MILITARY MIDDLE SCHOOL STUDENT CLASSROOM TURNOVER AND STUDENT PERFORMANCE: A CORRELATIONAL STUDY

by

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ABSTRACT

Military students are a population of learners who must move several times during their service member parent's careers. Adolescents may be more affected by these frequent moves, as the moves occur during a crucial time of physical and emotional development. Social capital theory best underpins this research study, as adolescents begin to value the social capital established among peers and then become affected by the breaks in social capital as they are forced to move. The purpose of this correlational study was to examine the degree of the relationship, if any, of military middle school students' standardized test scores and grade level turnover to determine if grade level turnover had an impact on the outcome of the students' annual standardized test scores. Enrollment and archived tests data were collected from 18 DoDEA schools that serve grades six through eight. The independent variable was military middle school classroom turnover, and the dependent variables were the students' test scores on the TerraNova3. Nine bivariate correlations were conducted for each school year and by grade level to analyze the data. Five subject areas were tested per test, and the results of these 45 analyses indicate 5 weak correlations. Post-hoc Bonferroni and a familywise error correction were conducted to correct the insufficient power and inflated alpha values. The results of this research can be valuable to educators who are unfamiliar with a transient population of learners, more specifically the adolescent military student population and how it could be correlated with academic success.

DEDICATION

I thank the Lord for all my accomplishments! He has walked me through every paper, every class, and every hurdle and has gotten me to the finish line. All things are possible with God.

To my wonderful husband, Jason, thank you for giving me the opportunity to challenge myself and to become the person that I am today. I struggled so much along the way, but your faith in me never faltered. Your support, whether when you are home or deployed, helped me get to this point. I wholeheartedly thank you for your encouragement and love. I love you!

To my Chloe and Bayleigh, You girls are my world. You both make me so proud. It has been a difficult journey, but I did it to make you proud! I love you both so much-more than you will ever know.

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And lastly, this one goes out to all the military children who know how it is to be uprooted but to be able to thrive no matter where they are planted. Their struggles have not gone unnoticed. They all have their own unique story but share a common bond of being resilient and strong children.

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Introduction

Military students typically move between six to nine times during their school years (Gavin, Arnold, & Nunnery, 2014). The frequent moving often causes many military students to have to attend different schools during the school year, which can negatively affect academic performance and learning (Mehana & Reynolds, 2004). Students who are mobile are known to have problems in their academic performance, more behavioral issues, and may even drop out of high school (Herbers, Reynolds, & Chen, 2013). Although the moves frequently happen for military students, the moves are considered "a way of life" (Smrekar & Owens, 2003). However, with these moves comes breaks in the military youth's social ties and then readjustment into new schools. This correlational study aimed to assess the relationship, if any, between military middle school classroom turnover and student achievement on standardized assessments.

This chapter provides a background about the problem of student mobility and also gives a background about Department of Defense Education Activities (DoDEA). The general problem was stated in this chapter, along with the specific problem as it pertains to military students. Chapter one explains the purpose of the research, along with the significance of the study and its significance to the field of educational leadership. Presented in this chapter is the nature of the study, including the selected methodology and appropriateness of the research design. This chapter introduced five research questions and five hypotheses. The theoretical framework in this chapter covered the theory that supports the claim that mobility has links to student academic performance.

The terms frequently used in this study are defined to ensure clarity for the reader. Lastly, assumptions, scope, limitations, delimitations, and a summary concluded the chapter.

Background of the Problem

Military students have a parent or parents who serve in any one of the branches of the United States military. About 1.2 million children have parents who are military service members (Garner, Arnold, and Nunnery, 2014; Ruff & Keim, 2014; Williams, 2013). Of that 1.2 million children, the Department of Defense reported that in 2010 there were 144,609 12-14-year-old military dependents (Williams, 2013). These students frequently move from one military base to another because the military needs the service member in another duty location. Not only do military students move from state to state, or city to city, but often the service member's job may require an international move. The frequent moving interrupts the students' school year and learning. Mehana and Reynolds (2004) stated there are links to high mobility and low student achievement. Not only do military students experience difficulties when moving to a new residence, but these students must learn to establish themselves in a new school environment and social circle. The frequent moves create interruptions in the relationships that the student has made with friends and teachers (Herbers, Reynolds, & Chen, 2013).

Military students who move with their parents not only move from schools in one state to the next but often to a new country and attend school there. The surrounding geographic location may make all the difference in the student's learning outcome as well. Frequent moves can interrupt students' learning because different schools instruct students differently (Herbers, Reynolds, & Chen, 2013). For example, a DoDEA student in Alabama may move to a DoDEA school in South Korea. The geographic locations are

completely different from one another regarding climate, culture, and even language, which may affect the students' adaptation to the new living environment and even academic performance. Military students can either attend civilian public schools in the surrounding area or can attend schools operated by Department of Defense Education Activities (DoDEA) or state-run schools on-base depending on the area the service member is assigned to live. The Department of Defense (DoD) operates and funds the DoDEA school system that serves military students (Department of Defense Education Activities, 2016). The school system has a director of overseas school affairs in DoDEA's headquarters in Virginia (Department of Defense Education Activities, 2016). However, the schools in the different regions have more local control than regular public schools (Richmond, 2015). DoDEA runs 168 schools in 7 states, 2 United States territories, and in 11 countries (Department of Defense Education Activities, 2016). DoDEA has three regions, Americas, Europe, and the Pacific, which are departmentalized into districts in each region with a superintendent in charge of each (Department of Defense Education Activities, 2016).

DoDEA classifies its schools in two ways: Department of Defense Dependent Schools (DoDDS) for military students living overseas and Department of Defense Domestic Dependent Elementary and Secondary Schools (DDESS) for military students living in the continental United States (Bridglall & Gordon, 2003; Woodward, 1997). DoDEA operates schools from pre-kindergarten through 12th grade (Department of Defense Education Activities, 2016.). Approximately 96% of DoDEA students have parents serving in the military; the remaining 4% of DoDEA students have parents working as United States contractors (Astor, De Pedro, Gilreath, Esqueda & Benbenishty,

2013; Clever & Segal, 2013). Only 13% of military students attend DoDEA schools, indicating that most military students attend regular civilian public schools (Clever & Segal, 2013; De Pedro, Astor, Gilreath, Benbenishty, & Berkowitz, 2016). Approximately 86,000 military students attend a DoDEA school (De Pedro, Astor, Gilreath, Benbenishty, & Berkowitz, 2016).

According to Woodward (1997), DoDEA is in place to offer "a high quality education, from pre-school through grade 12, for eligible dependents of DoD military service members and civilian employees" (p. 403). Like any school system, DoDEA has ambitions for all students to do well and succeed. DoDEA's mission is to provide an education for all students to help ready them for real-world experiences (Department of Defense Education Activities, n.d.). DoDEA's overall vision for its schools is to enrich the lives of military students and to help students make a difference in the world (Department of Defense Education Activities, n.d.). The vision and mission DoDEA established are designed to give all students, regardless of the students' background, an outstanding education (Department of Defense Education Activities, n.d.). The *College and Career Ready* standards that DoDEA adopted help highly-mobile students who move from school to school because the standards are the same in every DoDEA school (Department of Defense Education Activities, n.d.) DoDEA demonstrates an understanding of the needs of students with its consistency between schools. Students who transition from one DoDEA school to another should expect a degree of continuity because of the same school standards, expectations, and curriculum, regardless of geographic location.

In June 2012, DoDEA announced that Common Core State Standards (CCSS) would be adopted and used in its schools (Department of Defense Education Activities, 2012). Before then, DoDEA had its standards that it implemented in its schools. DoDEA expected the transition from its standards to the implementation of CCSS to take a few years. Although DoDEA decided to implement CCSS, DoDEA would not align with a "single national curriculum" (Department of Defense Education Activities, 2012). Because the standards are the same both DoDEA and civilian schools, it is easier for students to transition from school to school (Department of Defense Education Activities, 2015).

Statement of the Problem

Military dependent adolescents experience a lack of stability within their home and social lives due to frequent moving and transitions to new schools (Strobino & Salvaterra, 2000). The problem is that military youth are a mobile population who are required to move frequently to new residences and transition to new schools throughout their academic careers, which can affect their academic performance in school and their social engagement in their new environment. The frequent transitions between schools can affect their academic performance which may create learning gaps due to a "lack of uniformity in educational programming" (Lowe, Adams, Browne, & Hinkle, 2012, p. 17). The more moves a student makes, the more negative the impact on the student's academic performance (Friedman-Krauss & Raver, 2015). Other problems that can occur due to frequent mobility are breaks in social capital, and relationships with peers and trusted adults. Youth who move often are more likely to have problems in school, making new friends, and may experience more behavioral and emotional problems (Finkel,

Kelley, & Ashby, 2003). The specific problem is that many civilian educators are not aware of the external stressors military students face (Brendel, Maynard, Albright, & Bellomo, 2014), such as frequent relocations, which could affect their academic performance. Thus, school leaders who do not understand this unique population, will not be able to implement support programs to help these students transition and acclimate in one of many schools they will attend. The schools that service this population of learners experience high student turnover. The problem investigated in this correlational study is that classroom turnover may be a factor that affects military student outcomes on standardized assessments.

Purpose of the Study

The purpose of this correlational study was to examine the degree of the relationship, if any, of military middle school students' standardized test scores and grade level turnover to determine if grade level turnover had an impact on the outcome of the students' annual standardized test scores. The identified independent variable was military middle school classroom turnover, and the dependent variables were the students' average percentile rankings on the TerraNova3. The sample data consisted of archival average percentile rankings from middle school students who have attended or currently attend a DoDEA school in any of the three regions: Europe, Pacific, and Americas. The sample consisted of 18 DoDEA schools with grade compositions of six through eight.

DoDEA's public website reports TerraNova3 assessment percentile scores. The data from this website was used for the selected 18 schools. Archival test scores for this study were drawn from academic school years 2012-2013, 2013-2014, and 2014-2015.

Also collected were the schools' collective enrollment numbers the same period. The turnover rates per grade per school year were derived after collecting enrollment data from DoDEA's public website for each school for the selected school years. The equation $X = | a - b / a |$was used to determine the schools' turnover rates, where x equaled the absolute value of the monthly grade level turnover, *a* was the enrollment for week one of each month, and *b* was the enrollment for the last week of the month. IBM SPSS version 24 was the data analyzing program used to conduct nine separate bivariate correlational analyses on the data with the use of the Pearson's product-moment test statistic.

Significance of the Study

This study was important because all schools face the challenge of highly mobile students, not just schools that service military students. Informing educators about the effects on schools because of highly mobile students can increase awareness and offer insight as to how these transitions affect students' academic performance. School leaders know that there are a variety of factors that can influence students' academic performance. However, administrators may not be aware of some added factors that military students are facing (Brendel, Maynard, Albright, & Bellomo, 2014; Williams, 2013).

