning environments as antecedents to an organization's application of absorptive capacity as a knowledge management tool. Leadership, a learning context, and absorptive capacity are three critical ingredients to this study's efforts to establish absorptive capacity as a tool to aid in military training management. The subsequent section of the literature review explores the application of absorptive capacity beyond leadership and learning environments.

Recent-Past Applications of Absorptive Capacity

The previous section examined recent academic efforts that seek to understand the relationship between leadership and learning environments on knowledge management and absorptive capacity in a given organization. Conversely, this section explores additional aspects of absorptive capacity across a wider aperture of application. This section also includes works that explore how organizations must sometimes work to un-learn processes in order to move forward.

Ferreras-Mendez, et al. (2016) is the first of two articles from the same collection of authors who study how researchers can better understand the linkage between how a firm, as a collective entity, searches for new information and that process subsequently impacts on the institution's ability to apply absorptive capacity. The authors explore how the firm's breadth and depth of search strategies will moderate the four dimensions of

absorptive capacity (Ferreras-Mendez, et al., 2016). The authors rely upon an empirical analysis of data collected from 467 Spanish business firms to establish the statistical support of the findings (Ferreras-Mendez, et al., 2016). The authors employ eight variables; the independent variables are the depth and breadth of the search efforts, while the dependent variables are exploratory, transformative, and exploitative learning (Ferreras-Mendez, et al., 2016). The control variables used for the quantitative study are the size of the firm, the turbulence of the environment, and the sector of the market in which the firm operates (Ferreras-Mendez, et al., 2016).. The study results find that higher depth and breadth of search positively impacts the absorptive capacity of the organization and moderates the impact of the environment, size of the firm, the corner of the market where the firm resides (Ferreras-Mendez, et al., 2016).

In another quantitative study is Lin, et al. (2016) work to link absorptive capacity, and customer knowledge development. The study explores how absorptive capacity, coupled with customer knowledge, mediates team performance (Lin, et al., 2016). The linkage developed in Lin, et al. (2016) work correlates with this research's effort. Lin, et al. (2016) establish the individual as critical to the absorptive capacity. This finding mirrors the use of the proposed use of soldiers in a military unit in the same role. Their study, Lin, et al. (2016), also nests with the intent of using the military unit's successes with training management as a collective entity. Lin, et al. (2016) study focuses on high tech firms in Taiwan, but the application and theory closely mirror this study's efforts and provide critical support to the development and execution of future research. Lin, et al.

(2016) research effort is an empirical study that provides a robust set of statistical tools to support the findings that the individual negatively moderated increased feelings of being assimilated by the collective. Applications of absorptive capacity remain a critical aspect of maintaining a level of advantage in the modern operating environment (Lin, et al., 2016).

The following collection of articles narrows the aperture by focusing the literature review's search on studies that share common ground based on methodology. Sun and Anderson's (2010) work began the march to understanding the level to which absorptive capacity's dynamism was an integral requisite for an organization's success. Two other early studies provided some helpful insight into this line of research effort by linking knowledge transfer and the military.

The first article reviewed is Srđan, et al. (2013) study of logistics in a military organization as a framework to better understand how knowledge transfer works in service-oriented organizations. Srđan, et al. (2013) work explored the mediating effect of service organization structure on knowledge transfer and its impacts on the organization's operational processes. The second article is Diamantidis and Chatzoglou's (2014) expansion of the same topic. Diamantidis and Chatzoglou's (2014) effort explored the linkage of knowledge management with training programs implemented in various government and private service organizations. Srđan, et al. (2013) and Diamantidis and Chatzoglou's (2014) two studies establish a vital link in furthering how well knowledge management in service organizations is understood. The investigation of the effects of

training programs, based on certain types of program structure, training design, and worker or soldier self-efficacy. Srđan, et al.'s (2013) and Diamantidis and Chatzoglou's (2014) research focused their effort on absorptive capacity as a form of knowledge transfer and the mediating effects of a military's hierarchy in the form of rank.

Bradford and Saad (2014) provide additional insight and value to the academic literature pool with their research effort, which focused on the premise that the value of the new information is a moderating variable. Bradford and Saad's (2014) investigation analyzed the correlation between the value of the new information, and will the organization be able to perform knowledge transfer processes. Bradford and Saad's (2014) argument establishes that organizations are discerning when they recognize that the newly acquired information might be valuable to the organization and could improve the overall operational readiness.

Aribi and Dupruoet's (2015) and McEvoy, et al.'s (2017) work asked similar questions, referencing the importance of cohesive staff processes, including knowledge management, in how service organizations sustained long term improvement. Aribi and Dupruoet's (2015) research explored to what extent cohesiveness of a staff mediated the level, interpreted as efficiency in the study, during the application of absorptive capacity across all of the theory's subcomponents of acquisition, transformation, assimilation, and exploitation. In their slightly more recent study, McEvoy, et al. (2017) researched 3,000 articles in a meta-analysis that correlated the choiceness of the staff and its internal processes and the organization's ability to arrange the new information into a taxonomy

that supports the institutional goals and objectives. In both studies, the organization's ability to develop a cohesive staff coupled with a simple arrangement of the new information demonstrated a positive trend in the success of the processes. Méndez, et al. (2018) reaffirmed the findings of Aribi and Dupruoet's and McEvoy et al.'s studies and furthered the idea that the level, individual or collective and or according to the institutional hierarchy, at which the organization engages with the operating environment directly impacts how much and how valuable new information is to the organization.

Guozheng, et al. (2014) provided a recent analysis that explored the impacts of organizational climate, command climate in a military unit, and the moderating impacts of absorptive capacity. Their study represents a robust effort across 183 Chinese firms located in five geographical regions. The authors hypothesized that a positive organizational climate would demonstrate a positive moderating effect on both potential absorptive capacities, aligned along Todorova and Durisin's (2007) grouping of acquisition and transformation. Guozheng, et al. (2014) realized absorptive capacity, again in keeping with Todorova and Durisin's (2007) arrangement of assimilation and exploitation, positively modified absorptive capacity. Guozheng, et al. (2014) employed multiple linear regressions to establish a positive correlation between the climate and absorptive capacity in support of their hypothesis.

Park, et al. (2015) added helpful insight into the relationship between joint ventures, international firms, and the moderating effect of the age of the firm. This quantitative article described the organizations being studied either as young, less than 10

½ years in the current form in the current environment, or mature organizations with higher than 10 ½ years in their current form and operating in their current environment. The authors established the 10 ½ year threshold from the number of organizations studied by their respective ages (Park, et al., 2015). Park, et al.'s (2015) hypothesis is that more mature ventures will have a positive usage trend on the transfer of both tacit, knowing how to accomplish a task, and explicit, knowing, and understanding that the information is essential to the operational process, knowledge. Park, et al.'s (2015) also investigated the converse that younger ventures will not demonstrate positive usage trends when dealing with tacit or explicit information. The information was limited to the transfer of knowledge from foreign firms, outside South Korea, to local ventures on the peninsula (Park, et al., 2015). The results supported Park, et al.'s (2015) hypothesis that the more mature the organization, the more efficiently the organization exploited the information.

Common Methodology in the Application of Absorptive Capacity

Searching for and finding a set of articles that share a typical application of methodology was the next step in the development of this literature review. This search for relevant sources could provide additional insight into methodology and tools for use during the implementation phase of this research study. The search focused on identifying new sources of previously used measurements and scales in the application of absorptive capacity in the advent of possible inclusion in this study.

Cadiz, et al. (2009) were an early research effort that searched for a standard method in measuring absorptive capacity in a given organization. Camisón and Forés,

(2010) used the findings of Cadiz, et al. (2009) and augmented the same study by implementing Zahra and George's (2007) theoretical addition of realized and potential absorptive capacity. These two studies further enabled Chauvet's (2014) exhaustive literature review of the various scales associated with measuring the steps of absorptive capacity and the entire knowledge transfer process. Chauvet's (2014) correlated the scales from the various works in order to reach a common framework that resulted in a universal measurement tool. The study further divided the four steps of absorptive capacity into 18 distinct subcomponents (Chauvet, 2014).

The meta-analysis described above provides the segue to the next section of the literature review. The next section in the research effort will address both the derivation of the variable set and the work supporting the following definition of each variable.

Piening and Salge (2015) and Pinto, et al. (2017) studied the knowledge management process at different stages of group development and how it impacts the innovation of new processes in given organizations. Both works focus on the question of how does an organization learn from the introduction of new innovative processes (Piening & Salge (2015); Pinto, et al., 2017)? The introduction of innovative processes is an exploration into the contingencies, the antecedents, and the performance metrics of a company that has successfully implemented innovative and not just new, to the organization, processes in an attempt to reach the organization's established goals (Piening & Salge (2015). The primary thought in the studies is the introduction of the new innovative processes; the subsequent success of the newly introduced processes; and

the end-state gains from the new processes in the form of increased productivity will be all be positive events and that the three steps will build on each of the previous steps (Piening & Salge (2015). Piening and Salge (2015) and Pinto, et al. (2017) introduce the firm's performance as the dependent variable with the independent variable is the breadth of the firm's innovative processes. The two studies are empirical studies that employ to capture the statistical significance of the research effort. Both Piening and Salge's (2015) and Pinto, et al.'s (2017) studies found that the three steps are positive but are not dependent on the previous step as an antecedent. The authors use a soldier's performance of their assigned tasks as a variable during the application of absorptive capacity.

Variable Selection Rationale

The following reviews work in support of this study's variable selection process. Daspit and D'Souza's (2013) application of absorptive capacity established a tool for predicting the institution's success in its market niche. Daspit and D'Souza's (2013) study established, using a quantitative method, a model for applying Todorova and Durisin's (2010) adaptation of the absorptive capacity; their collective works were instrumental in shaping this research effort to relate the four components of absorptive capacity to military rank. How a firm executes the four components of acquisition, transformation, assimilation, and exploitation is strongly related to predicting a firm's positive and negative performance in the market (Daspit and D'Souza, 2013).

Nguyen and Nguyen-Dinh's (2015) study explored the linkage between the instruction that students receive at academic institutions and how it shapes the transfer of

knowledge, in the form of absorptive capacity, of business organizations. The study furthers the effort by investigating the impacts of in-service training programs in the respective organizations (Nguyen & Nguyen-Dinh, 2015). The in-service training programs present new information to the organization, which in turn prompts the members of the organization to undertake a knowledge transfer process (Nguyen & Nguyen-Dinh, 2015). Nguyen and Nguyen-Dinh (2015) conducted an empirical study with an audience of 843 in-service training students in various business organizations. Nguyen and Nguyen-Dinh's (2015) hypothesis is that academic knowledge would positively interact with the organization's capacity to reach its goals. Nguyen and Nguyen-Dinh (2015) applied a fuzzy set qualitative comparative analysis to capture the numerical support for the argument. In an unforeseen outcome to Nguyen and Nguyen-Dinh's (2015) study, the findings did not support their hypothesis. The data and its subsequent analysis revealed that the type and methodology of the in-service training had little to no impact on the overall capability of the organizations. The introduction of the new data, regardless of its presentation, did have a positive impact.

Related Studies Using the Chosen Independent Variables

Ebers and Maurer's (2014) research established the linkage of relationships among the members of an organization to the organization's overall capacity to absorb new information. The more positive the relationships among the members of the institution, the more adept the institution was at applying absorptive capacities processes (Ebers & Maurer, 2014). Ebers and Maurer (2014) aids in this study's exploration

regarding how military rank relates to the four dimensions of absorptive capacity. Enkel, et al. (2017) followed the same formula in a recent study. Their findings reinforced Ebers and Maurer's (2014) findings that the strength of the individual relationships in the organization is positively related to the overall strength of the organization's absorptive capacity (Enkel, et al, 2017).

An article that performs in a supporting role in this study is Kavin and Narasimha's (2017) work with understanding how a time-clock practice influences the firm's ability to process new information. Kavin and Narasimha's (2017) paper focusses on how the innovation fostering practices of time and time-clock speed influences the firm's ability to conduct absorptive capacity. The authors propose that the influence of time and its resultant constraints are lacking in current studies (Kavin & Narasimha, 2017). They provide a comparative case study to support their investigations in an article that hinges on the differences in a high clock-speed industry to one that is a low clock-speed firm (Kavin & Narasimha, 2017). They found that the clock speed, either high or low, does not significantly impact the innovation fostering of knowledge transfer processes in an organization it does, however, strongly influence how a firm exploits the newly acquired information (Kavin & Narasimha, 2017).

Rafiqe, et al.'s (2018) article explores how an employee's behavior impacts the application of absorptive capacity in an organization. The study uses various pharmaceutical companies in Pakistan as the study's audience. Rafiqe, et al. (2018) focus on mid-level managers in the respective firms. Rafiqe, et al's (2018) employe a cross-

sectional quantitative study. The authors use multiple regression statistical analysis to capture the correlation of the independent variable, level of empowerment of the mid-level manager, with the dependent variable, the four components of absorptive capacity (Rafiqe, et al., 2018). The results of the analysis discovered that the level of empowerment provided to the mid-level managers is directly proportional to the level of knowledge transfer (Rafiqe, et al., 2018).

Related Studies: The Independent Variables. In support of building the study's independent variable set, the four components of absorptive capacity, Chaudhary and Batra (2018), conducted extensive research in the application of both potential and realized absorptive capacity. Chaudhary and Batra's (2018) work followed the Todorova and Durisin's (2010) model of grouping the four components of absorptive capacity by potential and realized respectively. Chaudhary and Batra's (2018) findings proposed that the application of absorptive capacity by an organization is a linear process. Each item of new information, even those discovered in the same set of organization processes, resulted in the organization working through the four steps sequentially (Chaudhary & Batra, 2018). The findings provided additional insight into how little potential absorptive capacity, acquisition, and transformation, impacted the institution's operational processes.

Moldjoord and Hybertsen (2015) studied the application of a debrief as a form of knowledge transfer in an operational process. Moldjoord and Hybertsen (2015) explored how a debrief, from a recent event, is a learning tool for an organization. Moldjoord and Hybertsen (2015) used the reflective process, in the form of a disciplined, formatted

debrief, as a part of a knowledge transfer process. The reflective process in support of their study consists of restitution, reflection, and learning. Moldjoord and Hybertsen (2015) employed a qualitative study based on a series of in-depth interviews of military aircrews in Afghanistan. The study found that the post-mission reflective process more sharply focused on details and timings after stressful events than after more mundane tasks. Moldjoord and Hybertsen's (2015) confounding variable was trust. Personnel found the reflective process to be increasingly valuable over time, based on the establishment of mutual trust between themselves and the researcher. Time and repetition were also essential factors in establishing the threshold of trust among team members (Moldjoord & Hybertsen, 2015).