Several civilians do not understand the complexities of the military life (Stites, 2016). Most military students attend regular civilian schools and not DoDEA system schools which service primarily military students (Brendel, Maynard, Albright, & Bellomo, 2014; Ruff & Keim, 2014). According to Ruff and Keim (2014), of the 1.2 million military children that fall into the K-12 category, 90% of these students attend non-DOD schools. Therefore, school leaders who have military students in attendance

may not be familiar with this student population and are unable to understand the emotional and social needs that this population of learners requires (Brendel, Maynard, Albright, & Bellomo, 2014). Some of the problems that these military students face are frequent relocations and parent deployments, which may create student behavioral and academic problems (De Pedro, Esqueda, Cederbaum, & Astor, 2014). Also, breaks in social ties can affect students as they transition to new schools, and educators should be aware of the importance of these factors to avoid new students from becoming detached at the new school (Langenkamp, 2016).

Students are not the only ones who are affected by mobility. Teachers and school administrators are also negatively affected by students coming and going from one school to the next (Sanderson, 2004). The influx of students can create frustration for schools, leaders, and teachers, and change the dynamic of the classroom setting (Sanderson, 2004). School administrators should also be aware that having a highly mobile population of students may be disadvantageous to the school as student test scores reflect back to the school (Sanderson, 2004).

Significance of the study to leadership. Military students face many difficulties such as frequent moving and transferring to new schools. Some schools may not be aware of the complexities the multiple moves may bring for the military student (Ruff & Keim, 2014). All school leaders should be aware of the military student population to become understanding and receptive to this population of children (De Pedro et al., 2014). Not only should leaders be concerned about all students' academic performance, but leaders need to be concerned for the mental well-being of military students, particularly in times of hardship such as deployment or transitioning to a new school (De Pedro et al., 2014).

According to Finkel, Kelley, and Ashby (2003), adolescents who moved frequently explained they experienced the stresses of establishing a circle of new friends, getting adjusted to a new location, as well as beginning a new school.

Transformational leaders are "individually considerate, intellectually stimulating, inspirationally motivational, visionary, and of high ethical standards" (Avolio & Yammarino, 2002, p. xvii). These kinds of leaders should possess a sense of emotional intelligence. Emotional intelligence is defined as "a set of abilities and attributes enabling individuals to accurately identify and monitor their own and others' feelings and internal states and to use this information to guide cognition and behavior" (Connelly, Gaddis, & Helton-Fauth, 2002, p. 261). The student population in this correlational study can benefit from having school leaders who are in-tune with the types of struggles that are typical of military students. If the school leader considers the difficulty that military students face when transitioning from school to school, students will be more receptive which will help them to become better acclimated.

There is a paucity of research that aims to educate and inform school leaders about the military student population and the connection to academics (De Pedro, Esqueda, Cederbaum, & Astor, 2014; Brendel, Maynard, Albright, & Bellomo, 2014). The intent of this study is to contribute to the existing research by providing background information about military students, providing detailed information as to the effect of high student mobility, and relevant data, to help educators make informed decisions when accommodating this population of learners.

Nature of the Study

The intent of the research was to determine the degree of the relationship, if any, between military students' mobility rate and standardized assessment test outcomes. The independent variable was military middle school classroom turnover, and the dependent variables were the students' test scores on the TerraNova3. Other research conducted on student mobility did not emphasize solely on military students in the DoDEA school system. Therefore, this design is different than other studies on the same subject and contributed to the existing knowledge with further insight about the military student population. Additionally, this research focuses on the adolescent military population in which there is a lack of research from other studies.

Overview of the research method. The quantitative method was selected for this correlational study. According to Onwuegbuzie and Leech (2005), differences between research methods are ontological views about reality. For quantitative research, the reality can be measured through the use of scientific values (Onwuegbuzie & Leech, 2005). Positivism is rooted in quantitative research, in which the researcher does not influence the findings or outcomes of the research (Sale, Lohfeld, & Brazil, 2002). The intent of quantitative research is to measure the relationships between the identified variables (Sale, Lohfeld, & Brazil, 2002). Quantitative research is different from qualitative research in a few ways. Quantitative studies rely on numerical data. Also, quantitative research uses larger sample sizes than qualitative methods (Sale, Lohfeld, & Brazil, 2002). Rather than assessing students' individual test scores, the intent of the study was to analyze how student turnover rate per grade level and per school year affected the average percentile rankings scores on the TerraNova3 standardized

achievement test which is administered at the end of the school year. Therefore, the sample consists of 18 schools and the scores are derived from the average percentile ranking per grade level per tested subject area.

Qualitative research is rooted in interpretivism and constructivism (Sale, Lohfeld, & Brazil, 2002). These theoretical bases mean that qualitative researchers can believe several truths and that the reality of truths can constantly change (Sale, Lohfeld, & Brazil, 2002). This type of research requires narrative data from case studies, interviews, and focus groups to help the researcher develop theories (Claydon, 2015). The role of the researcher is actively involved with players in the phenomenon, unlike quantitative studies where the researcher minimally interacts with those involved in the phenomenon (Sale, Lohfeld, & Brazil, 2002). The types of research questions used in qualitative studies cannot be answered solely with numbers, but require a deep explanation (Borrego, Douglas, & Amelink, 2009). This method is as rigorous as quantitative methods, but there are differences that exist between them (Borrego, Douglas, & Amelink, 2009). Some of these differences are "assumed nature of truth, the role of theory, sampling, and generalizability" (Borrego, Douglas, & Amelink, 2009, p. 56).

There are some similarities that exist between the different research paradigms, which include the use of research questions in both quantitative and qualitative research (Onwuegbuzie & Leech, 2005). Another similarity between quantitative and qualitative research is the use of analytical methods to analyze the data, but the way the researcher goes about doing so is different (Onwuegbuzie & Leech, 2005). Quantitative researchers use statistical methods and generality when analyzing the data, and qualitative

researchers employ “phenomenological techniques and their worldviews to extract meaning” (Onwuegbuzie & Leech, 2005, p. 271).

Mixed methods approach combines qualitative and quantitative methods in the research process (Borrego, Douglas, & Amelink, 2009). The differentiating point in a mixed method is that the researcher decides the appropriate timing of when to employ either the qualitative or quantitative phases of the study (Borrego, Douglas, & Amelink, 2009). Mixed methods would not be appropriate for this study because the use of survey, interviews, and other typical qualitative methods are not necessary for the investigation of the relationship between student mobility and student test outcomes. Test data were the primary source of data needed in this study to establish what the degree of the relationship is, if a relationship does exist.

Overview of the design appropriateness. A correlational design was the selected design for this research. Specifically, a bivariate design was selected because there are two variables involved (Muijs, 2013). Neuman (2006) stated that bivariate statistics show statistical relationships, particularly if there any association between variables or if they are independent of each other. The statistical relationship between the two variables will demonstrate if the variables covariate or if they are statistically independent of each other (Neuman, 2006). The correlation coefficient measure the covariance of the variables to determine the type of relationship, if any (Neuman, 2006).

The intent of correlational research is to “describe the relationship among variables rather than to infer cause and effect relationships” (Lappe, 2000, p. 81). For correlational studies, the researcher must have identified at least two different variables to measure to research the relationship between them (Christensen, Johnson, & Turner,

2011; Leedy & Ormrod, 2010). If a relationship does exist between the variables, the researcher can determine if the correlation is significant (Lawson & Farber, 2003). Correlational designs can help researchers make descriptions and predictions (Christensen, Johnson, & Turner, 2011). The relationships between variables can be positive or negative, and the type of correlation between the variables can be strong or weak (Emmert, 2015). The correlation coefficient was calculated to determine the "strength and direction of a linear relationship between two variables" (Larson & Farber, 2003, p. 445). The range of the correlation is between -1 and 1 (Larson & Farber, 2003). A Pearson's *r* would be a "perfect positive correlation" if the value is +1 (Mukaka, 2012, p. 69).

The data were solely derived from DoDEA's publicly accessible website. This website provided publicly available percentile ranking scores for the norm-referenced TerraNova 3 assessment and up-to-date student enrollment for every school in the DoDEA system. Specifically for this study, 18 middle schools with grade compositions of sixth through eighth were selected from DoDEA's three regions. Five schools were located in Europe; more specifically, one was from Bavaria, one from Heidelberg district, one from Isles district, two from Kaiserslautern district, and one from the Mediterranean district. From the Pacific region, seven schools were selected. More specifically, two schools were from districts in Japan, two were from South Korea, three were from Okinawa, and one was from Guam. From the Americas region, six schools were selected. More specifically, one school was from the Georgia/Alabama district, two were from the Kentucky district, and three were from the North Carolina district. These schools were

included in the sample to provide a better representation of how mobility and school turnover may affect the students' test outcomes throughout the DoDEA system.

The publicly available website provided test percentile rankings from every school and even categorized the scores by grade level. The percentile rankings of these scores were collected and analyzed per year and by each grade level. The website disclosed the number of students who took the test and the average percentile rankings per grade level in the areas of writing, reading, math, science, and social studies (Department of Defense Education Activity, n.d.). DoDEA does not provide individual student scores or identifiable information about their students. Therefore, for every grade level, there were five averaged percentile rankings listed on the website in all the tested subject areas. These averaged percentile rankings per subject area per grade level from each school were correlated with the school's average turnover rate from the 2012-2013, 2013-2014, and 2014-2015 school years.

DoDEA's public website provided up-to-date records on weekly student enrollment, and thus student attendance data were gathered from the 2012-2013, 2013-2014, and 2014-2015 school years for grades sixth through eight to assess the schools' turnover rates. The schools' attendance numbers were entered on a Microsoft Excel spreadsheet for the first and last week of every month from August until April since all standardized tests should be completed by April, a total of nine school months.

DoDEA does not calculate a turnover rate, and therefore, the equation was devised to determine the turnover rate was $X = | a - b / a |$ where x equaled the absolute value of the monthly grade level turnover, a was the enrollment for week one of each month, and b was the enrollment for the last week of the month. Each grade level had a

turnover rate rounded to three decimal places. Therefore, there were 18 data points per grade level, per school year, equaling a total of 54 enrollment data points prior to them being calculated in the equation.

The turnover rate consists of the enrollment number at the start of the month and then the end of the month. This enrollment numbers were formulated through the equation to calculate a decimal rate of turnover during that month. At the end each month for each school and for each grade level, the decimal rates are averaged together to provide one school turnover rate. Therefore, for each school for each school year, there were three average turnover rates collected (one for each grade level). The schools' net gain or loss of students was assessed only based on enrollment numbers for the first and last weeks of the selected months, August through April. The student losses or gains do not affect the outcome of the TerraNova reported scores because the school averages the percentile ranking scores for each subject area, and does not highlight individual student performance.

Once every grade levels' monthly turnover rate was calculated, the rates were added and averaged through the use of Microsoft Excel's averaging formula to provide student turnover rate for each school year. Classroom turnover, the independent variable for this study, was determined by average monthly enrollment per grade, per school year. The outcome from each school year and school level was summed and averaged to determine the schools' overall turnover rate. IBM SPSS version 24 was used to input the data and chart the data to assess the correlations, if any, between the identified variables.

For this research, there were 18 enrollment numbers per school, per year (54 total for the three school years), which equals 972 enrollment data points for the 18 schools.

For instance, there were two enrollment numbers gathered per month for nine months, and then the enrollment numbers per month were entered into the equation to find the schools' turnover rate per school year. As for the test data, there was one averaged percentile ranking per subject area of reading, writing, math, science, and social studies per grade level for each of the school years. Therefore, for the five subject areas with percentile rankings per grade level, there were 90 average test ranking data points per year for three years, which calculates to 270 average percentile ranking data points for the 18 schools for the course of the three years. Each school was divided by grade level when the analyses were conducted and the individual turnover rates were correlated with the percentile rankings per test subject area. A separate analysis was conducted per school year. For each test, n=18 as n represents each school, and not individual student scores.

Research Questions and Hypotheses

The purpose of this correlational study was to examine the degree of the relationship, if any, of military middle school students' standardized test scores and grade level turnover to determine if grade level turnover had an impact on the outcome of the students' annual standardized test scores. The study determined if relationships exist between classroom turnover rates and student outcomes on standardized achievement test scores. This study involved gathering publicly available test score data from 18 DoDEA schools from DoDEA's three regions: Europe, Pacific, and the Americas. The results of this study aimed to assist educators who serve military students with understanding factors that may affect academic achievement and to help them accommodate these learners.

Research Question 1: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in reading?

$H1_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 reading scores in grades six through eight.

$H1_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 reading scores in grades six through eight.

Research Question 2: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in language arts?

$H2_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 language arts scores in grades six through eight.

$H2_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 language arts scores in grades six through eight.

Research Question 3: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in math?

$H3_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 math scores in grades six through eight.

$H3_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 math scores in grades six through eight.

Research Question 4: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in science?

$H4_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 science scores in grades six through eight.

$H4_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 science scores in grades six through eight.

Research Question 5: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in social studies?

$H5_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 social studies scores in grades six through eight.

$H5_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 social studies scores in grades six through eight.

Theoretical Framework

The theoretical framework upon which this research rests is the social capital theory. According to Coleman (1990), Loury was the founding father of the term "social capital" who defined the term as "the set of resources that inhere in family relations and in community social organization and that are useful for the cognitive or social development of a child or young person" (p. 300). Dewey believed the geography of a city or town does not make a community, but instead, a community is made up of groups who share the same "beliefs, aspirations, knowledge, and a common understanding" (Plagens, 2011, p. 58). This idea shaped what is known as social capital theory. Coleman

dedicated much research to social capital theory and has shaped the way researchers recognized that the home provides children the foundation needed to establish and maintain social connections which are tied to children's academic abilities (Gillespie, 2013). Moving to a new residence and school "can negatively impact the community and social resources available to children and their families by severing those ties" (Herbers, Reynolds, & Chen, 2013, p. 502).

A person's stability is key to maintaining social capital (Coleman, 1990). "Individual mobility constitutes a potential action that will be destructive of the structure itself- and thus of the social capital dependent on it" (Coleman, 1990, p. 321). Social capital theory is often linked to student mobility and poor academic outcomes (Gruman, Harachi, Abbott, Catalano, & Fleming, 2008). An idea embraced in this theory is that changing locations negatively affects students' academic achievement because it breaks continuity in "the exchange of social capital in the network" (Gruman et al., 2008, p. 1834). Students can create social capital through relationships established between friends and community members (Gruman et al., 2008). Coleman primarily made the connection between mobility and the social capital relationship (Ream, 2005). Military students are accustomed to leaving their communities and friends and reestablishing themselves in new communities and making new connections after moving. The old friendships may not last, as the military student moves on. Coleman (1990) stated that friendships would eventually end, even with an attempt to preserve the friendship. Military students are living proof that their social capital networks get disconnected and must be reestablished in each new school setting.

According to Plagens (2011), Bourdieu and Coleman furthered expanded the idea of social capital, and both believed that social capital is derived from relationships between people. One benefit of social capital theory is that it helps people become more involved and concerned about problems and inspires a willingness for people to work together to solve problems (Plagens, 2011). The problem for adolescents is that social networks they establish are a vital part of their lives and can affect their transitions to new schools (Langenkamp, 2016). For instance, high school students who transition to new schools tend to have smaller social circles and select friends who are less engaged in school and exhibit low academic performance (Herbers, Reynolds, & Chen, 2013). Therefore, awareness about student mobility, under this theory, can help educators work hard to bridge the gap for students who come and go from different schools and provide a sense of community for students while in school (Langenkamp, 2016).

A study conducted by Dupere, Archambault, Leventhal, Dion, and Anderson, (2015) used two longitudinal samples from the United States and Canada to investigate the links between students' mobility within schools and social adjustment. The students in this study from the United States were measured at the end of fourth and sixth grades. The Canadian sample was measured at the end of kindergarten, first, second, fourth, and sixth grades (Dupere et al., 2015). Other factors the researchers considered for the study were the role of family transitions and how that contributed to the students' adjustment to the new school and social adaptations. The United States study was based on the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development. The outcomes for the study were measured from reports by the teachers and a survey given to the mothers about the schools the children attended

(Dupere et al., 2015). In the second study, Dupere et al. (2015), used a sample from the Quebec Longitudinal Study of Child Development, based on children born between the years 1997-1998. Teachers filled out a Social Behavior Questionnaire (SBQ) about the participants' social adaptations, and the mothers of the participants were asked about the students' school transitions (Dupere et al., 2015). The study found some differences in the results between the two samples because families make more residential moves in the United States than Canada (Dupere et al., 2015). Dupere et al. (2015) stated that the mobile children in the United States made attempts to fit in and find friends, even if they were eccentric. However, the Canadian students who were both mobile and were experiencing family transitions were regarded as more socially removed than their non-mobile peers (Dupere et al., 2015). This recent study highlights that family and mobility can impact children's ability to handle the stressors of acclimating into a new school and establishing new social circles.

More recently, a study conducted by Selya, Engel-Rebitzer, Dierker, Stephen, Rose, Coffman, and Otis (2016), which used "propensity score methods" rather than the typically used regression to investigate the nature of mobility and student performance (p. 6). The researchers used data based on the math, science, reading, and writing scores of 319 tenth grade students (Seleya et al., 2016). The researchers used this method "for a less-biased estimate of the causal effect of mobility" (Seleya et al., 2016, p. 6). The outcome of the study did confirm what other researchers have noted that student mobility does negatively affect student academic performance (Seleya et al., 2016). There were other factors investigated by the researchers, including student socioeconomic status, ethnicity, eligibility for free or reduced lunch, and even gender that may have contributed

to the results. However, the overall results did indicate that mobility did affect student academic performance on the standardized assessment.

Adolescents spend much more time with peers than parents and are influenced by their peers (Ream, 2005). When adolescent students move from place to place their social network is disrupted and can affect their esteem and sense of overall well-being (Ream, 2005). Student mobility is common, and a plethora of studies have concluded that student mobility does affect students' academic performance (Ream, 2005). Ream (2005) conducted a longitudinal study in 1988 and then followed up in 1992 of 25,000 8th grade students to investigate how Mexican youth are impacted by mobility per social capital theory. The researcher used students' mathematics and reading scores from each year until the 12th grade (Ream, 2005). The findings indicated that students' social capital does help improve student academic achievement on test scores, however, being mobile does negatively affect students' academic scores as a result of social capital ties that break through mobility (Ream, 2005).

Definitions of Terms

This correlational study contained terms that require clarification. Additionally, there were several acronyms used that require clarification for understanding and representation.

Common Core State Standards: (CCSS) According to the Common Core State Standards Initiative (2016), Common Core comprised "clear college- and career-ready standards for kindergarten through 12th grade in English language arts/literacy and mathematics" (para. What is the Common Core?).

*DoDEA: (*U.S. Department of Defense Education Activities): "One of only two Federally-operated school systems, is responsible for planning, directing, coordinating, and managing prekindergarten through 12th grade educational programs on behalf of the Department of Defense (DoD)" (Department of Defense Education Activities, n.d).

Mobility/Mobile: Children who change schools (South, Haynie, & Bose, 2007). The change in school is not due to promotion, but changes voluntarily decided by parents because of new jobs or new residence, or involuntarily such as family issues (Rumberger, 2016). Other changes which may cause student mobility are student expulsion or school closures (Rumberger, 2016).

Turnover rate: This term is used in this research to define students' enrolling and leaving from the schools. The equation $X = | a – b / a |$was used to determine the schools' turnover rates, where x equaled the absolute value of the monthly grade level turnover, *a* was the enrollment for week one of each month, and *b* was the enrollment for the last week of the month. Each grade level had a turnover rate rounded to three decimal places. After each grade levels' monthly turnover rate was calculated, the rates were summed and then averaged through the use of Microsoft Excel's averaging formula. This provided student turnover rates for each grade per school per school year. The annual turnover rate from each grade level per school year was used in the analysis to determine if there is a relationship between students' scores in reading, language arts, math, science, and social studies.

Assumptions of the Study

This research was rooted in quantitative methodology and was aligned with positivist points of view. It is assumed that the researcher will present objective data and

that the researcher had a minimal role in the investigative research (Onwuegbuzie & Leech, 2005). It is also assumed that the research could be replicated at any school and expanded to a larger population. The data were gathered from the publicly accessible DoDEA website, and the researcher assumed that the data presented was accurate in its representation of actual student attendance and student test scores. Another assumption was that because the data were collected from the public website, there were minimal risks presented because the school system strives to protect its students and does not disclose any identifying information about its students.

In correlational analyses, there are specific assumptions to be assumed. These assumptions include normal distribution of data and linearity of the data. With this study, because there is a small sample size, these assumptions could not be appropriately applied. Every school in DoDEA that maintained a grade six through eight composition within the 2012-2013, 2013-2014, and 2014-2015 school years were used and therefore narrowed the sample size to 18 schools. Hence, the typical assumptions of a correlational analysis could not fit these parameters.