Controversial Aspects of the Chosen Variables

Cegarro-Navarro, et al. (2014) researched how counter-knowledge, in an organization impacts the knowledge transfer process. Their work defines counter knowledge as lies, gossip, partial truths, exaggerations, and any other item that could distort the process. Cegarro-Navarro, et al.'s (2014) study provided valuable insight in visualizing how the various ranks used in this study could impact perspectives of each the ranks. The introduction of counter-knowledge as a confounding factor with the independent variable, military rank, is a point at which bias could enter and subsequently skew the findings. Cheuk, et al. (2017) added insight for this study with the introduction of questions regarding how an organization uses or reuses, the same information over time, and does it positively impact the organization's knowledge transfer capability.

While not counter-knowledge the reuse or re-application of absorptive capacity over time could impact the unit's overall capability. While not fully nested with this research effort, these two articles do convey some level of sentiment that the implementation of absorptive capacity could far short of delivering a satisfactory result.

From the vantage point of counter knowledge, the next section explores vital shortfalls in the variable set. Leal-Rodríguez, et al.'s (2014) study is an empirical analysis between potential absorptive capacity and realized absorptive capacity. Leal-Rodríguez, et al. (2014) explore the mediating role of project teams on innovation in a learning context. They use a data set collected from 110 Spanish automotive firms. Leal-Rodríguez, et al.'s (2014) provide a theoretical framework for the research effort coupled with a thorough explanation of their suggested conditional process model via an analysis model of partial least used squares (PLS) statistical in order to ascertain the validity and reliability of the responses.

Tung-Ching, et al.'s (2016) research provides an analysis of how knowledge loss in an organization impacts its inherent absorptive capacity. They, Tung-Ching, et al. (2016), include the human resource effort of the study's audience as an additional variable. Tung-Ching, et al. (2016) performed an empirical analysis of returned surveys from approximately 200 Taiwanese information systems personnel. Tung-Ching, et al. (2016) findings support the purpose of the paper in that the knowledge loss has impacts on the absorptive capacity and the performance of the information systems.

Critical Gaps in Research on the Chosen Variables

Martin, et al.'s (2003) article explores an application of absorptive capacity in more mature organizations that are facing change based on a developing operating environment. Martin, et al. (2003) model their research effort by linking a mature organization with the long-established military hierarchy. Martin, et al. (2003) employ a qualitative methodology via a series of in-depth interviews. They explore the introduction of absorptive capacity and its usefulness in organizations with limited resources, low levels of managerial attention and a small number of staff members.

Research Question Rationale and Relations

Emerging from a white paper Evaluating the military's technology absorptive capacity (2010) comes an early exploration of how absorptive capacity relates to a military application. The study is limited to a review of the implementation of new technology and does not reflect the use of military rank as an independent variable, but it captures the relevance and necessity of further study and understanding.

Bridging from recent past applications of absorptive capacity to a focus on the development of the research question begins with Argote and Hora (2017.), and Ashok, et al. (2016) and their respective questions regarding at what rate do firm's investments in knowledge management provide returns relative to the amount and type of original resource investment. Ashok, et al. (2016) also explore the impact of innovation using the return of knowledge management as a variable in providing services to the desired customer base?

Volbreda, et al.'s (2010) study describes a perspective intended to advance the understanding of absorptive capacity. They describe a multifaceted research effort that ties absorptive capacity dimensions, antecedents, impact on firm performance, and contextual factors, all of which relate with absorptive capacity. Volbreda, et al. (2010) argue the way that an organization absorbs absorptive capacity, as a process, is critical to understanding how absorptive capacity works in a given circumstance. Volbreda, et al.'s (2010) provide additional contextual gaps where follow-on research would be well suited in advancing a more robust understanding of the application of absorptive capacity.

Kee and Newcomer's (2008) case study research effort focused on the non-profit and governmental institutions. Their analysis uses a recently collected data set from the Center for Creative Leadership. Kee and Newcomer (2008) found that up to 75% of change initiatives fail based on a climate of resistance. Kee and Newcomer's (2008) identified the factors impacting this failure rate as lacking advocacy for the change, lack of understanding in who will act as the leader, lack of detailed planning, not identifying the risks involved with the change, and lack of resources applied.

Roberts' (2015) examines the antecedent of data integration and connectedness and how they impact absorptive capacity. Roberts' (2015) article is an empirical study across 178 high-tech firms headquartered here in the continental United States. Roberts' (2015) demonstrates how absorptive capacity antecedents of structure, process, and capabilities of a given organization impact the overall use of new knowledge and that these antecedents work in a relationship and not as isolated variables. The study includes

a thorough description of the hypothesis development process that is, in turn, coupled with a clear picture of the study's intent and proposed end-state, all of which support the statistical analysis. Robert's (2015) findings reflect that the higher the level of inter-connectedness is more effective in the absorptive capacity process.

Roberts, et al. (2012) and Sun and Anderson (2010), both worth to define and then refine the relationship of absorptive capacity and organizational learning. Roberts, et al. (2012) work defined technology-based processing systems as those that emphasize information systems. Roberts, et al. (2012) trace the evolution of the learning theory and how it has morphed in support of the knowledge transformation explosion. Roberts, et al. (2012) offer a series of great questions on how much and how you measure an organization's absorptive capacity by using a sponge analogy as a powerful visual representation of the process.

Relationship of the Research Question to Key Concepts

O'Mahony et al. (2017) Rand study provided much of the early impetus for this study. O'Mahony et al. (2017) collective work on better understanding the usefulness of the U.S. Department of Defense's regionally aligned forces was a stepping off point for this research proposal. O'Mahony et al. (2017) describe the shortfalls from recent training efforts on the African continent. The authors identified the losses in resources such as time, material, and monies. O'Mahony et al. (2017) applied absorptive capacity theory as a possible means to reduce the less than expected return on the training investment.

Relationship of the Research Question to the Theory of Absorptive Capacity

Pearce and Ensley's (2004) article describes a longitudinal study of how innovation processes, from simple to more complex, related to the collective vision of an organization. Pearce and Ensley (2004) hypothesize that the more complex the change process, the more complete the sharing of the vision. Pearce and Ensley's (2004) proposed a relationship model, change process to vision, which is linear and parallel. The critical factor found is that the sharing of a vision is a common goal and how to get there are both core aspects of a successful process (Pearce & Ensley, 2004). The article's authors describe that vision is twofold, i.e., the planning factors and how it improves the organization (Pearce & Ensley, 2004).

Role of the Research Question in Challenging the Current Applications of Absorptive Capacity Theory. Some authors' work has explored the counterargument that absorptive capacity is limited in its application based on both internal and external limitations in the organization. Cuervo-Cazurra and Rui (2017) is a notable effort in this genre. The authors' mixed-methods approach reaffirmed the barriers to absorptive capacity. The factors in the non-integration of new knowledge included weak social integration in the organization, externally a lack of activation triggers, and conflicts in relationships with possible sources (Cuervo-Cazurra & Rui, 2017). Cuervo-Cazurra and Rui's (2017) efforts provide additional fidelity to this study by exploring the application of absorptive capacity in a military unit where the social integration is in the form of an externally imposed hierarchical structure. Additionally, the command often mandates the

sources of the new information and describes the command and support relationships with other military units.

Chen, et al. (2018) provide work studying how an organization forgets, defined in their study as ridding itself of old information, processes, and objectives, in order to spur innovation via new absorptive capacity skills. Chen, et al.'s (2018) empirical study uses data collected from 320 Chinese companies. The authors propose that the better the organization is at dumping the old information, the more efficient it can become in the absorption of new information (Chen, et al., 2018). The first premise is the idea that forgetting is a critical determinant in improving innovation and that it cannot exist in a vacuum without absorptive capacity (Chen, et al., 2018). The second premise is that absorptive capacity's mediating effect increases the more volatile the operational environment (Chen, et al., 2018).

Summary and Conclusions

There remains a shortfall in the number of knowledge management tools available to leaders in support of their efforts to develop, to resource, and to implement training development programs. Even in the case of training programs that are deemed worthy by the leadership and continue as viable processes for their expected lifespans fail at alarmingly high rates, often exceeding 70% (Kotter, 2007; Beer, et al., 2016).

The preliminary literature review determined that the application of absorptive capacity has been and continues to be widespread across many different types of business-oriented institutions. The vast majority of these efforts were in the business

community, with the applications in service-oriented institutions lagging far behind (Baškarada & Koronios, 2018). Based on the searches conducted in support of this study, the application of absorptive capacity theory to a military organization remains mostly untapped.

The theoretical framework consists primarily of Cohen and Levinthal's (1990) knowledge transfer theory named absorptive capacity. Updates from Zahra and George (2002) and Todorova and Durisin (2007) modified the theory, which resulted in its current form of potential absorptive capacity consisting of acquisition and transformation and realized absorptive capacity consisting of assimilation and exploitation. All the works defined absorptive capacity as a knowledge transfer process, which is critical to the long term viability of an organization in modern, sophisticated, working environments.

The literature research revealed that absorptive capacity is a widely accepted theory for understanding how knowledge transfer works in different types of organizations (Beer, et al., 2016). The review explored the impact of leadership, type of organization, and how absorptive capacity moderated innovation in various institutions. What remains unknown is the applicability of absorptive capacity as a management tool for military leaders in tactical-echelon units.

Many organizations continue to struggle with the process of successfully transfer information from external sources to operational processes. This statement is true in business organizations and military units alike. This research effort looks to extend the knowledge and works to close the gap for military units by establishing additional

quantitative research in order to understand the relationship among the components of absorptive capacity and the ranks of the soldiers. This chapter reviewed the literature on absorptive capacity, how to measure absorptive capacity, and articles exploring its application across differing areas. It was from this research that the dependent and independent variables emerged. In Chapter 3, the methodology, populations, data analysis plans, sample size, scope and type, and validity measures provide the framework for this quantitative analysis.

Chapter 3: Research Method

Asking our citizen-soldiers to accomplish missions supporting peace and the rule of law around the globe can enable the conditions for positive social change (Cicmil et al., 2016). In his 2007 study, Kotter was among the first to identify that only 15% of the organizations undertaking developmental programs were successful. Kotter also found that high failure rates also plague training programs in organizations ranging from the business sector to service-oriented and nonprofit areas, and also in the government sectors. More recent studies by Kee and Newcomer (2008) and Tobias (2015) reflect the same trend that up to 75% of training programs in governmental, service, and nonprofit organizations fall short of expectations. McEvoy et al. (2017) further refined the general management problem with a thorough meta-analysis of 3,000 articles and found that being in the public service sector added additional stress to and lowered the success rates of adopting new knowledge management processes to levels near or below Kotter's 2007 findings.

Several factors can contribute to the failure of training and education programs; leadership, management of people, resources, time, formal and informal organizational structures, prioritization of tasks, and knowledge transfer capabilities are all possible factors in why a particular training effort fails to reach its stated goals and objectives. According to Dyson (2019), there have been few empirical studies focused on the specific management problem of describing the organizational conditions that facilitate military learning. A more robust understanding of how a tactical echelon military

organization absorbs new information may enable the improved management of the programs and reduce negative returns. The loss of valuable training resources such as time, personnel, material, and operational capability are common manifestations that lead to less than successful completion of the unit's mission.

Research Design and Rationale

I used Vogt and Johnson's (2015) cross-sectional quantitative study as a model in conducing the study. The variable set included four independent variables and two dependent variables. The independent variable was U.S. Army National Guard military rank. The two subcomponents of enlisted soldier and commissioned officer refined military rank for analysis purposes. Cohen and Levinthal's (1990) theory of absorptive capacity provided the dependent variable set. The absorptive capacity theory was further broken down into its four components grouped into two parts. The first part consisted of potential absorptive capacity, which includes acquisition and transformation. The second part was realized-absorptive-capacity, which in turn includes assimilation and exploitation. The application of the independent variable of rank was appropriate due to its use across every tactical-echelon unit in the U.S. Army National Guard.

A quantitative study was appropriate for the study given that it was a first time attempt at applying absorptive capacity to a military unit's knowledge transfer processes. The research questions focused on clarifying the extent to which, if at all, military rank moderates the perceptions of each of the four components. Secondly, when compared, is one rank more or less critical to the process? Both questions were quantitative. The

research may add to the empirical research surrounding and in support of absorptive capacity and its use as a management tool for leaders.

The study design was cross-sectional. A single individual at a particular unit answered the survey questions at one moment in time. Data collection at each of the units was a separate and distinct event, which, in turn, reduces the my personal cost and resource expenditure. I relied on newly acquired data from different U.S. Army National Guard units. There were no anticipated constraints due to a particular type of military unit, nor was there a timeline for execution. However, one potential constraint was the accessibility of the unit based on my availability, work engagements, and personnel events.

Methodology

The study incorporated a pooled cross-sectional quantitative analysis with the primary objective of a higher level of understanding of absorptive capacity potential as a management tool during the development and execution of training programs in the U.S. Army National Guard tactical-echelon units. To accomplish the chosen type of analysis, based on multiple dependent variables, I used a multivariate analysis of covariance (MANCOVA) process. I used IBM's SPSS, v.27 statistical analysis program to analyze the data via the MANCOVA (see Vogt & Johnson, 2015; Wagner, 2017). In the sections that follow, a more robust explanation of the methodology is detailed. The explanation includes the population and sampling procedures. Descriptions of data collection, archival data processes, and instrumentation also follow in the subsequent sections of this

chapter. The section ends with a description of the operational definitions and the measurements of each variable.

Population

The population was the collective group of units and soldiers who participated in the research effort (Vogt & Johnson, 2015). As this is a knowledge transfer study of various units in the U.S. Army National Guard, the population was further defined as the soldiers, by the independent variable of rank, from the units participating in the study. These tactical-echelon units are well defined and mandated by size and type by the U.S. Department of Defense and the governance of each respective state in which the unit resides. The data were generic, meaning that the input was ordered by the independent variable by question but not by a specific unit. As of August 31, 2020, the anticipated population size for this study was approximately 250 participants. The derivation of this number is in the subsequent section. The population included all types of units. I anticipated that the unit, and their respective soldiers, would be drawn randomly and would represent a sampling of all types of units. The collected data will be maintained in a single, secure database only accessible by me.