Scope, Limitations, and Delimitations

The research study involved a sample population of 18 DoDEA middle schools located in either the Europe, Pacific, or Americas region. The schools in this study were limited to schools that had grade compositions of grades sixth through eighth. The theoretical lens used for this research was social capital theory.

A limitation of this research study was the population of military students who are enrolled or who have been enrolled in a DoDEA school. The research was solely based on schools with grade compositions of sixth through eighth. The average student

percentile ranking scores from the TerraNova3, a standardized assessment that all DoDEA schools consistently use, provided scores based by subject area for the various schools and grade levels. The scores represented only demonstrate students' collective average percentile ranking per grade level and per subject area, and thus do not represent students' individual scores. Lawson and Farber (2003) warn that correlations made in studies are often associated with causation. Therefore, there could be other variables that create the correlational relationship between variables (Lawson & Farber, 2003).

The middle schools were comprised of grade levels sixth through eighth; schools with varying grade compositions were not selected. Some schools in the DoDEA school system have middle schools combined with high schools, and some begin in sixth or seventh grade. Additionally, some schools that made compositional changes in the middle of the selected school years were not used, as the enrollment and test data would not be consistent. Therefore, it was a priority to select schools that maintained the same grade composition during the selected years to keep a balance between the collected data to depict an accurate representation of the student samples.

There were several populations to consider when researching student mobility, but the military student population was selected for this study because of its unique nature. Therefore, the decision to focus primarily on this adolescent population was sparked by the frequency of these students' moves and the lack of understanding on how to approach these students. South, Lutz, and Baumer (2015) stated that several residential moves could intensify the existing stressors that adolescents already face, such as establishing social connections and physical, emotional, and developmental changes. Mobile adolescent students may have a harder time adjusting academically in their new

schools and may also have a difficult time fitting in with new peer groups (Herbers, Reynolds, & Chen, 2013). The intent of this study was to inform educators on how to assist middle grades military children with their transitions and to understand that the frequent moves may have an effect on their academic performance.

Summary

Student turnover affects students' academic achievement. Military students are students who are prone to move several times throughout the course of their parents' careers and feel the impact of being mobile by having to adjust to new schools. DoDEA is a school system that operates schools across the world and its schools have continuity between them. The purpose of this correlational study was to examine the degree of the relationship, if any, of military middle school students' standardized test scores and grade level turnover to determine if grade level turnover had an impact on the outcome of the students' annual standardized test scores. Chapter 2 provides a review of recent literature pertinent to student mobility and student achievement, as well as how these variables are related.

Chapter 2

Literature Review

Chapter 2 consists of a review of the literature pertinent to military students, DoDEA school systems, student mobility, and grade level turnover. The topics discussed include social networks, student turnover, standardized testing, Common Core State Standards, and No Child Left Behind. The purpose of this section is to provide background understanding about who military students are, how DoDEA operates, and how mobility affects students socially and emotionally. Mobility is not exclusive to military students, and thus this chapter describes the effects of mobility that could apply to any adolescent. The information presented provides the reader a general understanding of relevant topics.

The issue explored in this research was the correlation, if any, between DoDEA students' classroom turnover and student performance on standardized assessments. Military student learners fill classroom seats all over the world because the parent service member's career requires frequent moves. Milburn and Lightfoot (2013) stated that schools were often unaware of what a military lifestyle entails. Educators need to understand that military students can adapt to change because change is a part of a military students' lifestyle (Russo & Fallon, 2014). By researching this important issue, educators will understand more about this population of children and recognize that the effects of frequent relocations can affect students' academic success.

Framework of the Literature Review

The University of Phoenix's extensive database provided sources for this literature review. Seventy-five journal articles from *ProQuest, EBSCOHost, JSTOR*, and

ERIC provided the foundation for this literature review and eleven public websites and two texts provided official information. Scholarly and peer-reviewed journal articles provided data for the literature review. Primary keywords used to find the relevant data included: military students, DoDEA, TerraNova, social capital theory, adolescents, and military children.

The articles selected included the following:

1. Relevant data about the military student population
2. Background information about the DoDEA school system
3. Historical information about No Child Left Behind and standardized tests
4. Information about the mobility and geographic location and what it entails for military students
5. Information on how student turnover affects both students and schools

DoDEA

The United States military created schools after World War II to educate students located overseas (Department of Defense Education Activity, n.d.). At the same time, the separate military branches operated schools designated for military students in the United States and then later civilians began managing the schools (Department of Defense Education Activity, n.d.). The Department of Defense Dependent Schools (DoDDS) school system, established in 1946, operated schools in the United States and the occupied countries of Germany and Japan (Bugaj, 2013). Today, DoDDS still operates in the Pacific and Europe (Berg, 2008).

Currently, DoDEA operates 168 schools (Department of Defense Education Activity, n.d). DoDEA has two branches DoDDS and Domestic Dependent Elementary

and Secondary Schools (DDESS) (Bugaj, 2013). Congress established DDESS, referred to as Section 6, in 1950 "to address the issue of segregated public schools in southern states" (Bugaj, 2013, p. 197). Public Law No. 103-337 substituted the Section 6 laws, and the Department of Defense Domestic Dependent Elementary and Secondary Schools became the official name for the school system (Bugaj, 2013). Currently, DDESS includes schools in the United States and surrounding territories (Berg, 2008).

In 1994, DoDDS and DDESS were merged and became Department of Defense Education Activities (DoDEA) (Bugaj, 2013; DoDEA, n.d.). DoDEA now operates schools in 11 countries, seven in the United States, the United States territory of Puerto Rico and even in Cuba (Department of Defense Education Activity, n.d). Military students can attend any Department of Defense Education Activities (DoDEA) school around the world (Bugaj, 2013). DoDEA offers schools from pre-kindergarten to 12th grade and are similar to civilian schools (Bugaj, 2013; Department of Defense Education Activity, n.d.)

DoDEA considers their schools as "models of excellence" (Masten, 2013, p. 202). But not all military students have access to DoDEA schools or the programs that DoDEA offers (Masten, 2013). Because military students move to vast locations, there are times DoDEA school systems are not available which means that the military student might be integrated into a civilian school (Masten, 2013).

Military Students

The largest subculture in America is the military family (Kudler & Porter, 2013). The subculture consists of a "diverse cross-section" made up of military students (Lemmon & Stafford, 2014). Military students may be born into the military lifestyle,

live in housing on the military base, and then be forced to move to several different bases, including overseas (Kudler & Porter, 2013). Not all military children grow up living on the base, but instead, service members can opt to live in a civilian town outside of the base (Clever & Segal, 2013; Guzman, 2014; Kudler & Porter, 2013). Milburn and Lightfoot (2013) stated that military students, particularly adolescents, can benefit from living on the base because it provides them with a sense of security and offers them support resources. Living on base can give adolescent military students more freedoms to interact with peers (Milburn & Lightfoot, 2013).

A service member who chooses to live off the military installation provides the military student an opportunity to be a part of non-military lifestyles and cultures (Kudler & Porter, 2013). Military students fill classrooms all over the country and the world (Lemmon & Stafford, 2014). Military students who grow up away from military installations blend in with civilian students and teachers may fail to recognize that student is a military student, which could affect the students' academic performance, behavior, and even emotional well-being (Kudler & Porter, 2013). Milburn and Lightfoot (2013) stated that National Guard and Reservist families live in more remote areas and have less access to some of the resources that are available to active duty military families living on or near military installations. These students are also military students.

The military student population is a mobile one. Military students move around the United States or even the world approximately every one to four years (Berg, 2008). These students do not have a predictable lifestyle as civilian students have. Military students can attend civilian public schools or may attend schools operated by DoDEA (Richmond, 2015). Service members who decide to live off-post and enroll their children

in schools off-base should research the off-base schools cautiously as not all off-base school leaders understand the complexities of military student life (Russo & Fallon, 2014). Astor, De Pedro, Gilreath, Esqueda, and Benbenishty (2013) stated that civilian schools that serve military student populations might have a hard time promoting a positive school climate in both primary and secondary schools.

Military students, in general, can handle the changes that their lifestyle entails, and "are no better off (or worse) than children in other families" (Russo & Fallon, 2014, p. 408). However, military students' parents' military careers may be the root of the hardships that this population of learners experience. According to Esqueda, Astor, and De Pedro (2012), military students switch schools approximately every 2.9 years, and the frequent moves can take a toll on students' well-being. These children are quick to recover and can adapt to new schools and homes even when having to move several times (Easterbrooks, Ginsburg, & Lerner, 2013). Russo and Fallon (2014) stated that educators in public schools view the military lifestyle as "problematic" (p. 407). Schools that service military children must accept the fact that student enrollment will fluctuate because of the changes in parents' duty assignments (Jacobson, 2013). Some teachers may be impervious to the unique experiences that the adolescent military student may have (Milburn & Lightfoot, 2013). However, what these students need are teachers who help them become resilient individuals who can cope with the difficulties their lifestyle involves (Russo & Fallon, 2014).

Military families experience "stressors through the course of military service and deployments, including frequent relocations and reconfigurations of the family system, ambiguous loss and fear for a loved one's safety, and high levels of stress and/or

dysfunction among family members" (Riggs & Riggs, 201, p. 675). According to Rossen and Carter (2012), over the preceding decade, approximately 800,000 military students have had parents deployed during the school year. Often when students' parents deploy to war or training locations far from home, the students' academic performance begins to decline (Phelps, Dunham, & Lyons, 2010). Children who have a deployed parent can exhibit lower academic performance as well as feelings of concern and fear for a parent's well-being (Rossen & Carter, 2012). Military children with a deployed parent will display different expressions of behavior, depending on their age (Wadsworth & Southwell, 2011). For example, younger children between ages three and five may have more behavior problems, while children ages seven and older tend to exhibit trouble at home, in school, and with friends (Wadsworth & Southwell, 2011).

When a service member returns from a deployment, students may have a hard time adjusting to the parent's return (Rossen & Carter, 2012; Wadsworth & Southwell, 2011). The family may experience a difficult time reestablishing the old routine (Wadsworth & Southwell, 2011). These students are prone to anxiety and mental illnesses because of the harsh realities that deployment brings (Rossen & Carter, 2012). According to Rossen and Carter (2012), schools that foster a positive environment can help military students excel in learning. Teachers and administrators should be caring, understanding, and supportive of these students to help them excel in the classroom and must be cognizant of students' emotional well-being (Rossen & Carter, 2012).