Sampling and Sampling Procedures

I drew random samples from participating units to thoroughly examine participants at an individual level and across the four absorptive capacity components. There were, as of April 2020, no data sets available that aligned with this study's intent and purpose. The survey sampling methodology was a single stage stratified design. I

anticipated that the sample size would be proportional to the number of units participating in the study and that not all of the participants would come from a single unit at a single location. The use of this future data requires a reliance on the adequacy of the sampling technique development. Input for the methodology and data collection emerged from Hurtado-Ayala and Hernan Gonzalez-Campo (2015) and Jimenez-Barrionuevo et al. Molina, (n.d). Their linear quantitative study establishes the baseline for validated instruments and was the stepping-off point for the development of the questionnaire for this study. In reviewing the literature, I found no historical data set available to support this study. The anticipated window of collection was 90 days starting with the successful completion of Walden University URR guidelines.

In support of the sample size based on power considerations. I established the following planning considerations. The accepted margin of error was .05%. A lower margin of error would increase the requisite sample size required. The selected confidence level was 90%. A higher confidence level is better and also mandates a larger sample size. The anticipated population size was 10,000. The number 10,000 is an approximation of the total numbers of soldiers serving at the tactical-echelon units in the targeted states. It was not feasible to reach all of the soldiers in the short duration of this study. I assumed a 50% response distribution factor during this research effort. The actual distribution was unknown, so the application of 50% allowed for the largest sample size. The recommended sample size was approximately 277 using Raosoft's– (http://

www.raosoft.com/) sample size calculator. The equations used to calculate the targeted sample size (*n*) and margin of error (E) are

$$x = Z(c/100)2r(100-r)$$

$$n = Nx/((N-1)E2+x)$$

$$E = Sqrt[(N-n\_x/n(N-1)].$$

This number is the minimum amount of complete data entries. It is my intent to maximize the percentage of respondents per the recommended sample size. I assumed that a larger sample size with a lower percentage would lessen the probability of receiving a complete response.

Procedures for Recruitment, Participation, and Data Collection (Primary Data)

The command of each tactical-echelon unit, battalion, and company for this study, will be contacted via email or during a face-to-face meeting to describe the intent of the study thoroughly. The command will be asked to provide a written consent letter to provide oversight on the collective's participation in the study. The date and time of the research engagement will be during a weekend duty period. Early coordination for a time and location will significantly reduce the number and types of scheduling conflicts. As part of the daily schedule, I will engage with collective groups of soldiers and request their participation. At the scheduled date and time, I introduce the participants to the study's intent and purpose. The participants can decline at anytime and or stop at anytime during the process. I provided a written consent form to all remaining participants. There is also a question on the instrument which asks a yes / no question of consent.

The engagement begins with an overview of the absorptive capacity components and their definitions in the context of this study. It is my intent that the instrument to be stand-alone with a series of cross-walked definitions and explanations to fully synchronize the lexicon of the business community that of the military.

I collected the data, via two methods. The first is a on-line survey effort using a website like SurveyMonkey. The electronic engagement will follow the same rules of engagement as the paper, face to face effort. I reached out to the command team to garner permission to engage with the soldiers of the unit. The introduction will include a written explanation and link to the on-line survey.

The on-line and paper instrument consist of approximately 20 total questions, including demographics. The tool uses a 5-point Likert scale. I will collect the instruments from the participants as they finish the questions or when they finish the on-line effort. There is not a specified timeframe or time limit to the engagement. There will be an opportunity at the collection of all instruments for a collective out brief and if requested, a one-on-one exit interview. Each collection engagement is intended to be a single stand-alone event. There is no anticipated follow on engagements with a group of participants. It is, however, anticipated that a unit might have a series of engagements to capture the number of participants fully and to reduce conflicts in scheduling.

Instrumentation and Operationalization of Constructs

I selected the instrument from a collection of sources and articles. I strove to utilize a formerly applied and accepted survey instrument from known academics in the

field. Cadiz, et al. (2009) along with Flatten, et al. (2011) provided the structure for the proposed survey instrument. Each of the two articles contributed two questions per component of absorptive capacity. The questions were slightly modified to use the lexicon of a soldier serving in a U.S. Army National Guard unit. Both studies mirrored the scope of this research effort. The application was on the individual in an organization and how their individual perceptions for each of the absorptive capacity components impacted their ability to accomplish knowledge management tasks. The two surveys that I chose were limited to the business industry and were not used in a Military unit application.

Both of the studies were first sourced via the Psychtests database via the Walden University Library. In both cases the authors provided permissions for use in an academic endeavor without further coordination. The original survey instruments are provided in Appendix B (Cadiz et al., 2009) and Appendix C (Flatten et al., 2011). The reliability and validity values for both are included in the original documents in Appendices B and C, respectively. The two studies reflect acceptable levels of reliability and validity and are widely used and accepted in the field.

Furthering the instrument is the work of Iuan-Yuan, et al. (2010). Although it is a qualitative study, the questionnaire is a 7-point Likert scale model. Their model will be adapted to reflect approximately ten questions per absorptive component for a total of 40. I anticipated a remaining ~ten questions will be used to capture requisite generic data for use in correlating the effort or in subsequent studies. Schmidt's (2009) article further

described ways to measure absorptive capacity by establishing a standard unit of measurement. Schmidt (2009) confronts both the empirical, quantitative studies and the anecdotal, qualitative studies as falling short of clearly articulating the complexity of the absorptive capacity process.

Measures to Establish Reliability

My initial plan was establish and retain reliability using two primary factors. The first factor centers on establishing internal consistency. Two or more questions per section, based on the four components of absorptive capacity, will ask the same question in order to correlate the measure of the item between the two questions. The second reliability factor focuses on developing two versions of the same instrument. The A and B versions of the plan will retain the same overall order of sections, again based on the four components of absorptive capacity, but the order in which the questions differ to establish internal reliability.

I established predictive validity by correlating the results of the independent variables, enlisted soldiers and commissioned officers. If the results are found to be statistically significant and aligned with the two subsets of the variable of rank, an acceptable level of predictive validity is assumed.

Variable Operationalization Description

One independent variable with two parts and four dependent variables support the research effort. To best understand the context of each variable, I identify the variable and its operational definition the subsequent sections of this chapter. I define each variable

and establishes how it will be measured. In the next section, I establish the variable scale and score as well as an example of the calculations supporting the research question. The calculated score is then defined by what it represents to the study's research question and hypothesis.

Independent Variable. The independent variable of rank is further broken down into two subsets, enlisted soldier and commissioned officer. For this study, the independent variable remains unchanged.

- *Enlisted (aka soldier)*: Personnel who are serving, assigned with official military orders, to the unit, holding the rank of private (E1) to specialist (E4). Non-commissioned soldiers are serving, assigned with official military orders, to the unit holding the rank of sergeant (E5) to sergeant major (E9) are included in this variable. This subset will represent the most significant percentage of the population based on the proportions in the military hierarchy.
- *Officer*: Soldiers serving, assigned with official military orders, to the unit holding the rank of warrant officer 1 (W1) to colonel (O6). Officers will be the smallest subset by percentage of the overall population. For this study, the warrant officer and officers are in this subset. Colonel is the highest rank at the tactical-echelon unit engaged in this study.

Dependent Variables. The set of dependent variables are the four components of absorptive capacity.

- *Acquisition*; The first step in the knowledge transfer process, according to Cohen and Levinthal's (1990) absorptive capacity theory. It is the point at which the individual identifies new, externally sourced information. For this study, the source of new information will include visual, verbal, and electronic. Electronic sources are further expanded to include social networks, emails, and on-line development programs. A 7-point Likert scale, ranging from 1 representing zero acquisitions to 7 representing more than once in 24 hours, measures the variable input. The acquisition of new information will occur from both civilian and military sources outside the confines of the unit knowledge management. For this study, the vetting of new information occurs during acquisition. The unit implements the new information based on the perceived value to the unit and the new information's ability to aid in the unit achieving its stated goals and objectives.
- *Transformation*: The second step defines transformation as the point in time that the individual transfers the knowledge from the external source to an internal medium. Internal mediums are the closed networks for that unit, a server in support of the unit, a download file or email, or any other effort to save the information for further use. A 7-point Likert scale, ranging from 1 representing zero transfers of knowledge in 24 hours to 7 representing more than three saves of data to an internal source, measures the data input. Save is

defined as the primary source of knowledge that is an internal location available to all the soldiers assigned to the unit.

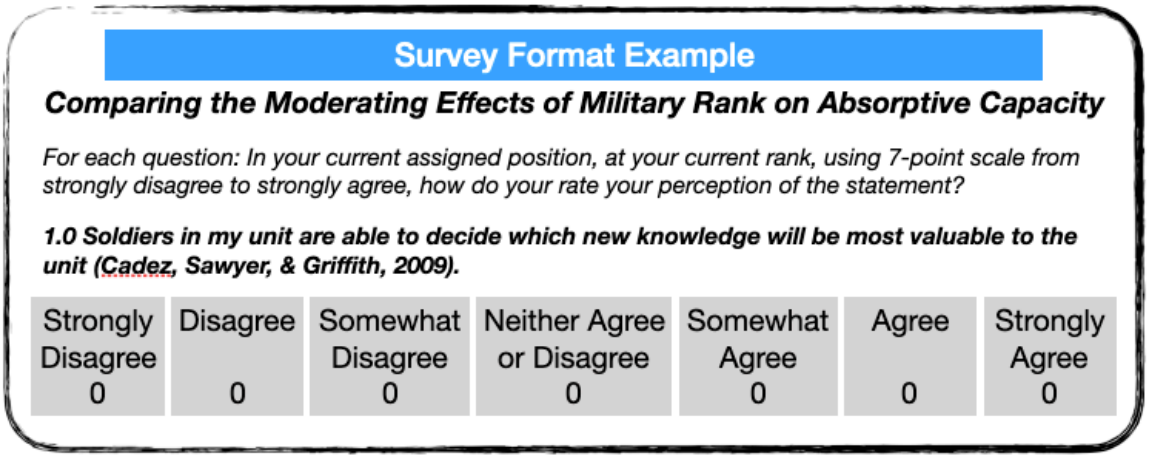
- *Assimilation*: The third step is the manipulation of the new knowledge in order to meet unit standards regarding lexicon, structure, form, or accessibility. For this study, the term lexicon is intended to represent the specific military-oriented language of the specific unit. A 7-point Likert scale, ranging from 1 representing zero adjustments to the product to 7 representing extensive adjustments to meet unit standards and or requirement, measures the data input.
- *Exploitation*: The final step in Cohen and Levinthal's (1990) theory is the implementation of the new knowledge in a standard internal process of the unit in support of the unit's daily missions. A 7-point Likert scale, ranging from 1 representing a limited application of the new knowledge to the standard operating process to 7 representing the replacement of a previous process with the new knowledge, measures the data input. For this study, the vetting of new information occurs during acquisition. The unit implements the new information based on the perceived value to the unit and the new information's ability to aid in the unit achieving its stated goals and objectives.

Instrument Example. Figure 5 is an example of an item from the collection instrument. The example is intended to demonstrate the style and context of the

instrument. The final instrument will follow the form of the example with possible adjustments, which enable the contrast validity effort.

Figure 5

Survey Instrument Format Example



Data Analysis Plan

The research question remains an exploration into the extent the independent variable of rank, enlisted, and officer, moderates the dependent variable of absorptive capacity across its four dimensions of acquisition, assimilation, transformation, and exploitation in tactical-echelon U.S. Army National Guard battalions?

The proposed research is a quantitative study that worked to uncover how the independent variable moderated the dependent variables, in the same circumstance, knowledge transfer in a battalion-size unit. The independent variable is rank, officer, non-commissioned officer, and soldier. The dependent variable is absorptive capacity, further divided into four components of acquisition, assimilation, transformation, and

exploitation (Denzin & Lincoln, 2013; Erickson, 2011). The proposed analysis process is a multivariate analysis of covariance (MANCOVA) via the program IBM Statistical Program for Social Science (SPSS) software (v.27). I developed the study's database and subsequent storage of the data, as well as further manipulation of that data using IBM SPSS (v.27) statistics. The version used in support of this statistical analysis is licensed by and is available on the Walden University website.

I selected a quantitative approach over a qualitative method based on finding the answer to if absorptive capacity is moderated by rank or not, versus how it works in each specific rank and stage of the knowledge transfer process. The screening and cleaning process will take place after each collection period in order to maintain a timeline of how and which data was available in the event of corruption.

The population of the U.S. Army National Guard combat arms battalions in Louisiana, Georgia, Alabama, Mississippi, and Florida drove the scale of the study. The proposed margin of error is .05%. The confidence level is 95%. The sample population is 10K. With an anticipated response rate of 50%, the sample size is projected to be a range from 275 to 300. Battalion size elements of ~500 soldiers each, with all ranks included, from across the southeast of the United States represent the collection audience.

Threats to Validity

External Validity

External validity assesses if the data collected during the study can be synthesized to other samples and then possibly to the population as a whole (Salkind,

2012). This cross-sectional study attempted to find if rank, the independent variable, moderated the dependent variables in a military unit during a singular event. I strove to reduce the threat to external validity by the cross-referencing of data from the various collection periods. I ensured that random sampling processes are in place and not coerced by the command or other persons in positions of power. The use of real-time data extracted from person to person engagements at the various units will aid in the increase of external validity (Frankfort-Nachmias & Nachmias, 2008).

Internal Validity

From Frankfort-Nachmias and Nachmias (2008) and Salkind (2012), the internal validity ascertains the quality of the research design. For this cross-sectional study, internal validity works on the premise of causality and whether or not that the manipulation of the independent variables was directly responsible for moderating the set of dependent variables.

My first step in establishing internal validity was the completion of a robust, focused literature review. The completed review will aid in the identification of other possible, feasible outcomes (Salkind, 2012). A series of tests for statistical significance with levels at 95% or higher on the requisite sample size will help to refute the null hypothesis and add addition avidity to the design and model (Field, 2013). During the literature review, other variables such as age, gender, command climate, and unit mission and vision could emerge as having confounding impacts on the dependent variables. The study will capture limited demographic data during the collection engagements. The end

state of the three described methods here is to fully find and explain relevant variables on the change to the set of dependent variables.

Construct Validity

Frankfort-Nachmias and Nachmias (2008) describe construct validity as a focus on the instrument and the study's methods to ensure that the instrument covers all of the attributes the study is attempting to measure. It also works to eliminate the possibility that the study overlooks an important aspect. Construct validity examines the question: Does the measure of absorptive capacity act in a manner consistent with the established theoretically based measures? Two elements of the construct are face and sampling validity (Frankfort-Nachmias & Nachmias, 2008). The constructs align with the hypotheses, which in turn relate to the research questions.

Ethical Procedures

This research effort proposes the use of newly collected data from a series of cross-sectional engagements at arbitrary units and random personnel assigned to each unit. The coupling of the command's permission and the study's introduction and explanation at each of the engagement will alleviate any coercion. The collection of new data from live participants raises the benchmark for the implementation of proper safeguards against unethical behavior.

The proposed safeguards in support of this research effort include data collection sans personal data such as specific names or other personal identifiers. Additionally, a single point of collection at each event will mitigate the confidentiality issues. There are

not rolls or participant sheets for the collection efforts. I controlled the database and will ensure its anonymity. I also adhered to all Walden University data collection and retention guidelines. My database resides on my personal computer of via SPSS (v.27) and backed-up to Apple Numbers. The internet connection is protected, and the use of wireless transfer of data will be limited to add a level of security. The computer and network used during the work will be password protected. I adhered to all ethical considerations levied by the Walden University Institutional Review Board (IRB).

Summary

The question remains; does the application of Cohen and Levinthal's (1990) theory, absorptive capacity alleviate the high failure rates of service-oriented organizations, namely the U.S. Army National Guard? To fully understand the application of absorptive capacity on the military knowledge transfer process, I proposed a quantitative method. I used a cross-sectional analysis that employed the MANCOVA function via IBM SPSS statistical program (27.0). The population is the soldiers, and officers serving at the tactical level, brigades, battalions, and separate companies, in the United States Army National Guard. The first area of emphasis will be the southeast of the lower 48 states. There is not archival data available to support the study's objectives and purpose. Accordingly, I developed a new database to support this study. The study attempted to correlate the impacts of rank, a two part independent variable of military rank, with a four-part dependent variable, the components of absorptive capacity.I collected the data in as small as possible timeframe in order to support construct validity

efforts. I anticipated the sample size to be approximately 300 based on completeness and timeliness of submissions. The proposed collection instrument reflected military lexicon and structure to reduce the amount of error based on a translation from the business community to the military.

In this chapter I addressed the overall methodology, processes, and plans to answer the research question for my quantitative study. In Chapter 4, the results accompany the research question, the data description, description for the data analysis process, and assumption tests. In chapter 4, I also explore the relationships and trends in order to fully articulate each answer to the research question and their respective impact on statistical significance.

Chapter 4: Results

The purpose of the quantitative, cross-sectional comparative survey was to describe the impact of rank, the independent variable, on the four components of absorptive capacity knowledge transfer theory, the dependent variables. Understanding the moderating effect of rank may clarify the feasibility of applying absorptive capacity theory as a knowledge transfer tool for military leaders in various tactical-echelon U.S. Army National Guard units.

I sought to answer four RQs. The questions have the same format--What are the differences in perceptions toward absorptive capacity's first four components, acquisition, transformation, assimilation, and exploitation, between U.S. Army National Guard enlisted soldiers and officers? Eight hypotheses supported the RQs. They follow the same format as follows:

*H*01: There are no differences in perceptions toward the absorptive capacity components of acquisition between U.S. Army National Guard enlisted soldiers and officers.

*H*a1: There are differences in perceptions toward the absorptive capacity component of acquisition between U.S. Army National Guard enlisted soldiers and officers.

Chapter 4 begins with a general overview of the data, including percentages of surveys completed by, gender, age, and geographic locations of the persons completing the survey. The second part of the chapter is a detailed description of the data analysis. I

present the results for each RQ and supporting hypothesis, both null and actual. The chapter will also include a description of the actual data collected and analysis. The study results include descriptive statistics that characterize the sample, evaluation of statistical assumptions, and statistical analyses findings with tables and figures illustrating the results.

Data Collection

The Walden University IRB approved the proposal and issued the go-ahead for the data collection on August 24, 2020. The IRB assigned number is 08-21-20-0641296. I updated the question on the online survey provider, Survey Monkey, to reflect the IRB approval date and number. The IRB approval expires on August 20, 2021.

I started survey recruitment on August 25, 2020, with a series of emails sent to individuals in my contact list. The email explained, using the consent form as a guide, the purpose of the survey and how to proceed. The email also included a link to the SurveyMonkey survey. I sent more than 50 emails in the first 2 days. After 10 additional days, I sent a second tranche of 28 additional emails. The anticipated and desired snowballing did not occur at the desired rate. I contacted two trusted contacts to aid in the distribution of the survey via email contacts. They provided an additional 100 plus emails addresses and contacts to the effort. The two persons also added the survey link to their accounts on Facebook and LinkedIn. Additionally, I reached out to 15 of the original 50 persons and asked for additional emphasis and sharing with their counterparts. The data collection window opened on August 24 and ended on October 22 for 58 continuous

days. The entirety of the data collection occurred online via the SurveyMonkey instrument.

I discarded the original plan of incorporating in-person efforts in data collection due to the COVID-19 situation and the desire to strictly adhere to the IRB instructions of not encroaching on the soldiers, the units, and the commands. Table 2 shows the percentage and number of survey responses by military rank.

Table 2.

Composite Survey Data by Military Rank

Military rank	Responses %	Number of responses
Enlisted	69.14	168
Officer	30.86	75
Total		243

Note. There were 286 complete surveys; 85% of the 286 surveys (243) had an associated military rank.

Three hundred ninety-nine surveys were opened with a completion rate of 71.5% resulting in 286 completed surveys available for analysis. The independent variable of military rank, officer and enlisted, was the first screening criteria; 168 respondents (70%) identified as enlisted and 75 respondents (30%) as officer. This is close to the current 1:4 (25%) ratio of officer to enlisted in the U.S. Army National Guard and supports my use of non-probability sampling and resultant external validity. The total number of surveys with an associated rank was 243. The 243 number is the baseline for the discussion in

Chapter 3 and is reflected here in the results. Table 3 reflects the gender data from the completed surveys.

Table 3.

Composite Survey Data by Gender

Gender	Responses %	Number of Responses
Male	63.32	177
Female	36.62	104
Other	0.35	1
Chose not to respond	0.70	2
Total		284

Note. 399 surveys opened in SurveyMonkey @ 71% completion = 286.

Basic univariate analysis of age, gender, and regional distribution reflect standard array with no apparent significant entry anomalies. The distribution of male to female respondents was 62.33% male (177) to 36.62% female (104), as shown in Table 3. The remaining 3 chose not to respond or other. The 2:1 ratio of male to female is higher than the current overall 16% of the national guard.

The age of survey respondents ranged from 18 to 75. The greatest number of respondents were in the 45 to 54 age bracket, as shown in Table 4.

Table 4.

Composite Survey Data by Age

Age Categories	Responses %	Number of Responses
18 to 24	12.19	34
25 to 34	17.92	50
35 to 44	20.07	56
45 to 55	25.81	72
55 to 64	15.05	42
65 to 74	7.53	21
75 or older	1.43	4
Total		279

Note. 399 surveys opened in SurveyMonkey @ 71% completion = 286 - 7 did not include a response to the question of age.

The age distribution could be a reflection of my own age and the persons I know and associate with from my personal contact list. It is slightly older than 2019 overall average age, 38, of US Army National Guard members.

As described in Chapter 3, I sought to focus the data collection effort on the Southeast United States. Approximately 50% (129) of participants emerged from the anticipated region; the remainder were evenly distributed across the remaining lower 48 states (see Table 5).

Table 5.

Composite Survey Data by Geographic Region

Geographic Regions	Responses %	Number of Responses
East North Central	14.91	34
East South Central	6.58	15
Middle Atlantic	14.04	32
Mountain	3.95	9
New England	5.26	12
Pacific	11.84	27
South Atlantic	24.12	55
West North Central	7.46	17
West South Central	11.84	27
Total		228

Note. 399 surveys opened in SurveyMonkey @ 71% completion = 286 - 58 did not include a response to the question of geographic location.

The original scope of the study did not include a question referencing the level of civilian education. SurveyMonkey included the question as a part of the preset questions included in the student package. The data is included here at Table 6: Composite Civilian Education Composite Data, as a possible source of data in the future. The education level of the persons taking the survey were focused on the high school, bachelor, and masters.

Table 6.

Composite Survey Data by Education Level

Education Level	Responses %	Number of Responses
High School / GED	27.96	78
Trade / Vocational	4.66	13
Community / Junior College	11.83	33
Bachelor Degree	27.60	77
Masters Degree	22.22	62
Doctorate	4.30	12
Other	1.43	4
Total		279

Note. 399 surveys opened in SurveyMonkey @ 71% completion = 286; 5 surveys did not include a response to the question of level of civilian education.

Study Results

I organized the results by research question and supporting hypotheses. The research question is added from Chapter 1 and included here at the beginning of each sub-section. The two sources, Cadiz, Sawyer, and Griffith (2009), and Flatten, Englen, Zahra, and Brettel (2011), remain unchanged. I derived the instrument tools from these two baseline documents. I modified the instrument statements slightly for context and lexicon to fit the intended audience better. Each sub-section also includes tables that reflect the results of the statistical analysis. Each section includes a recap of the pertinent assumptions appropriate to the question and analysis procedure. SPSS v.27, licensed

through Walden University, is used throughout in developing the appropriate descriptive statistics.

I found that my four assumptions remain sound and impactful to the study. My first assumptions was that battalion size, tactical units, across the spectrum of respondents are roughly the same size and composition. The data results from my own online efforts and from SurveyMonkey reflect that the respondents work in the correct size unit. My second assumption, that the military rank structure across the tactical level unit is the same is also met and demonstrated by the respondents from my own network and from SurveyMonkey. My third assumption of a timely study window was met. I completed the collection effort in 50 days. My final assumption, that the respondents would be from different units, is also met. The data analysis from SurveyMonkey revealed that the respondents were from various regions across the United States.

Research Question 1 Analysis

I used a multivariate analysis process on research question one. The SPSS protocol provides for the four statements representing acquisition, to be assigned as the dependent variables. The independent variable, military rank, is the fixed factor. I also designated descriptive statistics, estimates of effect size, observed power, and homogeneity tests as further analysis outputs. The second analysis included covariate age. The third analysis included the covariate gender.

RQ1: What are the differences, if any, in perceptions toward absorptive capacity's first component, acquisition between U.S. Army National Guard enlisted soldiers and officers?

$H_0$1: There are no differences in perceptions toward absorptive capacity's first component, acquisition between U.S. Army National Guard enlisted soldiers and officers?

H_a1: There are differences in perceptions toward absorptive capacity's first component, acquisition between U.S. Army National Guard enlisted soldiers and officers?

For the first component of absorptive capacity, acquisition, the survey included 4 statements with responses arrayed on a 7 point Likert scale, see Table 7: Descriptive Statistics Hypothesis to Acquisition.

The survey statements are: (1) Members of my unit are able to decide which new knowledge will be most valuable (Cadiz, et al., 2009). (2) Members of my unit are empowered to decide what information will be most useful in accomplishing the overall mission (Cadiz, et al., 2009). (3) Members of my unit routinely search for new information to aid in accomplishing the unit's mission (Flatten, et al.l, 2011). (4) My command team expects members of the unit to search for information that could support unit accomplishment from outside sources (Flatten, et al., 2011).

Table 7.

Descriptive Statistics: Hypothesis to Acquisition

Survey Statement 1-4	Military Rank	Mean	Std. Deviation	N	Levene Test
Members of my unit are able to decide which new knowledge will be most valuable (Cadiz, et al., 2009).	Enlisted	2.23	0.76	162	0.39
	Officer	2.17	0.76	75	
	Total	2.21	0.75	237	
Members of my unit are empowered to decide what information will be most useful in accomplishing the overall mission (Cadiz, et al., 2009).	Enlisted	2.24	0.81	162	1.15
	Officer	2.15	0.78	75	
	Total	2.19	0.80	237	
Members of my unit routinely search for new information to aid in accomplishing the unit's mission (Flatten, et al., 2011).	Enlisted	2.26	0.89	162	0.23
	Officer	2.15	0.85	75	
	Total	2.22	0.88	237	
My command team expects members of the unit to search for information that could support unit accomplishment from outside sources (Flatten, et al., 2011).	Enlisted	2.25	0.88	162	0.14
	Officer	2.23	0.98	75	
	Total	2.24	0.91	237	

Note. 399 surveys opened in SurveyMonkey @ 71% completion = 286, further 237 respondents completed the requisite "military rank' question = 237.

The mean and standard deviations are relatively close across all four statements and responses for enlisted and officers. The corresponding F value, 1.30, is not close to

1.0 thus supporting that the data is random. The significance, .22, is larger than the desired .005. Both of these indicate that there is strong evidence for acceptance of the null hypothesis. Military rank, according to the scale and scope of this limited survey does not impact the knowledge transfer component acquisition. To test for the homogeneity of variance I used Levene's test, via SPSS, where a p value less than .05 indicates a violation of the assumption that the data is homogeneous. A Levene's test result of 1.30 demonstrates homogeneity. A Box's M analysis, value of 13.3, is included with the understanding that it is less reliable in smaller samples. Both tests indicate that data is equal across groups.

Included for completeness is the covariate analysis. The results for both the age and gender covariate do not significantly change the outcomes. Age and gender, according to the scope and scale of this research effort, do not affect the results. Table 8 reflects the results of the first relationship, rank to acquisition.

Table 8.

Survey Significance Analysis: Military Rank to Acquisition

Statistical Test	Acquisition to Military Rank
F	1.30
Sig.	0.22
F (With AGE covariate)	1.27
Sig. (With AGE covariate)	0.23
F (With GENDER covariate)	1.30
Sig. (With GENDER covariate)	0.23

Box's M	13.31

Note. *P: <.005

Research Question 2 Analysis

I used a multivariate analysis process on research question two. The SPSS protocol provides for the four statements representing transformation, to be assigned as the dependent variables. The independent variable, military rank, is the fixed factor. I also designated descriptive statistics, estimates of effect size, observed power, and homogeneity tests as further analysis outputs. The second analysis included covariate age. The third analysis included the covariate gender.