According to Easterbrooks, Ginsburg, and Lerner (2013), the military gives students special opportunities that civilian students do not have. Special programs provided by community resources are designed to support these students because of the

many difficulties military students face in and outside of school (Easterbrooks, Ginsburg, & Lerner, 2013). Schools on or near military installations can employ the help of service members for special school functions (Viadero, 2000), which bridges ties to the community and enhances the learning environment. Minority military students may have an academic advantage compared to minority civilian students because the military provides reliable paychecks, medical assistance, housing, food allowance, and supports families' basic needs (Viadero, 2000). Military students benefit from programs geared toward them. For example, DoDEA students have access to a school liaison who helps students enroll and transition from school to school (Department of Defense Education Activities, 2016). Therefore, civilian students may not have access to these benefits (Easterbrooks, Ginsburg, & Lerner, 2013). Alternatively, civilian students' parents may not have the consistent security of a steady income or other benefits that military students receive.

The military may often require that a service member must move to a new duty location. This move is called a Permanent Change in Station (PCS) (Defense Travel Management Office, 2016). Changing locations means children will have to attend a new school. According to Richmond (2015), military students may attend about six different schools because of constant military relocations. These changes can affect students' academic performance (Titus, 2007). If the student attends a DoDEA school, once he or she moves to a new location, the student will find that the school systems are standardized, and the curriculum in the next DoDEA classroom should coincide with materials and lessons from the previous school (Titus, 2007). The student who moves from a DoDEA school to a state-run school may find continuity in the curriculum

because DoDEA adopted College and Career Ready standards which align with the Common Core State Standards (CCSS) (Department of Defense Education Activities, 2016.). Because military students frequently move from school to school, student performance could be negatively related and become a factor in higher achievement gaps between these minority groups (Smrekar & Owens, 2003). These factors are specific to military students and may or may not contribute to the minority achievement gap that exists in these schools.

Military Child Education Coalition

An example of one of the many programs that aim to serve military students is the Military Child Education Coalition (MCEC). MCEC is "an interstate compact to ease the transitions of military children" (Wadsworth & Southwell, 2011, p. 171). The intent of this civilian program is to provide military students with positive opportunities during difficult times of parent deployments, life transitions, and frequent moving (Kudler & Porter, 2013; Military Child Education Coalition, 2016). This organization works actively with the military to implement programs designed to help military students succeed regardless of life challenges (Masten, 2013). Not only does MCEC work with the military, but the organization also works with school districts, and parents to help students during the moving phase (Park, 2011). MCEC implemented the "Student 2 Student" program that assists mobile students through the transition period in their new school (Masten, 2013). The Student 2 Student has advisors, volunteer students, and a liaison help develop ways to help students, even students who are not military connected youth (Park, 2011).

MCEC is a non-profit organization that strives to smooth problems that military students face when transitioning (Military Child Education Coalition, 2016). Some of these problems include inconsistencies between school standards and class offerings, difficulties with meeting graduation requirements, and transferring school records (Military Child Education Coalition, 2016). A study conducted by MCEC noted that the biggest area of concern for military parents is the gap the military student will receive in math due to a school transition (Ruff & Keim, 2014).

MCEC also helps students work through personal issues, such as having a deployed parent or parental separation or divorce (Military Child Education Coalition, 2016). Not only does MCEC aim to assist the military student, but the organization also strives to help schools and families also to assist military students to succeed in school (Military Child Education Coalition, 2016). One of the initiatives MCEC implemented is called "Living in the New Normal: Helping Children Thrive through Good and Challenging Times" (Masten, 2013). This initiative offers resources to communities to provide more support for military families (Masten, 2013).

MCEC collaborated with the Department of Defense, the Obama administration, and the Department of Education to create the Interstate Compact on Educational Opportunity for Military Children (Masten, 2013). Forty-six states and the District of Columbia approved the Compact (Masten, 2013). The Interstate Compact helps bridge the gaps between individual school and state regulations that create challenges for students such as transferring class credits, graduating on schedule, and accessing special programs and activities (Masten, 2013).

According to Ruff and Keim (2014), the Secondary Education Transition Study (SETS) was established, along with MCEC. The SETS study found that students face many difficulties when having to transition to several different schools, including academic, emotional, and social challenges (Ruff & Keim, 2014). Adolescent military children faced specific challenges that were discovered through the SETS study (Ruff & Keim, 2014).

Adolescence

The period of adolescence is a crucial one because children in this age group begin experiencing many changes at once. Particularly, for military adolescents, this life stage can be difficult as the teen is dealing with physiological changes and typical life stressors, as well as the adaptations the military is demanding of the parent (Hernandez, Peskin, Markham, Burr, Roberts, & Tortolero, 2015; Mmari, Bradshaw, Sudhinaraset, & Blum, 2010). Williams (2013) stated that other developments adolescents go through are emotional and psychological. These changes can impact the relationship with parents and in social groups (Véronneau & Dishion, 2011). Families play an important role in the adolescent's development of their individual identity, while disruptions to the family life may create problems for the developing adolescent (Williams, 2013).

A large change occurs when adolescent students move out of elementary school and enter middle schools, which are often larger and lack the warm climate they may have been accustomed to (Véronneau & Dishion, 2011). Additionally, adolescents will observe that in middle school teachers are not as close to students as in elementary school, and the work load of homework increases and becomes more challenging (Véronneau & Dishion, 2011). Adolescents may have trouble adapting to the many

changes they experience and begin to feel depressed or stressed (Véronneau & Dishion, 2011).

Adolescence is the pivotal point for adolescents to begin establishing relationships in their social circle (Langenkamp, 2016; Véronneau and Dishion 2011). In this developmental period, adolescents are influenced by their peers and are more inclined to engage in negative behaviors, such as drinking or smoking, if a peer engages in such behavior (Véronneau & Dishion, 2011). Véronneau and Dishion (2011) conducted a longitudinal study of 1,278 students in eight middle schools across the northwest United States. The research began with sixth graders and then a follow-up was conducted when students were in eighth-grade. The study aimed to investigate how characteristics of the adolescents' peers affected academic achievement in middle school (Véronneau & Dishion, 2011). The findings of the study suggested that depending on the types of peers the student chooses to associate with can affect the level of academic achievement. For example, high academic performing female students who had peers who also were high academic performers continued to do well academically over the course of the study (Véronneau & Dishion, 2011). However, some lower academic performing students who had peers who had higher academic performance did not demonstrate higher academic performance by eighth-grade (Véronneau & Dishion, 2011).

According to De Pedro et al. (2016), there is growing research to support evidence that military adolescents have higher risks of peer persecution compared to civilian adolescents. Military affiliated students in "Southern California indicated that military connection and two key military life stressors-family deployments and multiple school transitions-were associated with higher odds of being victimized, being involved

in a physical fight, and carrying a weapon on school grounds" (De Pedro et al., 2016, p. 752). Reasons for these types of actions may be sparked from frequent moving, and changing of schools (De Pedro et al., 2016).

Not only do military adolescents experience difficulties in their social circles, but these adolescents may engage in sexual activity (Hernandez et al., 2015). Klein and Adelman (2008) stated that military adolescents are less likely to engage in dangerous behaviors, compared to other teens their age. Although this population of adolescents is resilient and can adapt to frequent relocations and parent deployments, this population of adolescents engage in sexual activity and dating as much as civilian adolescents (Klein & Adelman, 2008). According to Klein and Adelman (2008), between "[t]wenty percent to 33% of high school aged females in these clinics dated active duty males, and nearly 15% of these relationships progressed to sexual intercourse" (p. 660). Another study found that 30% of military high school students have reported having sexual intercourse (Hernandez et al., 2015). Other at-risk behaviors included alcohol use, which was higher for military adolescents whose parents were stationed abroad (Klein & Adelman, 2008). Klein and Adelman (2008) commented that there is insufficient evidence about military adolescent behaviors and the at-risk behaviors associated with this age group.

Geographic Mobility

There are two types of classified student mobility: residential and school mobility, although the two are interlinked (Weisman, 2012). Residential mobility may mean that students move to new homes without having to switch schools or that students may change homes outside the original zoned school area (Weisman, 2012). Children who move more than six times in their primary or secondary school education are considered

highly mobile (Weisman, 2012). School mobility consists of the transition to a new school during the school year without reasons due to promotion (Weisman, 2012). Student mobility sparked much research and is a topic that deserves attention (Sanderson, 2004).

Assessing the definite factors that cause students' mobility is difficult, but generally, mobility is related to families who come from a lower socioeconomic background (Grigg, 2012; Weisman, 2012). Mobile students can come from any background, but the most common reasons for mobility include homelessness, single-parent homes, low socioeconomic status, incarceration, migratory families, or military families (Weisman, 2012). According to Tucker, Marx, and Long (2003), youth that had to move more than an average amount of times were not affected by the move if they resided in a home with both parents. On the contrary, youth that had to move but did not have a stable family structure had increased likeliness to have school related problems (Tucker, Marx, & Long, 2003). Fiel, Haskins, and Lopez Turley (2013) stated that adolescents who changed residences had less school engagement, exhibited lower academic performance, and more nonconformity. These mobile adolescents also face increased chances of becoming more violent to female adolescent peers and a higher probability of attempting suicide (Fiel, Haskins, & Lopez Turley, 2013).

Military students, regardless of their parents' economic backgrounds, change schools frequently. In fact, military students move more than civilians (Masten, 2013). Service members in the military move approximately every three years (Berg, 2008; Finkel, Kelley, & Ashby, 2003; Jagger & Lederer, 2014). Service members do not choose their duty location and often are required to relocate to distant locations (Jagger &

Lederer, 2014). According to Bradshaw, Sudhinaraset, Mmari, and Blum (2010), by 2010 approximately 100,000 military families overseas were anticipated to relocate because of several base closures. At the same time, the families living on bases in the states would also be affected and would have to move as well (Bradshaw, Sudhinaraset, Mmari, & Blum, 2010). Thus, moves are not always due to the job but to meet the needs of the military as in base closures.

Oftentimes, family members are authorized by the military to join the service member in their new duty location (Jagger & Lederer, 2014). The military has many expectations of its service members, and "geographic mobility" is one of them (Jagger & Lederer, 2014, p. 15). Berg (2008) stated that often with overseas moves, military students will have to "transfer in and out of the DoDEA schools as well as into and out of public schools all over the nation" (p. 42). However, the timing of the move can ease the transition for the student (Fiel, Haskins, & Lopez Turley, 2013). Moving during the summer months can be more beneficial for the student, as school will not be in session. Moving in the middle of the school year is more disruptive to the student (Fiel, Haskins, & Lopez Turley, 2013). Although, the service member may have no choice but to move mid-school year.

When military students accompany their parents on overseas tours, the student will have to adjust and assimilate to new cultures and customs. Approximately 67% of DoDEA students attend one of many overseas schools (Engel, Gallagher, & Lyle, 2010). The term "third culture kids" TCKs refers to students who spent "a significant part of their development years abroad" (Berg, 2008, p. 44). The event of living outside the home country for years affects who the individual personally becomes, but the individual

never fully becomes like a native in the host nation (Berg, 2008). These individuals create new bonds in the community which can represent TCKs (Berg, 2008). TCKs can experience issues in development and even feelings of sorrow (Berg, 2008). However, Finkel, Kelley, and Ashby (2003) stated that many adolescents related to the moves as positive experiences that gave them "a broader perspective toward people and cultures" (p. 1019).