RQ2: What are the differences, if any, in perceptions toward absorptive capacity's second component, transformation between U.S. Army National Guard enlisted soldiers and officers?

$H_0$2: There are no differences in perceptions toward absorptive capacity's second component, transformation between U.S. Army National Guard enlisted soldiers and officers?

H_a2: There are differences in perceptions toward absorptive capacity's second component, transformation between U.S. Army National Guard enlisted soldiers and officers?

For the second component of absorptive capacity, transformation, the survey included 4 statements with responses arrayed on a 7 point Likert scale, see Table 9: Descriptive Statistics Hypothesis to Transformation.

The survey statements are: (1) My unit's knowledge management process makes it easy to understand new information used in our operations procedures (Cadiz, et al., 2009). (2) Our command team shares the vision, objectives, and operational concepts with the entire unit (Flatten, et al., 2011). (3) My unit's knowledge management process quickly disseminates new information across the entire organization (Flatten, et al., 2011). (4) Our command team expects horizontal and vertical coordination during problem-solving (Flatten, et al., 2011).

Table 9.

Descriptive Statistics: Hypothesis to Transformation

Survey Statement 5-8	Military Rank	Mean	Std. Deviation	N	Levene's Test
My unit's knowledge management process makes it easy to understand new information used in our operations procedures (Cadiz, et al., 2009).	Enlisted	2.23	0.81	162	0.32
	Officer	2.37	0.85	75	
	Total	2.27	0.82	237	
Our command team shares the vision, objectives, and operational concepts with the entire unit (Flatten, et al., 2011).	Enlisted	2.22	0.92	162	5.03
	Officer	1.95	0.82	75	
	Total	2.14	0.90	237	
My unit's knowledge management process quickly disseminates new information across the entire organization (Flatten, et al., 2011).	Enlisted	2.28	0.89	162	0.05
	Officer	2.26	0.89	75	
	Total	2.28	0.88	237	
Our command team expects horizontal and vertical coordination during problem-solving (Flatten, et al., 2011).	Enlisted	2.28	0.85	162	0.99
	Officer	1.95	0.84	75	
	Total	2.18	0.86	237	

Note. 399 surveys opened in SurveyMonkey @ 71% completion = 286, further 237 respondents completed the requisite "military rank' question = 237.

As with the first component and responses, the mean and standard deviations are relatively close across all four statements and responses for enlisted and officers. The corresponding F value, 1.14, is not close to 1.0 thus supporting that the data is random. The significance, .33, is larger than the desired .005.. Both of these indicate that there is strong evidence for acceptance of the null hypothesis and rejection that there are differences in responses based on rank. Military rank, according to the scale and scope of this limited survey does not impact the knowledge transfer component transference. To test for the homogeneity of variance I used Levene's test, via SPSS, where a p value less than .05 indicates a violation of the assumption that the data is homogeneous. A Levene's test result of 1.14 demonstrates homogeneity. A Box's M analysis, value of 11.66, is included with the understanding that it is less reliable in smaller samples. Both tests indicate that data is equal across groups.

Included for completeness is the covariate analysis. The results for both the age and gender covariate do not significantly change the outcomes. Age and gender, according to the scope and scale of this research effort, do not affect the results. See Table 10 for the analysis of the second relationship, rank to transformation. Table 10 reflects the statistical analysis of relationship 2; rank to transformation.

Table 10.

Survey Significance Analysis - Military Rank to Transformation

Statistical Test	Transformation to Military Rank
F	1.14
Sig.	0.33
F (With AGE covariate)	1.12
Sig. (With AGE covariate)	0.34
F (With GENDER covariate)	1.14
Sig. (With GENDER covariate)	0.33
Box's M	11.66

Note. *P: <.005

Research Question 3 Analysis

I used a multivariate analysis process on research question three. The SPSS protocol provides for the four statements representing assimilation, to be assigned as the dependent variables. The independent variable, military rank, is the fixed factor. I also designated descriptive statistics, estimates of effect size, observed power, and homogeneity tests as further analysis outputs. The second analysis included covariate age. The third analysis included the covariate gender.

RQ3: What are the differences, if any, in perceptions toward absorptive capacity's third component, assimilation between U.S. Army National Guard enlisted soldiers and officers?

$H_0$3: There are no differences in perceptions toward absorptive capacity's third component, assimilation between U.S. Army National Guard enlisted soldiers and officers?

H_a3: There are differences in perceptions toward absorptive capacity's third component, assimilation between U.S. Army National Guard enlisted soldiers and officers?

For the third component of absorptive capacity, assimilation, the survey included 4 statements with responses arrayed on a 7 point Likert scale, see Table 11: Descriptive Statistics Hypothesis to assimilation.

The survey statements are: (1) Members of my unit receive training in how to apply new information (Flatten, et al., 2011). (2) Members of my unit use new information in operational processes to accomplish the mission (Flatten, et al., 2011) (3) Members of my unit understand tat the command supports the use of new information to increase our operational capabilities (Flatten, et al., 2011) (4) Members of my unit use new information to accomplish their assigned tasks (Flatten, et al., 2011).

Table 11.

Descriptive Statistics: Hypothesis to Assimilation

Survey Statement 9-12	Military Rank	Mean	Std. Deviation	N	Levene's Test
Members of my unit receive training in how to apply new information (Flatten, et al., 2011).	Enlisted	2.29	0.95	165	0.03
	Officer	2.22	0.89	73	
	Total	2.26	0.93	238	
Members of my unit use new information in operational processes to accomplish the mission (Flatten, et al., 2011).	Enlisted	2.13	0.96	165	0.38
	Officer	2.22	0.84	73	
	Total	2.22	0.90	238	
Members of my unit understand tat the command supports the use of new information to increase our operational capabilities (Flatten, et al., 2011).	Enlisted	2.23	0.91	165	5.04
	Officer	2.00	0.83	73	
	Total	2.16	0.89	238	
Members of my unit use new information to accomplish their assigned tasks (Flatten, et al., 2011).	Enlisted	2.13	0.85	165	2.30
	Officer	2.16	0.78	73	
	Total	2.14	0.83	238	

Note. 399 surveys opened in SurveyMonkey @ 71% completion = 286, further 237 respondents completed the requisite "military rank' question = 237.

As with the first and second component and responses, the mean and standard deviations are relatively close across all four statements and responses for enlisted and officers. The corresponding F value, .90, is not close to 1.0 thus supporting that the data is random. The significance, .54, is larger than the desired .005. Both of these indicate

that there is strong evidence for acceptance of the null hypothesis and rejection that there are differences in responses based on rank. Military rank, according to the scale and scope of this limited survey, does not affect the knowledge transfer component assimilation, see Table 12: Survey Significance Analysis - Military Rank to Assimilation. To test for the homogeneity of variance I used Levene's test, via SPSS, where a p value less than .05 indicates a violation of the assumption that the data is homogeneous. A Box's M analysis it included with the understanding that it is less reliable in smaller samples. A Levene's test result of 0.9 demonstrates homogeneity. A Box's M analysis, value of 9.18, is included with the understanding that it is less reliable in smaller samples. Both tests indicate that data is equal across groups.

Included for completeness is the covariate analysis. The results for both the age and gender covariate do not significantly change the outcomes. Age and gender, according to the scope and scale of this research effort, do not impact the results. See Table 12 for the statistical analysis of relationship 3; rank to assimilation.

Table 12.

Survey Significance Analysis - Military Rank to Assimilation

Statistical Test	Assimilation to Military Rank
F	0.90
Sig.	0.54
F (with AGE covariate)	0.90
Sig. (With AGE covariate)	0.53
F (with GENDER covariate)	0.90
Sig. (With Gender covariate)	0.53
Box's M	9.18

Note. *P: <.005

Research Question 4 Analysis

I used a multivariate analysis process on research question four. The SPSS protocol provides for the four statements representing exploitation, to be assigned as the dependent variables. The independent variable, military rank, is the fixed factor. I also designated descriptive statistics, estimates of effect size, observed power, and homogeneity tests as further analysis outputs. The second analysis included covariate age. The third analysis included the covariate gender.

RQ4: What are the differences, if any, in perceptions toward absorptive capacity's fourth component, exploitation between U.S. Army National Guard enlisted soldiers and officers?

$H_0$4: There are no differences in perceptions toward absorptive capacity's fourth component, exploitation between U.S. Army National Guard enlisted soldiers and officers?

H_a4: There are differences in perceptions toward absorptive capacity's fourth component, exploitation between U.S. Army National Guard enlisted soldiers and officers?

For the fourth component of absorptive capacity, exploitation, the survey included 4 statements with responses arrayed on a 7 point Likert scale, see Table 13: Descriptive Statistics Hypothesis to Exploitation. The survey statements are: (1) Our unit uses new information in its operational processes (Cadiz, et al., 2009). (2) The command team supports using new information to accomplish the mission (Flatten, et al., 2011). (3) New information enhances the accomplishment of my unit's mission (Cadiz, et al., 2009) (4) Every member of my unit can apply new information to increase efficiencies in our operational processes (Flatten, et al., 2011).

Table 13.

Descriptive Statistics: Hypothesis to Exploitation

Survey Statement 13-16	Military Rank	Mean	Std. Deviation	N	Levene's Test
Our unit uses new information in its operational processes (Cadiz, et al., 2009).	Enlisted	2.15	0.92	164	4.63
	Officer	2.16	0.80	73	
	Total	2.16	0.89	237	
The command team supports using new information to accomplish the mission (Flatten, et al., 2011).	Enlisted	2.23	0.86	164	1.89
	Officer	2.04	0.84	73	
	Total	2.17	0.86	237	
New information enhances the accomplishment of my unit's mission (Cadiz, et al., 2009).	Enlisted	2.13	0.85	164	0.66
	Officer	2.00	0.88	73	
	Total	2.09	0.86	237	
Every member of my unit can apply new information to increase efficiencies in our operational processes (Flatten, et al., 2011).	Enlisted	2.25	0.92	164	1.33
	Officer	2.39	0.79	73	
	Total	2.29	0.89	237	

Note. 399 surveys opened in SurveyMonkey @ 71% completion = 286, further 237 respondents completed the requisite "military rank' question = 237.

Much like the three previous components and responses, the mean and standard deviations are relatively close across all four statements and responses for enlisted and officers. The corresponding F value, 2.53, is not close to 1.0 thus supporting that the data is random. The significance, .05, is larger than the desired .005. Both of these indicate that there is strong evidence for acceptance of the null hypothesis and rejection that there

are differences in responses based on rank. Military rank, according to the scale and scope of this limited survey, does not impact the knowledge transfer component exploitation. To test for the homogeneity of variance I used Levene's test, via SPSS, where a p value less than .05 indicates a violation of the assumption that the data is homogeneous. A Levene's test result of 2.53 demonstrates homogeneity. A Box's M analysis, value of 25.91, is included with the understanding that it is less reliable in smaller samples. Both tests indicate that data is equal across groups.

Military rank, according to scale and scope of this limited survey, does seem to impact the knowledge transfer component exploitation at a statistically significant level, see Table 14: Survey Significance Analysis - Military Rank to Exploitation. See Table 14 for the statistical analysis of the final relationship; rank to exploitation.

Table 14.

Survey Significance Analysis - Military Rank to Exploitation

Statistical Test	Exploitation to Military Rank
F	2.53
Sig.	0.05
F (With AGE covariate)	3.08
Sig. (With AGE covariate)	0.01
F (With GENDER covariate)	3.08
Sig. (With GENDER covariate)	0.01
Box's M	25.91

Note. *P: <.005

Summary

The research questions refer to the perceptions of military rank, enlisted and officer, on each of Cohen's four components and Levinthal's (1991) knowledge transfer theory, absorptive capacity. Enlisted and officer's perceptions for all four components, acquisition, transformation, assimilation, and exploitation were closely related and did not exhibit a statistical significance. I discarded the hypothesis for each of the components and accepted the null hypotheses for each. The additional analysis included the covariates of age and gender for each of the four components. The findings mirrored the previous findings. Enlisted and officers, age, and gender included did not affect the overall outcome. The addition of age and gender with the fourth component, exploitation, did not change the results.

My study outlined the possibility of using absorptive capacity as a tool for military leaders to develop and then modify training programs according to rank to enhance and improve the outcomes. My results do not fully support the idea that rank and the respective perceptions of enlisted officers affect the process in a military unit. The follow-on chapter will add to the interpretation of the results and provide ideas on how the subsequent efforts could refine the research questions' answers.

Chapter 5: Discussion, Conclusions, and Recommendations

In conducting this study, I sought a better understanding of whether military rank, as the independent variable, affects military units' transfer of knowledge. Cohen and Levinthal's absorptive capacity theory from 2009 provided the framework for the study. The four components--acquisition, transformation, assimilation, and exploitation--served as the study's dependent variable set. I used a quantitative cross-sectional design in which I randomly selected members of military units who completed an online survey instrument built on the website, SurveyMonkey. The instrument consisted of 26 questions that captured some general demographics, including rank, gender, and age, and a set of statements on each of the dependent variables. The survey instrument included previous statements and questions from Cadiz et al. (2009) and Flatten et al. (2011).

A greater understanding of the role that rank plays in knowledge transfer may aid military leaders in developing more efficient training and education programs to improve units' overall operational effectiveness. The key findings from the data analysis and Chapter 4 are that the independent variable did not affect the first three dependent variables. Nor were the first three variables impacted with a covariate of age or gender. However, the fourth dependent variable, exploitation, was found to be statistically significant, so the null hypothesis was discarded.

Interpretation of Findings

As discussed in this study's literature review, Baškarada and Koronios (2018) confirmed an oft-cited literature gap that absorptive capacity's application in a service

organization, non-profit, and or military units is far less prevalent than in businesses. Koronvary and Szegegidi (2018) discovered that understanding who and how knowledge management is approached in a hierarchical organization directly affect the respective organizational proficiencies. The interpretations that follow work to close that gap in information.