Alternatively, Masten (2013) posits that mobile military students have chances to explore new cultures and diversities when afforded the opportunity to reside overseas. Military students living abroad can make friends from different cultures, travel, and acquire new languages (Masten, 2013). These opportunities help the students to grow and "enhance their sense of efficacy and promote their personal development" (Masten, 2013, p. 207). The experiences of living abroad can develop these students into open-minded individuals (Lemmon & Stafford, 2014).

Students who are moving to a new country must be open to adapting to the new culture and need to have a strong guide to welcome the student into the new culture (Berg, 2008). Military families stationed overseas get acquainted with new cultures and customs (Russo & Fallon, 2014). Young people who move internationally several times in their youth may experience difficulties assimilating into a new culture and may lack a connection to a culture they identify with (Hoersting & Jenkins, 2011). Russo and Fallon (2014) posited that families moving abroad might need more resources to help them adapt. Parents with students beginning schools overseas can also speak to the staff at the new school to discuss the nature of the students' mobility so that the school can be aware of the situation and accommodate the student accordingly (Berg, 2008).

Mobility. Students who are highly mobile and had to transition to different schools during their elementary years versus switching schools at a later age demonstrated lower academic outcomes (Malmgren & Gagnon, 2005). Students between the ages of four and seven who were highly mobile "had a more negative impact on high school graduation status than mobility experience in later elementary grades" (Malmgren & Gagnon, 2005, p. 301). High student mobility and academic achievement negatively impacted high school students the most (Weisman, 2012). According to Fomby and Sennott (2012), adolescents who experienced frequent residential moves and school transitions were more likely to have lower self-esteem and were more detached from classroom learning. At this point in the students' life, other added stressors involving family and life can be damaging (Fomby & Sennott, 2012). Although mobile military students are known to be resilient when it comes to accepting lifestyle changes, these students may have difficulties coping with the constant breaks in their education (Lewis-Fleming, 2014). Military students moving back to the United States after an overseas assignment also have to get adjusted to the way schools operate here (Bradshaw, Sudhinaraset, Mmari, & Blum, 2010).

When students move, it interrupts their classroom learning and extracurricular activities; the moves cause them to have to establish new friendships and acclimate to a new culture (Berg, 2008; Guzman, 2014). Math is a subject area that mobile students tend to decline in when having to transition to new schools compared to peers who were not mobile (Friedman-Krauss & Raver, 2015). Wadsworth and Southwell (2011) stated that mobility may also affect the students' coursework and may cause students to have to take more classes to meet a new school's requirements. A student may fall behind

approximately four to six months because of the break in curriculum and the emotional side of leaving friends and family behind (Weisman, 2012). A military student who moved from base to base and from school to school stated that students are forced to "catch up academically" because the relocations do not coincide with a set school schedule (Richmond, 2015, p. 18). Students are also aware of the challenges that are met when moving occurs.

According to Jacobson (2013), a survey intended to learn more about military students enrolled at civilian schools found that students who have transitioned to different schools two or more times in a five-year period experienced bullying and had experiences with weapons (Jacobson, 2013). However, the results were similar for civilian students who were more mobile than their peers (Jacobson, 2013). According to Bradshaw, Sudhinaraset, Mmari, and Blum, (2010) stated that mobile military students have structure and authority in their lifestyle that may reduce disobedience.

Student mobility is a research-rich topic that indicates that there are links between mobility and student difficulties. For example, students who are highly mobile are more detached in school, which leads to low academic performance (Malmgren & Gagnon, 2005). Other problems that can occur in mobile populations include poverty, parent unemployment, and household instability (Bradshaw, Sudhinaraset, Mmari, & Blum, 2010). These problems can affect the way students cope with mobility (Bradshaw, Sudhinaraset, Mmari, & Blum, 2010). Malmgren and Gagnon (2005) stated that the research does indicate that students may have negative links when mobile. According to Malmgren and Gagnon (2005), a study showed that White students who moved in the middle of the year outside of inner-city Baltimore schools had better success.

Alternatively, Malmgren and Gagnon (2005) posit that the frequent moves for military students are "not correlated with negative outcomes" (p. 300). However, the research on this issue is mixed and some research highlights that mobile military students can adapt to the frequent school transitions and can do as well academically as students who have not transitioned to different schools (Strobino & Salvaterra, 2000). With the research supporting the notion that student mobility does have links to poor student achievement, military students, however, may be the exception because moving is embedded in their lifestyle. Finkel, Kelley, and Ashby (2003) stated that the moves are not always negative and can help children adapt quickly to new environments.

Students who move for various reasons, other than reasons associated with the military, may find it harder to adjust because of the disruption in school and social networks. According to South, Haynie, and Bose (2007), adolescents who are mobile and transition to new schools lose their affection for the school, get sidetracked on school work and from personal academic goals. Students at new schools participate in fewer activities and are less inclined to socialize with peers, which increases their risks of dropping out (South, Haynie, & Bose, 2007). The acronym RAFT stands for reconciliation of problems (R), affirmation of established relationships (A), farewells (F), and thinking optimistically about the new destination to move to (T) is a technique that DoDEA schools use to help mobile students before transitioning out of one school site to another (Berg, 2008).

Social Capital

Social capital has many definitions, but for this research it is used in the context of relationships established between people (Pettit & McLanahan, 2003). For children,

the social capital invested outside of the home has the highest value (Coleman, 1988). More specifically, adolescents begin to prioritize the establishment of social relationships (Milburn & Lightfoot, 2013). Some researchers believe that mobile students have reduced social capital which is fundamental to their development ((Bradshaw, Sudhinaraset, Mmari, & Blum, 2010; Pettit & McLanahan, 2003). According to Fiel, Haskins, and Lopez Turley (2013), there is a multidirectional relationship between social capital and mobility; thus, social capital is correlated with the individual's mobility, while mobility can be correlated with the individual's social capital.

According to Palmer (2008), military relocations can be disadvantageous for military families who want to preserve established friendships. Military students acknowledge that moving is a part of their lifestyle. However, with the moving, comes separation between friends and family (Masten, 2013). Bradshaw, Sudhinaraset, Mmari, and Blum (2010) stated that students who are highly mobile have fewer friends than those who are not mobile. The breaks in social capital affect the way these students build and develop future relationships (Bradshaw, Sudhinaraset, Mmari, & Blum, 2010). These military students might become more introverted and deliberately try to avoid making new social connections (Lemmon & Stafford, 2014). Additionally, existing social circles may be less inclined to befriend new students, as the new student may change the dynamic of the existing friendships (Dupere et al., 2015). Moving and new school transitions affect students' behaviors and their social network (Fomby & Sennott, 2012). The more moves students make, the smaller the social groups the student will establish (Fomby & Sennott, 2012).

Highly mobile adolescent students have higher risks of interacting with peers in social groups who are detached from school (Fomby & Sennott, 2012). Although the moves and transitions to new schools are not the primary sources for the students' dejected attitude and behaviors, the mobile adolescent student realizes the social structure within the school has been built and thus will select friends to associate with who are more antisocial (Fomby & Sennott, 2012; Williams, 2013). According to Dupere et al. (2015), research has shown that mobile students are prone to get reactions of unfriendliness towards them when mobile students try to assimilate into existing social groups. Mobile students may have a hard time making friends and gravitate toward "socially maladjusted peers who are themselves withdrawn, victimized, socially awkward, or aggressive" (Dupere et al., 2015).

Along with having difficulties making new friends, some military students may lack a sense of belonging or a lack of established roots. For example, Lemmon and Stafford (2014) stated that military students may have a hard time answering the question "Where are you from?" The question is a difficult one because military students move regularly and may not know the definite answer. Some students may wonder if this question is asking where were they were born or where they have lived the longest period (Lemmon & Stafford, 2014). Social questions like this provoke ambiguity in the students' "sense of identity and belonging" (Lemmon & Stafford, 2014, p. 350).

Finkel, Kelley, and Ashby (2003) discussed a study of 2,400 adolescents that found that both military and civilian young adults did not exhibit differences in their "stress and coping" and alternatively, the military adolescents who moved more frequently did have a harder time leaving their established group of friends and making

new friends in their new home (p. 1019). The break in social capital caused these teens to exhibit "feelings of loneliness, depression, and social alienation" (Finkel, Kelley, & Ashby, 2003, p. 1019).

Not only does the student lose social capital, but the community loses in social capital when people leave. For instance, Coleman stated that if a parent has to leave the community for a new job, the family will accept such a decision, but other individuals outside the home may have a difficult time accepting the break in the social connection (Pettit & McLanahan, 2003). Pettit and McLanahan (2003) discussed how high income, middle income, and lower income areas differ in the way that families would begin to establish social capital. As for military students, parents can decide to live off the military installation. Depending on where the family chooses to reside, may affect the type of social networking the student makes. However, families who move to a location that is rich in resources for children may help increase the chances for the student to build social capital (Pettit & McLanahan, 2003).

Military installations have many resources that are open and available for all students, and those avenues can help students to increase and establish social networks. Not all military students will have difficulty making new friends. Some highly mobile military students believe that moving helps with their ability to make new friends (Lemmon & Stafford, 2014).

Student Turnover

Student mobility causes high degrees of classroom turnover (Luppino, 2015). Both schools and students are affected by student mobility (Fiel, Haskins, & Lopez Turley, 2013; Schafft, 2006). Even students who do not move are affected by the

mobility of their peers (Fiel, Haskins, & Lopez Turley, 2013). Although the residential moves that students make are not necessarily negative, administrators and teachers may be concerned about how the student will handle the changes (Tucker, Marx, & Long, 2003). According to Luppino (2015), assessing how student turnover affects student learning is difficult. Schools cannot predict when students will enroll or leave the school. Once a student leaves a school, the school will have a difficult time tracking what school the student will next attend and how the student will perform academically. Additionally, schools with high turnover rates may find that student mobility interferes with attempts to implement and improve programs because the progress established will be hard to maintain with the movement of students (Fiel, Haskins, & Lopez Turley, 2013).

Inner-city schools experience as much as 50% student turnover rates (Luppino, 2015). In fact, 25% of the residential moves made include having students switch schools to a new district (Weisman, 2012). Regardless of the school location, student turnover causes internal problems within the school such as more classroom disruptions, spikes in costs to accommodate the influx of new students and departing students, and schools can fail to provide necessary services to students in need (Rumberger & Thomas, 2000). Rural schools may find it difficult to assist highly mobile students from lower socioeconomic backgrounds because of financial restraints in the budget that limit available resources needed to serve this population (Schafft, 2006).

Besides the usual stressors transitioning has on civilian students who move, there are stressors that military students face when having to switch schools numerous times. Some difficulties students face are getting acclimated to a new school climate, developing new relationships with friends and teachers, and also trying to meet the new

state's requirements for graduation (De Pedro et al., 2016). Frequent school transitioning and parent deployments are factors that negatively affect the military student and may contribute to an increase in peer persecution (De Pedro et al., 2016; Dupere et al., 2015). Williams (2013) stated that frequent moves may cause learning gaps in the students' learning because of differences in the instruction from the first school to the next.

Student turnover between schools also affects the schools (Fiel, Haskins, & Lopez Turley, 2013). Student mobility The school can be seriously affected by high levels of student mobility and turnover (Fiel, Haskins, & Lopez Turley, 2013; Gibbons & Telhaj, 2011). Fiel, Haskins, and Lopez Turley (2013) stated that the movement of students "promotes chaos, decreases teacher morale, and increases administrative burdens" (p. 1190). Another problem are financial burdens that schools cannot anticipate when students are mobile within schools (Schafft, 2006). Schafft (2006) stated that the public is not aware of how the issue affects schools. Local taxpayers are the ones who have to pay to ensure the mobile students can receive necessary resources (Schafft, 2006).

Teachers are also concerned by student turnover because the dynamic of the classroom changes and there are interruptions in the normal flow of classroom curriculum planning and teaching (Luppino, 2015). In the classroom, the shift in student population can interfere with the teacher's instructional plans, causing the teacher to resort to a broad teaching method, which will not be geared to meeting students' individual instructional needs and teaching becomes more of a review (Fiel, Haskins, & Lopez Turley, 2013).

Other problems that student mobility can create for schools is how they will assess test scores. "Mobility is likely to affect the mean and distribution of achievement in schools via compositional changes" (Gibbons & Telhaj, 2011, p.1157). Sanderson

(2004) stated that schools would be treated unfairly if they had high levels of mobile students and considered mobile students' standardized tests scores in school evaluations, which do not accurately reflect the changing student population.

Student turnover affects students socially because students end up breaking their social ties with peer groups (Luppino, 2015). Students who do not move are also socially impinged upon when there is high student turnover (Gibbons & Telhaj, 2011). Luppino (2015) stated that the literature recognizes the negative impacts caused by student mobility. Although there is not enough literature to explore the possibility that student mobility also affects the students who are not moving, non-movers.

No Child Left Behind

In 2002, President George W. Bush signed the No Child Left Behind (NCLB) Act (Dee & Jacob, 2011). NCLB was a reauthorization of the 1965 Elementary and Secondary Education Act (ESEA), but it expanded the government's role in public education (Dee & Jacob, 2011). ESEA was previously written to help educators reach lower performing students (Vanneman, Hamilton, Anderson, & Rahman, 2009). The intent of NCLB, which is a bill written to reform ESEA, is to make improvements in education for all students, to ensure tests are unbiased and fair, and to ensure that every teacher is highly qualified (Aquila, 2008; Peck, 2002). President Obama's Race to the Top (RTTT) initiative is a change to NCLB that presses states to create strict accountability requirements (Shapiro & Gross, 2013), yet still maintained the standards-based approach in education (Manna & Ryan, 2011). NCLB is still present today and schools have many requirements to adhere to the law.

Under NCLB, the law requires students take annual standardized tests, and the test outcomes will measure whether or not the school is making adequate yearly progress (AYP) (Dee & Jacob, 2011). The results of these standardized assessments will determine the school's AYP status, and depending on the status, the school will either be sanctioned or rewarded for its progress (Dee & Jacob, 2011). Students in grades three through eight take these mandatory exams in science, math, and reading, and students take at least one exam during high school (Manna & Ryan, 2011; Stiefel, Schwartz, & Chellman, 2007). The school uses the test data to identify progress per students' race, SES, if the student is a language learner, or if the student has any disabilities (Stiefel, Schwartz, & Chellman, 2007). The personal information gathered about the students' ethnicity and students' SES data helps schools for tracking purposes. The purpose of standardized tests is to provide numerical data on how the school is accountable for the students' progress (Shapiro & Gross, 2013).

Tests bring to light performance differences between students of different ethnicities and different learning levels. NCLB was designed to minimize those type of gaps (Hoerandner & Lemke, 2006). The goal of NCLB is to minimize the learning achievement gap between students of different ethnicities and to test students fairly for academic proficiency in the tested content (Hoerandner & Lemke, 2006). Although NCLB may be able to close learning proficiency gaps among students, it may be widening the learning gap between minority and majority students (Hoerandner & Lemke, 2006). However, the goal of NCLB is to help all students succeed academically, plus to ensure that lower level learners' academic performance demonstrates improvement over time (Stiefel, Schwartz, & Chellman, 2007).

Under NCLB, lawmakers make school accountability a priority to ensure that all students are achieving at the same levels, regardless of ethnicity or socioeconomic background (Rowley & Wright, 2011). Hoerandner and Lemke (2006) quoted the law as saying, "all students will meet or exceed the state's proficient level of academic achievement" by the year 2014 (p. 1). The law made schools accountable for student progress, and if the schools cannot make consistent progress, parents will have the option to enroll their children in a new school (Rowley & Wright, 2011). NCLB allows parents to decide if the school is adequately meeting their children's academic needs (Johnson & Hanegan, 2006).

The way a school informs parents of its accountability status is with a report card, which details of the school's progress or lack of progress (Johnson & Hanegan, 2006). Aquila (2008) stated that school districts and states are mandated under NCLB to publish schools' results in a plain-language report card for parents and community members to access. The report cards contain publicly available information on state assessment performance and comparisons to other schools in the area and other data including teacher qualifications (Aquila, 2008). Schools that are lacking in progress must provide students with additional assistance to prove that the school is making efforts in trying to improve (Johnson & Hanegan, 2006). The state will sanction schools that do not show progress in AYP scores to enforce school accountability for student progress (Stiefel, Schwartz, & Chellman, 2007). If a school continuously fails to show data of student improvement, it is possible that the school may be turned over to the state (Karen, 2005).

Good teachers do make a difference in student achievement (Neill, 2006). NCLB requires that schools hire teachers who are highly qualified to ensure that every student

has access to a highly qualified teacher (Johnson & Hanegan, 2006). Highly qualified means that teachers have completed steps to satisfy state requirements to prove competency in a designated subject area, have completed a bachelor's degree program or higher, and can demonstrate proficiency in the subject area (Johnson & Hanegan, 2006; Manna & Ryan, 2011). Therefore, the intent of NCLB is to ensure that students have access to teachers who are skilled in subject areas. Schools must notify parents if a teacher is not highly qualified (Johnson & Hanegan, 2006).

NCLB requires schools to be accountable for student achievement (Thompson, Myers, & Oshima, 2011). The problem is that if schools have high levels of mobile students, there may be no fluid way to assess accountability for the influx of students who come and go. The five key components of AYP as stated in NCLB are that schools set the same high expectations for all students, that measuring AYP is both reliable and valid, that the schools provide evidence that students are continuously achieving; that the primary measurement of student achievement is through assessments, and that schools are individualizing achievement plans for identified groups of students (Thompson, Myers, & Oshima, 2011).

DoDEA voluntarily adheres to the provisions of NCLB (Richmond, 2015). DoDEA is not required to follow the regulations of NCLB because it is not funded by the education department, yet by the Defense Department (Richmond, 2015). Therefore, because DoDEA is not required to follow NCLB, the school system does not have to obligate much instructional time to prepare students for standardized tests (Richmond, 2015).

According to Noguera (2009), NCLB may have its faults, but it is a law that created attention for the achievement gap issue. However, the law does not provide school administrators with precise ways to handle the existing achievement gap issue (Noguera, 2009), nor does it provide schools with support for highly mobile populations. Although the intent of NCLB is to ensure equal access to education for all students, students moving from one school system to a different school system may create a larger achievement gap.

Standardized Tests

Standardized tests are exams designed to measure the same content for all test takers, are administered in the same way, and are scored in the same manner to produce uniform data from the results (Warne, Yoon, & Price, 2014). These tests have a history of early education of the United States, dating from the 1800s (Haladyna, Haas, & Allison, 1998). Standardized test results allowed educators to assess if students were learning at the same levels, and some results were used to create changes within schools (Haladyna, Haas, & Allison, 1998).

In the 1900s, standardized tests began to focus on the ability of students to help educators group students based on test outcomes (Haladyna, Haas, & Allison, 1998). The purpose of this action was to rid schools of students who did not perform well, which caused discrimination against these students (Haladyna, Haas, & Allison, 1998). Standardized tests remained popular, and schools continued to use them to highlight students' progress or lack of progress. Schools used the scores to highlight teachers who did well to meet low-achieving students' needs (Haladyna, Haas, & Allison, 1998). According to Shapiro and Gross (2013), there is a heavy emphasis on the data that comes

from these tests, but outside factors, for example, socioeconomic status, may influence students' performance on these tests.

The method of tests changed over the course of time, and later test makers created and introduced multiple choice tests (Haladyna, Haas, & Allison, 1998). Testing experts believed that this approach would be efficient for gathering large amounts of data from students' responses and was cost efficient for schools (Haladyna, Haas, & Allison, 1998). In 1923, the Standardized Achievement Test (SAT) was the first printed multiple choice test given to students (Haladyna, Haas, & Allison, 1998). These examinations were not specific and cannot be clear indicators of students' strengths and weaknesses (Haladyna, Haas, & Allison, 1998).

Later, educators used criterion-referenced tests, which allowed them to gauge students' academic strengths and weaknesses (Haladyna, Haas, & Allison, 1998). These types of examinations are not popular because some believed teachers could teach students the material from the test; therefore, making standardized test data more unreliable (Haladyna, Haas, & Allison, 1998).

In 2005, because of NCLB, states began requiring students in third through eighth-grade to take standardized tests each year in the subject areas of math and reading (Johnson & Hanegan, 2006). The law had requirements for students in grades ten through twelve to take at least one of these standardized tests to test for proficiency in designated subject areas (Johnson & Hanegan, 2006). By 2007, science tests became part of standardized testing for students (Johnson & Hanegan, 2006). The scores of these tests would calculate to schools' annual yearly progress (AYP) (Johnson & Hanegan, 2006), which determines how much progress the school as a whole made with its students.