Interpretation of RQ 1 Results

RQ1: What are the differences, if any, in perceptions toward absorptive capacity's first component, acquisition, between U.S. Army National Guard enlisted soldiers and officers?

$H_0$1: There are no differences in perceptions toward absorptive capacity's first component, acquisition, between U.S. Army National Guard enlisted soldiers and officers.

H_a1: There are differences in perceptions toward absorptive capacity's first component, acquisition, between U.S. Army National Guard enlisted soldiers and officers.

The gaining of new information is critical to an organization's continued success in modern, dynamic operating environments (Razaei-Zadeh & Darwish, 2019). The first dependent variable is absorptive capacity's component acquisition. The statistical analysis demonstrated that military rank did not affect the responses for acquisition. I interpret the results to demonstrate that regardless of rank, the acquisition of new information in support of operational processes. Further application of the findings is limited and does

not represent a single organization in a single geographic location. Recommendations for further studies are included later in this chapter.

Interpretation of RQ 2 Results

RQ2: What are the differences, if any, in perceptions toward absorptive capacity's second component, transformation, between U.S. Army National Guard enlisted soldiers and officers?

$H_0$2: There are no differences in perceptions toward absorptive capacity's second component, transformation, between U.S. Army National Guard enlisted soldiers and officers.

H_a2: There are differences in perceptions toward absorptive capacity's second component, transformation, between U.S. Army National Guard enlisted soldiers and officers.

Diamantidis and Chatzoglou (2014) explored the linkage of knowledge management with training programs focused on lexicon and syntax work in various government and private service organizations. The second dependent absorptive capacity component is transformation. The statistical analysis demonstrated that military rank did not affect the responses for transformation. I interpret that regardless of rank, the transformation of new information in support of operational processes resides across all ranks and positions in the organizations represented by the respondents to the online instrument. Furthermore, I view the findings as limited to representing dispersed organizations according to the respondent's location. The results do not represent a single

organization in a single geographic location. Recommendations for further studies are included later in this chapter.

Interpretation of RQ 3 Results

RQ3: What are the differences, if any, in perceptions toward absorptive capacity's third component, assimilation between U.S. Army National Guard enlisted soldiers and officers?

$H_0$3: There are no differences in perceptions toward absorptive capacity's third component, assimilation, between U.S. Army National Guard enlisted soldiers and officers.

H_a3: There are differences in perceptions toward absorptive capacity's third component, assimilation, between U.S. Army National Guard enlisted soldiers and officers.

Srđan et al. (2013) explored the mediating effect of service organization structure on knowledge transfer and its absorption into an organization’s operational processes. The third dependent absorptive capacity component is assimilation. The statistical analysis demonstrated that military rank did not affect the responses for assimilation. I interpret that regardless of rank, the assimilation of new information in support of operational processes resides across all ranks and positions in the organizations represented by the respondents to the online instrument. Additionally, I view the findings as limited to representing dispersed organizations according to the respondents' location.

The results do not represent a single organization in a single geographic location. Recommendations for further studies are included later in this chapter.

Interpretation of RQ 4 Results

RQ4: What are the differences, if any, in perceptions toward absorptive capacity's fourth component, exploitation, between U.S. Army National Guard enlisted soldiers and officers?

$H_0$4: There are no differences in perceptions toward absorptive capacity's fourth component, exploitation, between U.S. Army National Guard enlisted soldiers and officers.

H_a4: There are differences in perceptions toward absorptive capacity's fourth component, exploitation, between U.S. Army National Guard enlisted soldiers and officers.

As discussed in Chapter 2, Rafiqe et al. (2018) discovered that the level of empowerment provided to midlevel managers is directly proportional to the level of knowledge transfer. The fourth dependent absorptive capacity component is exploitation. The statistical analysis demonstrated that military rank did affect the responses for exploitation. I interpret that rank affected the exploitation of new information in support of operational processes and resides across all ranks and positions in the organizations represented by the respondents to the online instrument. Additionally, I view the findings as limited to representing dispersed organizations according to the respondents' location.

The results do not represent a single organization in a single geographic location. Recommendations for further studies are included later in this chapter.

Additional Thoughts

Malgorzata's (2016) research efforts shape the need for further study on implementing absorptive capacity as a management tool in a training and education environment. This research effort found that military rank did not affect the perceptions by enlisted or officers of any of the four components of absorptive capacity. Reaching back to chapter two, both Malgorzata (2016) and Beer, et al. (2016) reinforce the argument by empirically demonstrating that the overall operating environment is critical to the success of the program and is not solely dependent on the leadership of the organization. My result indicates that there are additional factors at work in the knowledge transfer process in military units.

Limitations of the Study

The primary limitation from Chapter 1, reliance on military units with clearly defined command structures, was mitigated with the use of an online survey and the avoidance of active recruitment at the place of duty. The original limitation was that the survey would take place in person, conducted by the myself. This assumption proved to be invalid due to travel, time, and monetary constraints. Due to COVID and its impact on units' availability, a shift to primarily online occurred early in the collection process. The online study was open to all service members, even if the original set of emails and contacts focused on members of theU.S.Army National Guard. The number of

participants who were outside of the National Guard is unknown. The dispersion of the persons completing the survey is statistically sound and represents a homogeneity of the data requisite for academic study. However, it is a limitation that the analysis is very broad and does not represent a singular unit's operational processes.

The independent variable, military rank represented by enlisted and officer, could contribute to the judgment of the results' internal validity. Findings in the literature review described confounding factors outside the scope of this study. I did not consider covariates such as education, health at the time of the survey, and employment location. The limitation is that there could be unknown factors or factors impacting the individuals participating in the study's absorptive capacity.

A previously used instrument and its modifications support the construct validity and enable nesting the device with the audience's military lexicon. Adapting the work of Cadiz, Sawyer, and Griffith (2009) and, Flatten, Engelen, Zahra, and Brettel (2011), this research effort provided a strong start to alleviating the limitation. Their work has been cited multiple times in the literature on the application of absorptive capacity. Finally, biases could have crept in during the stat collection or analysis phases. The collection process will be controlled and will include validation gates at regular intervals to ensure that data ties back to the sources.

Statistically, the survey was within a margin of acceptance for officers' ratio and enlisted in a military unit. The original skewing from my's personnel email list, primarily officers, was offset by the completion of almost 2:1 in the final study. A secondary

limitation is that the survey was solely completed online. Access to the survey invitation and the actual instrument is limited to those who have ready access to the internet.

Recommendations

The study's strength is the correlation of the four components of the theory, absorptive capacity, to military rank's dependent variable. The analysis demonstrated that military rank did not affect the first three components of absorptive capacity. However, military rank, enlisted and officer, as the independent variable, affected the fourth variable, exploitation.

The first recommendation is to further the study on how and why exploitation demonstrates a different behavior than the other three dependent variables. A series of research questions and supporting hypotheses exploring the relationship expanded to include the individual officer ranks, lieutenant through colonel, and the enlisted ranks of private through sergeant major. A more focused effort on each rank's perceptions and the singular dependent variable could help define when, in a military career, the respective perception presents itself.

My second recommendation is to use the available regional data to study the relationship and modifying effect of where a person serves on absorptive capacity components. It is a limitation of the current study that where the person serves is not considered. Another refinement of the study could be the breakout of the military rank variable to its subcomponents. Using the enlisted ranks from private to sergeant major correlated to age as a set of independent variables for analysis across the state set of

dependent variables would overcome a second limitation of the current study. The current study does not associate the ages of the dependent variables, enlisted and officer, with a specific rank for each of the completed surveys.

One of the factors in the development of my study was a curiosity about how the various military ranks' perceptions correlated to a set of civilian data points. The study's expansion to include a civilian counterpart dependent variable could result in a way to bridge the data and thus develop new programs from one genre of an organization to another. This bridge would support the original premise of the study of using abortive capacity as a foundational step to assessing training and education programs.

Two additional recommendations for further study rest in the military domain. Rai and Prakash's (2016) study explored how leadership styles impact knowledge transfer. This recommendation nests with their efforts. The refined study, assuming the use of the current data set, the same variables for both dependent and independent, and a covariate of command climate. A new series of questions exploring the current command climate could present new perceptions and relationships among the variable. A second-order study of this recommendation explores the impacts of preparing for deployment, being deployed, or recently returned from a deployment. This recommendation would be a more complicated process and would require permission from the military chain of command and organizational internal review board.

My final recommendation stems from my own experiences in Africa and other theaters around the world. Using the current data set as a stepping stone to the survey

application to emerging nations' security forces. Much like the previous recommendation, this could require translation to other languages, the study's approval in our governmental IRBs, and the steps required for approval in whichever nation one would attempt to conduct the study. This recommendation could aid our national efforts in foreign policy. It could also reap benefits in building capabilities in the security nations, thus promoting positive social change.

Implications

My study, in its current form, presents several avenues supporting positive social change. The first is at the individual level. Each of the survey respondents identified as a member of the military service is a steward for promoting democracy and peace around the world. The capturing of new information and the individual skill sets' resultant improvement support the individual's overall mission success.

This improvement at the individual level supports the organization's overall improvement in pursuing its assigned missions both here in the United States and during deployment to overseas theaters of operations. The National Guard in particular, which the study attempted to capture, have important missions in support of local, state, and national civilian authorities.

My study’s results represent a small increment of progress in understanding the knowledge transfer in military units. Cohen and Levinthal's (1990) absorptive capacity theory has previously been limited in applications to the military community. This study enables the expansion, both in its scope and via the recommendations made previously, in

theory as a future research tool. The study also represents a small methodological step forward by its application in National Guard units via an online survey. Furthering this effort with the organization IRBs and the resulting analysis could have other empirical implications.

Conclusions

The poor performance of training and development programs is a significant problem in the service industry. In particular, the military fails to meet many training program objectives, leading to less than anticipated return on the investment. The lack of return manifests itself in the loss of working hours, an unnecessary expenditure of expensive resources, and capability loss. My study was an effort to recognize the factors leading to the low return of training programs. My study uses knowledge transfer as the dependent variable and military rank as the independent variable. The overarching message for readers of this study is that improved knowledge transfer processes increase training programs' return. The fundamental reason for this research was to find out if the officer and enlisted military ranks affected knowledge transfer, defined as acquisition, transformation, assimilation, and exploitation.

Military rank did not affect any of the components; further effort and exploration are needed to explain the differences and identify the other variables at work.

References

Ali, I. (2016). Doing the organizational tango: Symbiotic relationship between formal and informal organizational structures for an agile organization. *Interdisciplinary Journal of Information, Knowledge, and Management, 11,* 55-072. http://www.ijikm.org/Volume11/IJIKMv11p055-072Ali2499.pdf

Argote, L., & Hora, M. (2017). Organizational learning and management of technology. *Production and Operations Management*, *26*(4), 579-590. https://doi.org/10.1111/poms.12667

Aribi, A., & Dupouet, O. (n.d.). Absorptive capacity: a non-linear process. *Knowledge Management Research & Practice, 14*(1), 15–26. https://doi.org/10.1057/kmrp.2014.17

Ashok, M., Narula, R., & Martinez-Noya, A. (2016). How do collaboration and investments in knowledge management moderate process innovation in services? *Journal of Knowledge Management*, *20*(5), 1004–1024. https://doi.org/10.1108/JKM-11-2015-0429

Baškarada, S., & Koronios, A. (2018). Strategies for maximizing organizational absorptive capacity. *Industrial & Commercial Training*, *50*(2), 95–100. https://doi.org/10.1108/ICT-07-2017-0060

Baškarada, S., Watson, J., & Cromarty, J. (2017). Balancing transactional and transformational leadership. *International Journal of Organizational Analysis*, *25*(3), 506–515. https://doi.org/10.1108/IJOA-02-2016-0978

Beer, M., Finnstrom, M., & Schrader, D. (2016, October). Why leadership training fails - and what to do about it. *Harvard Business Review*, (10), 50-57. https://hbr.org/2016/10/why-leadership-training-fails-and-what-to-do-about-it

Berghaus, P. T. (2016). The problems of authority and the want of apprenticeship in soldiers' character development. *Journal of Moral Education*, *45*(3), 324–337. https://doi.org/10.1080/03057240.2016.1204272

Bradford, J., & Saad, M. (2014). Towards a method for measuring absorptive capacity in firms. *International Journal of Technology Management & Sustainable Development*, *13*(3), 237–249. https://doi.org/10.1386/tmsd.13.3.237.1

Cadiz, D., Sawyer., J. E., & Griffith, T. L. (2009). *ACap Scale* [Database record]. APA PsycTESTS. https://doi.org/10.1037/t05786-000

Cadiz, D., Sawyer, J. E., & Griffith, T. L. (2009). Developing and validating field measurement scales for absorptive capacity and experienced community of practice. *Educational and Psychological Measurement, 69*(6), 1035–1058. https://doi.org/10.1177/0013164409344494

Camisón, C., & Forés, B. (2010). Knowledge absorptive capacity: New insights for its conceptualization and measurement. *Journal of Business Research*, *63*, 707–715. https://doi.org/10.1016/j.jbusres.2009.04.022

Campos-Climent, V., & Ramon Sanchis-Palacio, J. (2017). The influence of knowledge absorptive capacity on shared value creation in social enterprises. *Journal of Knowledge Management, 21*(5), 1163–1182. https://doi.org/10.1108/

JKM-02-2017-0084

Carucci, R. (2016, January 19). A 10-year study reveals what great executives know and do. *Harvard Business Review*. https://hbr.org/2016/01/a-10-year-study-reveals-what-great-executives-know-and-do

Carucci, R. (2016, October 24). Organizations can't change if leaders can't change with them. *Harvard Business Review*. https://hbr.org/2016/10/organizations-cant-change-if-leaders-cant-change-with-them

Catignani, S. (n.d.). Coping with Knowledge: Organizational Learning in the British Army? *Journal of Strategic Studies*, *37*(1), 30–64. https://doi.org/10.1080/01402390.2013.776958

Charles M. Carson. (2005). A historical view of Douglas McGregor's Theory Y. Management Decision, (3), 450. https://www.emerald.com/insight/content/doi/10.1108/00251740510589814/

Casey, G. W., Jr. (2011). Comprehensive soldier fitness: a vision for psychological resilience in the U.S. Army. The American Psychologist, (1), 1. https://doi.apa.org/doi/10.1037/a0021930

Cegarra-Navarro, J.-G., Eldridge, S., & Wensley, A. K. P. (2014). Counter-knowledge and realized absorptive capacity. European Management Journal, 32, 165–176. https://doi.org/10.1016/j.emj.2013.05.005

Chaudhary, S., & Batra, S. (2018). Proposing a sequential operationalization of absorptive capacity. Measuring Business Excellence, 22(1), 64. https://doi.org/

10.1108/MBE-04-2017-0014

Chauvet, V. (2014). Absorptive capacity: Scale development and implications for future research. Management International / International Management / Gestión Internacional, 19(1), 113–129. https://doi.org/10.7202/1028493ar

Cheuk, K. P., Baškarada, S., & Koronios, A. (2017). Contextual factors in knowledge reuse. VINE: The Journal of Information & Knowledge Management Systems, 47(2), 194-210. https://doi.org/10.1108/VJIKMS-10-2016-0056

Cicmil, S., Lindgren, M., & Packendorff, J. (2016). The project (management) discourse and its consequences: on vulnerability and un-sustainability in project-based work. New Technology, Work and Employment, 31(1), 58-76. https://doi.org/10.1111/ntwe.12058

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. Administrative Science Quarterly, 35(1), 128-152. https://doi.org/10.2307/2393553

Cuervo-Cazurra, A., & Rui, H. (2017). Barriers to absorptive capacity in emerging market firms. Journal of World Business, 52(6), 727-742. https://doi.org/10.1016/j.jwb.2017.06.004

Denzin, N. K., & Lincoln, Y.S. (2013). Chapter 1: Introduction: The discipline and practice of qualitative research. In *The landscape of qualitative research* (4th ed., pp. 1–44). Thousand Oaks, CA: Sage.

Diamantidis, A. D., & Chatzoglou, P. D. (2014). Employee post-training behavior and

performance: evaluating the results of the training process. International Journal of Training & Development, 18(3), 149-170. https://doi.org/10.1111/ijtd.12034

Dixon, S. A., & Day, M. (2007). Leadership, administrative heritage and absorptive capacity. Leadership & Organization Development Journal, 28(8), 727-748. https://doi.org/10.1108/01437730710835461

Dyson, T. (2019). The military as a learning organization: Establishing the fundamentals of best-practice in lessons-learned. Defense Studies, 19(2), 107-129. https://doi.org/10.1080/14702436.2019.1573637

Ebers, M., & Maurer, I. (2014). Connections count: How relational embeddedness and relational empowerment foster absorptive capacity. Research Policy, 43, 318-332. https://doi.org/10.1016/j.respol.2013.10.017

Enkel, E., Heil, S., Hengstler, M., & Wirth, H. (2017). Exploratory and exploitative innovation: To what extent do the dimensions of individual level absorptive capacity contribute? Technovation, 60, 6129-6138. https://doi.org/10.1016/j.technovation.2016.08.002

Erickson, F. (2011). Chapter 3: A history of qualitative inquiry in social and educational research. In Denzin, N. K., & Lincoln, Y. S. (Eds.). *The SAGE handbook of qualitative research* (4th ed., pp. 43–58). Thousand Oaks, CA: Sage.

Evaluating the military's technology absorptive capacity. (2010). Technology management for global economic growth (PICMET), *2010 Proceedings of PICMET '10:*, 1.

Ferreras-Méndez, J. L., Newell, S., Fernández-Mesa, A., & Alegre, J. (2015). Depth and breadth of external knowledge search and performance: The mediating role of absorptive capacity. Industrial Marketing Management, 47, 86-97. https://doi.org/10.1016/j.indmarman.2015.02.038

Ferreras-Mendez, J. L., Fernandez-Mesa, A., & Alegre, J. (2016). The relationship between knowledge search strategies and absorptive capacity: A deeper look. Technovation, 48. https://doi.org/10.1016/j.technovation.2016.03.001

Ferreras Méndez, J. L., Sanz Valle, R., & Alegre, J. (2018). Transformational leadership and absorptive capacity: An analysis of the organizational catalysts for this relationship. Technology Analysis & Strategic Management, 30(2), 211-226. https://doi.org/10.1080/09537325.2017.1299859

Field, A. (2013). *Discovering statistics using IBM SPSS statistics.* Thousand Oaks, CA: Sage.

Flatten, T., Adams, D., & Brettel, M. (2015). Fostering absorptive capacity through leadership: A cross-cultural analysis. Journal of World Business, 50(3), 519-534. https://doi.org/10.1016/j.jwb.2014.08.010

Flatten, T. C., Engelen, A., Zahra, S. A., & Brettel, M. (2011). A measure of absorptive capacity: Scale development and validation. European Management Journal, (29), 98-116. https://doi.org/10.1016/j.emj.2010.11.002

Flatten, T. C., Engelen, A., Zahra, S. A., & Brettel, M. (2011). Absorptive Capacity Scale [Database record]. Retrieved from PsycTESTS. https://doi.org/10.1016/

j.emj.2010.11.002

Fox, A. (2016). Why training fails and what to change: A case for micro-learning and ongoing management. Employment Relations Today (Wiley), 43(1), 41-45. https://doi.org/10.1002/ert.21549

Frankfort-Nachmias, C., & Nachmias, D. (2008). *Research methods in the social sciences,* (7th ed.). New York, NY: Worth Publishers.

Gaimon, C., Argote, L., & Hora, M. (2017). Organizational learning and management of technology. Production and Operations Management, (4), 579. https://doi.org/10.1111/poms.12667

Gao, S., Yeoh, W., Wong, S. F., & Scheepers, R. (2017). A literature analysis of the use of absorptive capacity construct in IS research. International Journal of Information Management, (2). https://doi.org/10.1016/j.ijinfomgt.2016.11.001

Garrido, I. L., Parente, R. C., Gonçalo, C. R., & de Vasconcellos, S. L. (2017). Remaining innovative: The role of past performance, absorptive capacity, and internationalization. Brazilian Business Review (English Edition), 14(6), 559-574. http://dx.doi.org/10.15728/bbr.2017.14.6.1

Guozheng, Z., Songzheng, Z., & Juanru, W. (2014). The research on the relationship between absorptive capacity and knowledge integration: The moderating effect of organizational climate. Applied Mechanics & Materials, 687-691, 4785. https://doi.org/10.4028/www.scientific.net/AMM.687-691.4785

Gurbuz, S., Sahin, F., & Koksal, O. (2014). Revisiting of theory X and Y: A multilevel

analysis of the effects of leaders' managerial assumptions on followers' attitudes. Management Decision, 52(10), 1888–1906. https://doi.org/10.1108/MD-06-2013-0357

Hart, C. (2000). *Doing a literature review: Releasing the social science research imagination.* Thousand Oaks, CA; Sage.

Hernández-Perlines, F., Moreno-Garcia, J., & Yáñez-Araque, B. (2016). Using fuzzy-set qualitative comparative analysis to develop an absorptive capacity-based view of training. Journal of Business Research, 69(4), 1510-1515. https://doi.org/10.1016/j.jbusres.2015.10.133

Hogan, D. W., Fisch, A. G., & Wright, R. K. (Eds.). (2006). *The Story of the Noncommissioned Officer Corps: The Backbone of the Army* (Clothbound) (Vol. 70). Washington, DC: Government Printing Office.

Huang, D., Chen, S., Zhang, G., & Ye, J. (2018). Organizational forgetting, absorptive capacity, and innovation performance. Management Decision, 56(1), 87-104. https://doi.org/10.1108/MD-03-2017-0200

Hurtado-Ayala, A., & Hernan Gonzalez-Campo, C. (2015). Measurement of knowledge absorptive capacity: An estimated indicator for the manufacturing and service sector in Colombia. GCG: Revista De Globalización, Competitividad & Gobernabilidad, 9(2), 16-42. http://www.redalyc.org/articulo.oa?id=511851344001

Jimenez-Barrionuevo, M. M., Garcia-Morales, V. J., & Molina, L. M. (2010). Validation

of an instrument to measure absorptive capacity. Technovation, 31(5-6), 190-202. https://doi.org/10.1016/j.technovation.2010.12.002

Jiménez-Jiménez, D., & Sanz-Valle, R. (2011). Innovation, organizational learning, and performance. Journal of Business Research, 64, 408–417. https://doi.org/10.1016/j.jbusres.2010.09.010

Kavin, L., & Narasimhan, R. (2017). An investigation of innovation processes: The role of clock speed. Supply Chain Forum: International Journal, 18(3), 189-200. https://doi.org/10.1080/16258312.2017.1345276

Kee, J. E., & Newcomer, K. E. (2008). Why do change efforts fail? What can leaders do about it? A recent study of large-scale transformations in public and nonprofit organizations shows how leaders can make change efforts work. *The Public Manager, 37*(3), 5-12.

Klimas, J., & Gentile, G. (2018). *Planning an army for the 21st century: Principles to guide U.S. Army force size, mix, and component distribution* (No. PE-291-A). Santa Monica, CA: Rand Corporation.

Knapp, S. D. (2000). *The contemporary thesaurus of search terms and synonyms: A guide for natural language computer searching.* Westport, CT: Greenwood Publishing Group.

Koronváry, P., & Szegedi, P. (2018). Thoughts on Technological Diversity and Knowledge Management in Centralised Organizations. *Academic and Applied Research in Military and Public Management Science*, *17*(1), 13-21.

Kosecová Janka, & Grasseová-Motyčková Monika. (2017). The lessons learned process in the Czech armed forces. Revista Academiei Forţelor Terestre, 22(1), 10-17. https://doi.org/10.1515/raft-2017-0002

Kotter, J. P. (2007). Leading change: Why transformation efforts fail. *Harvard Business Review*, *85*(1), 96-103.

Lane, P. J., Koka, B. R., & Pathak, S. (2006). The reification of absorptive capacity: A critical review and rejuvenation of the construct. Academy of Management Review, 31(4), 833. https://doi.org/10.5465/amr.2006.22527456

Leal-Rodríguez, A. L., Roldán, J. L., Ariza-Montes, J. A., & Leal-Millán, A. (2014). From potential absorptive capacity to innovation outcomes in project teams: The conditional mediating role of the realized absorptive capacity in a relational learning context. International Journal of Project Management, (32), 894-907. https://doi.org/10.1016/j.ijproman.2014.01.005

Lichtenthaler, U. (2009). Absorptive capacity, environmental turbulence, and the complementarity of organizational learning processes. Academy of Management Journal, 52(4), 822–846. https://doi.org/10.5465/amj.2009.43670902

Light, R. J., & Pillemer, D. B. (1984). *Summing up: The science of reviewing research.* Cambridge, MA: Harvard University Press.

Lin, C., Yang, Z., & Huang, H. (2016). Evaluating team performance and the mediating role of customer knowledge development: An absorptive capacity framework. Journal of Engineering and Technology Management, (42), 46-64. https://doi.org/

10.1016/j.jengtecman.2016.10.001

Lowhorn, G. L. (2007, May). Qualitative and quantitative research: How to choose the best design. In Academic Business World International Conference. Nashville, Tennessee. https://ssrn.com/abstract=2235986

Lu, I. Y., Su, T. H., & Huang, I. C. (2010). Consulting knowledge and organization's absorptive capacity: A communication chain perspective. The Service Industries Journal, 30(12), 2007-2022. https://doi.org/10.1080/02642060903191090

Malik, M. S., & Kanwal, M. (2018). Impacts of organizational knowledge sharing practices on employees' job satisfaction: Mediating roles of learning commitment and interpersonal adaptability. Journal of Workplace Learning, 30(1), 2–17. https://doi.org/10.1108/JWL-05-2016-0044

Martin, G., Massy, J., & Clarke, T. (2003). When absorptive capacity meets institutions and (e)learners: adopting, diffusing and exploiting e-learning in organizations. International Journal of Training & Development, 7(4), 228-244. https://doi.org/10.1046/j.1360-3736.2003.00183.x

Martin, W. E., & Bridgmon, K. D. (2012). *Quantitative and statistical research methods. [electronic resource]: From hypothesis to results*. San Francisco, CA: Jossey-Bass.

McEvoy, P., Ragab, M. F., & Arisha, A. (2017). Review on the KM applications in public organizations. Electronic Journal of Knowledge Management, 15(1), 37-48. doi:10.21427/7akk-3h91

Moldjord, C., & Hybertsen, I. D. (2015). Training reflective processes in military aircrews through holistic debriefing: The importance of facilitator skills and development of trust. International Journal of Training and Development, 19(4), 287-300. https://doi.org/10.1111/ijtd.12063

Nardi, P. M. (2018). *Doing survey research: A guide to quantitative methods*. New York, NY: Routledge.

Nguyen, M. T., & Nguyen Dinh, T. (2015). Can knowledge be transferred from business schools to business organizations through in-service training students? SEM and FsQCA findings. Journal of Business Management, 68(2015), 1332-1340. https://doi.org/10.1016/j.jbusres.2014.12.003

O'Leary, Z. (2017). Chapter 8: Understanding methodologies: Quantitative and qualitative approaches. In *The Essential Guide to Doing Your Research Project*. (3rd ed., pp. 134-141). Thousand Oaks, CA: Sage.

O'Mahony, A., Szayna, T. S., McNerney, M. J., Eaton, D., Vernetti, J., Schwille, M., … Steinberg, P. S. (2017). *Assessing the value of regionally aligned forces in Army security cooperation: An Overview*. Santa Monica, CA: Rand Corporation.

Piening, E. P., & Salge, T. O. (2015). Understanding the antecedents, contingencies, and performance implications of process innovation: A dynamic capabilities perspective. Journal of Product Innovation Management, (1), 80. https://doi.org/10.1111/jpim.12225

Park, C., Vertinsky, I., & Becerra, M. (2015). Transfers of tacit vs. explicit knowledge

and performance in international joint ventures: The role of age. International Business Review, 24(1), 89–101. https://doi.org/10.1016/j.ibusrev.2014.06.004

Pearce, C. L., & Ensley, M. D. (2004). A reciprocal and longitudinal investigation of the innovation process: the central role of shared vision in product and process innovation teams (PPITs). Journal of Organizational Behavior, 25(2), 259-278. https://doi.org/10.1002/job.235

Pearce, C. L., & Sims Jr., H. P. (2002). Vertical versus shared leadership as predictors of the effectiveness of change management teams: An examination of aversive, directive, transactional, transformational, and empowering leader behaviors. Group Dynamics, 6(2), 172-197. https://psycnet.apa.org/doi/10.1037/1089-2699.6.2.172

Pinto, A., Lourenço, P. R., & Mónico, L. (2017). The knowledge management processes at different stages of group development. Psicologia: Teoria E Pesquisa, 33. https://doi.org/10.1590/0102.3772e3351

Rai, R., & Prakash, A. (2016). How do servant leaders ignite absorptive capacity? The role of epistemic motivation and organizational support. Revista De Psicología Del Trabajo Y De Las Organizaciones, 123-134. https://doi.org/10.1016/j.rpto.2016.02.001

Randolph, J. (2009). *A Guide to Writing the Dissertation Literature Review. Practical Assessment, Research & Evaluation*, *14*(13). Walden University.

Rafique, M., Hameed, S., & Agha, M. H. (2018). Impact of knowledge sharing, learning

adaptability and organizational commitment on absorptive capacity in pharmaceutical firms based in Pakistan. Journal of Knowledge Management, 22(1), 44-56. https://doi.org/10.1108/JKM-04-2017-0132

Rejeb-Khachlouf, N., Mezghani, L., & Quélin, B. (2011). Personal networks and knowledge transfer in inter-organizational networks. Journal of Small Business & Enterprise Development, 18(1), 278. https://doi.org/10.1108/14626001111127070

Rezaei-Zadeh, M., & Darwish, T. K. (2016). Antecedents of absorptive capacity: A new model for developing learning processes. Learning Organization, 23(1), 77-91. https://doi.org/10.1108/TLO-04-2015-0026

Roberts, N. (2015). Absorptive capacity, organizational antecedents, and environmental dynamism. Journal of Business Research, 68(11), 2426-2433. https://doi.org/10.1016/j.jbusres.2015.02.019

Roberts, N., Galluch, P. S., Dinger, M., & Grover, V. (2012). Absorptive capacity and information systems research: Review, synthesis, and directions for future research. MIS quarterly, 36(2). https://doi.org/10.2307/41703470

Salkind, N. (2012). *Exploring Research.* Upper Saddle River, NJ: Pearson Education, Inc.

Schmidt, S. (2009). Measuring absorptive capacity. *Proceedings of the International Conference on Intellectual Capital, Knowledge Management & Organizational Learning*, 254–260.

Schweisfurth, T. G., & Raasch, C. (2018). Absorptive capacity for need knowledge: Antecedents and effects for employee innovativeness. Research Policy, 47(4),

687-699. https://doi.org/10.1016/j.respol.2018.01.017

Shao, Z., Feng, Y., & Hu, Q. (2017). Impact of top management leadership styles on ERP assimilation and the role of organizational learning. Information & Management, 54, 902–919. https://doi.org/10.1016/j.im.2017.01.005

Srđan D., L., Marko D., A., & Nebojša K., D. (2013). Contribution to the improvement of management in defense logistics. Vojnotehnički Glasnik, 61(4), 80. doi:10.5937/vojtehg61-2098.https://scindeks.ceon.rs/article.aspx?artid=0042-84691304080L

Stefania, M., & Christian, W. (2015). The construct of absorptive capacity in knowledge management and intellectual capital research: Content and text analyses. Journal of Knowledge Management, (2), 372. https://doi.org/10.1108/JKM-08-2014-0342

Sun, P. T., & Anderson, M. H. (2010). An examination of the relationship between absorptive capacity and organizational learning, and a proposed integration. International Journal of Management Reviews, 12(2), 130-150. https://doi.org/10.1111/j.1468-2370.2008.00256.x

Tobias, R. M. (2015). Why do so many organizational change efforts fail?. *The Public Manager*, (1),35.

Todorova, G., & Durisin, B. (2007). Absorptive capacity: Valuing a reconceptualization. Academy of Management Review, 32(3), 774–786. https://doi.org/10.5465/amr.2007.25275513

Tung-Ching Lin, A., Christina Ling-Hsing Chang, A., & Wen-Chin Tsai, A. (2016). The influences of knowledge loss and knowledge retention mechanisms on the

absorptive capacity and performance of a MIS department. Management Decision, (7), 1757. https://doi.org/10.1108/MD-02-2016-0117

Vogt, W. P., & Johnson, R. B. (2015). *The SAGE dictionary of statistics & methodology: A nontechnical guide for the social sciences.* Thousand Oaks, CA: Sage.

Volberda, H. W., Foss, N. J., & Lyles, M. A. (2010). Absorbing the concept of absorptive capacity: how to realize its potential in the organization field. Organization Science, (4), 931. https://doi.org/10.1287/orsc.1090.0503

Wagner, W. E. (2017). *Using IBM® SPSS® statistics for research methods and social science statistics.* Thousand Oaks, CA: Sage.

Wahda. (2017). Mediating effect of knowledge management on organizational learning culture in the context of organizational performance. Journal of Management Development, 36(7), 846–858. https://doi.org/10.1108/JMD-11-2016-0252

Wardynski, C. (2010). *Towards a U.S. Army Officer Corps Strategy for Success: Retaining Talent (Vol. 3).* Washington DC: Strategic Studies Institute.

Weigley, R. F. (2016). *Towards an American Army: Military thought from Washington to Marshall.* Tokyo, Japan: Pickle Partners Publishing

Wooldridge, J. M. (2016). *Introductory econometrics: A modern approach*. Nelson Education.

Yanez-Araquel, B., Hernandez-Perlines, F., & Moreno-Garcia, J. (n.d.). From training to organizational behavior: a mediation model through absorptive and innovative capacities. Frontiers in Psychology, 8. https://doi.org/10.3389/fpsyg.2017.01532

Yang, Y., Lee, P. K., & Cheng, T. E. (2017). Leveraging selected operational improvement practices to achieve both efficiency and creativity: A multi-level study in frontline service operations. International Journal of Production Economics, 191298-310. https://doi.org/10.1016/j.ijpe.2017.06.023

Yeardley, T. (2017). Training of new managers: Why are we kidding ourselves? Industrial & Commercial Training, 49(5), 245-255. https://doi.org/10.1108/ICT-12-2016-0082

Zahra, S. A., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. Academy of Management Review, 27(2), 185-203. https://doi.org/10.5465/amr.2002.6587995

Ziam, S., Landry, R., & Amara, N. (2009). Knowledge brokers: A winning strategy for improving transfer and use of knowledge in the health field. *International Review of Business Research Papers*, *5*(4), 491-505. https://www.researchgate.net/profile/Rejean-Landry/publication/237672629

Appendix A: Research Survey Instrument

Demographic Information												
1. What is your gender?	Male	Female	Other	Chose not to respond								
	O	O	O	O								
2. What is your current military rank?	Private	Private First Class	Specialist	Corporal								
	O	O	O	O								
	Sergeant	Staff Sergeant	Sergeant First Class	Master Sergeant	First Sergeant	Sergeant Major	Command Sergeant Major					
	O	O	O	O	O	O	O					
	Warrant Officer 1	Chief Warrant Officer 2	Chief Warrant Officer 3	Chief Warrant Officer 4	Chief Warrant Officer 5							
	O	O	O	O	O							
	Second Lieutenant	First Lieutenant	Captain	Major	Lieutenant Colonel	Colonel	Other					
	O	O	O	O	O	O	O					
3. **What is your highest level of civilian education attained?**	High School (incl GED)	Trade / Vocational	Community College	Bachelor Degree	Masters Degree	Doctorate	Other					
	O	O	O	O	O	O	O					
4. What is your current age?	Under 18	18-24	25-34	35-44	45-54	55-64	65+					
	O	O	O	O	O	O	O					

Application of the Flatten and Cadiz Surveys

Absorptive capacity theory looks at how organizations use new externally sourced information (Cohen and Levinthal, 1990).

	For each question: In your current assigned position, with your current rank (pay-grade) and on a 7-point scale from strongly disagree to strongly agree, how do you rate your perception of the following statements?						
1 *Acquisition*	Soldiers in my unit are able to decide which new knowledge that will be most valuable to the unit (Cadiz, Sawyer, & Griffith, 2009).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
2 *Acquisition*	Soldiers in my unit are empowered to decide what information will be most useful in accomplishing our units operational mission (Cadiz, Sawyer, & Griffith, 2009).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
3 *Acquisition*	Soldiers in my unit are empowered, on a daily basis, to search for relevant new information in accomplishing our unit's operational mission (Flatten, Engelen, Zahra, & Brettel, 2011).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
4 *Acquisition*	Our unit's command team expects the soldiers in the unit to find new information from outside sources (Flatten, Engelen, Zahra, & Brettel, 2011).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
5 Assimilation	The shared knowledge within my unit makes it easy to understand new information as it is added to our operational processes (Cadiz, Sawyer, & Griffith, 2009).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
6 Assimilation	The command team shares its vision, ideas, and operational concepts across the depth and breadth of the unit (Flatten, Engelen, Zahra, & Brettel, 2011).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
7 Assimilation	Our unit's vision emphasizes horizontal and vertical coordination in problem solving (Flatten, Engelen, Zahra, & Brettel, 2011).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
8 Assimilation	There are unit processes for quick information flow, e.g. if any section obtains new operational information it is promptly communicated to all other sections and subordinates (Flatten, Engelen, Zahra, & Brettel, 2011).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
9 Transformation	Soldiers in my unit are trained in structuring and using newly collected information (Flatten, Engelen, Zahra, & Brettel, 2011).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
10 Transformation	Soldiers in my unit are used to new knowledge being available to them and can use it in the accomplishment of the unit's operational mission (Flatten, Engelen, Zahra, & Brettel, 2011).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
11 Transformation	Soldiers in my unit use new knowledge to develop new operational processes for use in the accomplishment of the unit's operational mission (Flatten, Engelen, Zahra, & Brettel, 2011).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
12 Transformation	Soldiers in my unit use newly acquired knowledge in the accomplishment of their assigned tasks (Flatten, Engelen, Zahra, & Brettel, 2011).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
13 Exploitation	Our unit easily adapts new knowledge to our operational processes (Cadiz, Sawyer, & Griffith, 2009).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
14 Exploitation	The command team supports the development of new operational processes that incorporates new knowledge (Flatten, Engelen, Zahra, & Brettel, 2011).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
15 Exploitation	Accomplishment of the unit's mission is greatly enhanced with the application of new knowledge to our operational processes (Cadiz, Sawyer, & Griffith, 2009).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○
16 Exploitation	Our unit's command team regularly considers new information for enhancing operational processes that support the accomplishment of the mission (Flatten, Engelen, Zahra, & Brettel, 2011).						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree or disagree	Somewhat Agree	Agree	Strongly Agree
	○	○	○	○	○	○	○

Appendix B: Cadiz et al. (2009) Instrument

PsycTESTS®

doi: 10.1037/t05786-000

ACap Scale

Items

Absorptive Capacity (ACap)

Assessment

acap.1: People in my team are able to decipher the knowledge that will be most valuable to us.

acap.2: It is easy to decide what information will be most useful in meeting our customer's needs.

acap.3: We know enough about the technology we use to determine what new information is credible and trustworthy.

Assimilation

acap.4: The shared knowledge within my team makes it easy to understand new material presented within our technical areas.

acap.5: It is easy to see the connections among the pieces of knowledge held jointly within our team.

acap.6: Many of the new technological developments coming to the team fit well into the current technology.

Application

acap.7: It is easy to adapt our work to make use of the new technical knowledge made available to us.

acap.8: New technical knowledge can be quickly applied to our work.

acap.9: My customers can immediately benefit from new technical knowledge learned in the team.

Appendix C: Flatten et al. (2011) Instrument

PsycTESTS

Absorptive Capacity Scale

PsycTESTS Citation:
Flatten, T. C., Engelen, A., Zahra, S. A., & Brettel, M. (2011). Absorptive Capacity Scale [Database record]. Retrieved from PsycTESTS. doi: https://dx.doi.org/10.1037/t69063-000

Instrument Type:
Inventory/Questionnaire

Test Format:
Items utilize 7-point Likert-type response scales.

Source:
Flatten, Tessa C., Engelen, Andreas, Zahra, Shaker A., & Brettel, Malte. (2011). A measure of absorptive capacity: Scale development and validation. European Management Journal, Vol 29(2), 98-116. doi: https://dx.doi.org/10.1016/j.emj.2010.11.002, © 2011 by Elsevier. Reproduced by Permission of Elsevier.

PsycTESTS®

doi: http://dx.doi.org/10.1037/t69063-000

Absorptive Capacity Scale
ACAP

Final ACAP scale	
Acqusition	
Please specify to what extent your company uses external resources to obtain information (e.g., personal networks, consultants, seminars, internet, database, professional journals, academic publications, market research, regulations, and laws concerning environment/technique/health/security):	
Acquire 4	The search for relevant information concerning our industry is every-day business in our company.
Acquire 5	Our management motivates the employees to use information sources within our industry.
Acquire 7	Our management expects that the employees deal with information beyond our industry.
Assimilation	
Please rate to what extent the following statements fit the communication structure in your company:	
Assimilate 1	In our company ideas and concepts are communicated cross-departmental.
Assimilate 2	Our management emphasizes cross-departmental support to solve problems.
Assimilate 4	In our company there is a quick information flow, e.g., if a business unit obtains important information it communicates this information promptly to all other business units or departments.
Assimilate 5	Our management demands periodical cross-departmental meetings to interchange new developments, problems, and achievements.
Transformation	
Please specify to what extent the following statements fit the knowledge processing in your company:	
Transform 1	Our employees have the ability to structure and to use collected knowledge.
Transform 4	Our employees are used to absorb new knowledge as well as to prepare it for further purposes and to make it available.
Transform 6	Our employees successfully link existing knowledge with new insights.
Transform 10	Our employees are able to apply new knowledge in their practical work.

PsycTESTS®

doi: http://dx.doi.org/10.1037/t69063-000

Absorptive Capacity Scale
ACAP

Final ACAP scale

Exploitation	
Please specify to what extent the following statements fit the commercial exploitation of new knowledge in your company (NB: Please think about all company divisions such as R&D, production, marketing, and accounting):	
Exploit 2	Our management supports the development of prototypes.
Exploit 4	Our company regularly reconsiders technologies and adapts them accordant to new knowledge.
Exploit 5	Our company has the ability to work more effective by adopting new technologies.

Note . Items utilized seven-point Likert-type response scales.