Along with standardized tests producing students' outcome results, there is accountability the school must achieve. Accountability can be defined as, "to be responsible, to be answerable, to be blame-worthy, or even to be liable" (Wiliam, 2010, p. 108). Therefore, the results that each school gets will allow the state to determine how accountable the school is for students' education. The notion that schools are accountable for student progress became more relevant since the enactment of NCLB. Wiliam (2010) stated that standardized tests help school districts and administrators identify which schools are successful and which ones are not. DoDEA administers the TerraNova Multiple Assessment Test in March of each school year to students in third through eleventh grade (Engel, Gallagher, & Lyle, 2010). This test allows DoDEA to measure student competency in core subject areas.

TerraNova3

For this study, the focus was on average percentile scores of the TerraNova3 assessment that are gathered collectively for students in grades sixth through eighth for the 2012-2013, 2013-2014, and 2014-2015 school years. TerraNova is an assessment test administered annually to students across the United States in grades three through eight (CTB/McGraw-Hill LLC, 2015). DoDEA also administers this test annually to its students (Fowler Jr., 2003). The test has changed over the course of time. The California Achievement Test was transitioned into the TerraNova 2nd edition in 2002 (Wright, 2008). The reason the test was transitioned into the TerraNova2 is because it was more aligned with the state standards (Wright, 2008). However, results from the TerraNova2 indicated that there were "unusually high levels of internal consistency at every grade level and on every subtest" (Wright, 2008, p. 329).

Presently, there are several formats of the TerraNova3, which include Common Core, online formats, complete battery, an abbreviation of the complete battery, and multiple assessments (Data Recognition Corporation, 2016). DoDEA administers this exam to its students across the globe. The test assesses student progress in the core content areas of reading, language arts, mathematics, science, and social studies (CTB/McGraw-Hill LLC, 2015). DoDEA students take the examination in the third grade through the eleventh grade (Bridglall & Gordon, 2003; Smrekar & Owens, 2003).

The TerraNova exams are norm-referenced, which compares raw scores of current students to a sample group of students' scores (Wright, 2008). The sample groups are called the "norm group" and their scores create the pattern of expected scores (Wright, 2008, p. 14). When students take the exam, the scores reflect if students have demonstrated full knowledge of the tested content. Students can either receive full credit for test responses on either the multiple choice or written portion of the exam. The scores of the assessment are published at four levels, student, individual school, district, and nationally (Smrekar & Owens, 2003). According to Smrekar and Owens (2003), if a school system has "more than 25 percent of its students in the top quarter, it is considered to be performing above the national quarter" (p. 188). A large percentage of DoDEA students do perform in the top quarter on the TerraNova assessment (Smrekar & Owens, 2003).

The TerraNova test makers have modified tests from a multiple choice test to one that can allow students to justify responses and provide in-depth responses (CTB/McGraw-Hill LLC, 2015). If students demonstrate some knowledge about the question, the student will receive partial credit for responses (CTB/McGraw-Hill

LLC, 2015). The reason TerraNova test makers have done this is because of the CCSS and because school districts' stressed the importance of having students show their work to go beyond the scope of a multiple choice right-or-wrong answer (CTB/McGraw-Hill LLC, 2015). This type of differentiated test stresses the importance of allowing students to demonstrate competency and justify answers (Data Recognition Corporation, 2016).

Schools can use the scores in various ways. Data Recognition Corporation (2016) stated schools can obtain the test results within seven days of the date the tests are administered. Therefore, schools have almost immediate access to make use of the scores. According to CTB/McGraw-Hill (2015), the test results can be used to assess particular students and compare scores with other students. Schools can use these data to assess progress from a national standpoint and to help schools recognize how well students are mastering the CCSS (Data Recognition Corporation, 2016). Additionally, the scores can be used to assess the progress of the entire school and within the entire district, which helps educators gauge student proficiency (CTB/McGraw-Hill LLC, 2015).

Reliability occurs when a different researcher replicates an experiment with different subjects and uses a similar measurement tool to investigate the same terms as the original (Drost, 2011). The intent of this research is to provide educators with an understanding of variables that might affect student progress in core subject areas. If other researchers were to replicate this study, the researchers could expound on the current findings by testing more military schools and non-military affiliated schools to determine if the identified variables interacted in the same way as this study. The use of archived data show educators what was done and can allow schools to make positive changes in the classroom and curriculum to help students succeed in the future.

Common Core State Standards

In 2007, state superintendents attended the Council of Chief State School Officers meeting to plan for the development of common state standards (Zimba, 2014). In 2009, a cohort of governors and school superintendents representing 48 states agreed to creating standards for math and English that all would share (Common Core State Standards Initiative, 2016; Zimba, 2014). The redesign of state standards to Common Core was to foster "college and career readiness" for all students and to increase students' education to a "globally competitive standard" (Zimba, 2014, p. 1). According to the Common Core State Standards Initiative (2016), 43 of 50 states have adopted Common Core in their educational systems.

CCSS differ from previous state standards because CCSS now align with standards from higher performing countries' schools (Zimba, 2014). CCSS also changes the priority of mathematics in primary school and focuses on components of math for problem solving, comprehension of mathematical concepts, and success in following processes (Zimba, 2014). According to VanTassel-Baska (2015), CCSS are the result of the United States' effort in trying to make learning equitable for all students. The purpose of CCSS is to allow students the opportunity to verbalize and justify their responses instead of solely conditioning students to develop the correct answers (Richmond, 2015).

There are some advantages to the CCSS, despite some educators' negative opinions of them (VanTassel-Baska, 2015). Some advantages include prioritizing educational strategies in the classroom that are flexible and at an advanced level, the production of student data that demonstrates student learning, and the framework of the CCSS that fosters developing students' "higher level skill development" (VanTassel-

Baska, 2015, p. 60). Although gifted student educators highly regard these advantages, VanTassel-Baska (2015) stated that these advantages could serve the general learning population. CCSS are designed to meet 21st-century necessities in the areas of learning and assessments, CCSS focus on career preparations, and to supply students with a standard point for learning across the nation (Common Core State Standards Initiative, 2016; VanTassel-Baska, 2015).

Some educators have argued against CCSS. Educators believe that CCSS will completely standardize the curriculum, standards will be difficult to implement in all classrooms, and that the standardized assessments are difficult for students (VanTassel-Baska, 2015). Educators feel that the tests are particularly difficult because some tests require technology that the students have no experience with (VanTassel-Baska, 2015). Developers of CCSS had the notion that participating states can share a common set of standards, but only provide the outline of what to teach (VanTassel-Baska, 2015). Schools need to provide training to prepare teachers to implement the CCSS because the transition to CCSS varies between different schools (VanTassel-Baska, 2015). For testing, the CCSS have more requirements for students on standardized tests, which may be something that students are typically accustomed to (VanTassel-Baska, 2015). Teachers may need more time to learn about these methods to ensure students are prepared (VanTassel-Baska, 2015).

DoDEA also joined in on the adoption of the CCSS. DoDEA (2016) refers to CCSS as College and Career Ready (CCR) and has aligned standards with most of the states' standards (Richmond, 2015). The purpose of renaming CCSS to CCR stems from the negative feedback that CCSS has received (Richmond, 2015).

These consistent standards help military students transition from school to school and in and out of DoDEA schools (Department of Defense Education Activities, 2016; Richmond, 2015). The CCR standards help students understand that expectations and standards will be the same for them no matter where they attend school (Department of Defense Education Activities, n.d.). DoDEA's decision to bridge the gap of individual state standards by joining CCSS will help students have a more cohesive transition into schools in different states and even countries (Richmond, 2015).

DoDEA implemented new math standards in the 2015-2016 school year (Richmond, 2015). New standards for literacy will soon follow (Richmond, 2015). The reason why DoDEA chose to implement the new standards first is that the organization found that math was an area where higher level students struggled (Richmond, 2015). DoDEA math standards aim to minimize the number of math concepts taught to shift the focus to student mastery of fewer, narrower, math concepts (Richmond, 2015).

Gaps in the Literature

Several gaps pertinent to military students exist in the literature. There is minimal research that focuses on the lifestyle the military creates (Russo & Fallon, 2014). More currently has research about the military included military children (Russo & Fallon, 2014). Stites (2016) posited that although there is growing research on areas of military lifestyle, including geographic mobility, there is need for more investigation on other areas involving this population. Consequently, the research that does exist about military children lacks in its survey about adolescents (Milburn & Lightfoot, 2013). Thus, adolescents are the primary focus of this research study and can add to the minimally existing body of literature. Most of the research pertains to elementary aged students.

The research that does exist is not enough to provide educators with support when working with this population of learners (Stites, 2016).

Typically, the research that exists focuses on the service member or military spouse (Ender, 2005). Ender (2005) stated that research pertinent to the societal aspect of military children is lacking. Additionally, some of the existing research about military students was published at times of peace and minimal parental deployments, which fails to include factors of deployment that may affect students' wellbeing (Bradshaw, Sudhinaraset, Mmari, & Blum, 2010). There is also research about residential moves, but the research ignores the effects of the school transition that occurs when students move (Gasper, DeLuca, & Estacion, 2010).

There is a plethora of research conducted on the effects of student mobility. However, Herbers, Reynolds, and Chen (2013) stated that although there has been an increase in the studies about mobility, the "results can be difficult to interpret because of the complexity of the problem, the limitations of methodologies and inconsistencies across studies" (p. 501). Additionally, most of the research done on mobility focuses on civilian students (Milburn & Lightfoot, 2013). The majority of research about mobility determines that it is harmful to children (Gasper, DeLuca, & Estacion, 2010; Gillespie, 2013). Gasper, DeLuca, and Estacion (2010) stated that the research typically indicates that mobility is bad for the student, and focuses primarily on the reasons why the students are moving. This type of focus in the research can be serious because it implies that "mobility is harmful to youth" (Gasper, DeLuca, & Estacion, 2010). Family dynamic differences between mobile and non-mobile students may be the source of what the literature is implying as harmful (Gasper, DeLuca, & Estacion, 2010).

The research branches from how mobility has links to poor student academic performance to increased school drop-out rates, and lower educational achievement (Gillespie, 2013). Although Bradshaw, Sudhinaraset, Mmari, and Blum (2010) reported that there is sufficient research supporting the notion that military student mobility does not affect academic achievement. The research about student mobility also touches on the emotional and behavioral issues students may face (Gillespie, 2013). However, there is minimal research on how military student classroom turnover affects student performance and whether differences exist among middle grades. Therefore, this research narrows in on adolescent military students in three different global regions, who all attend the same school system.

The research on student mobility fails to investigate the relationship between the students' academic progress in the new geographic location and the students' academic outcomes. This particular study looks closely at students in grades six through eight. Middle school is a critical time because of physical and emotional changes, and these factors can affect students' emotional well-being. Thus, the research conducted about adolescent mobility and social adjustment takes place after the adolescent moves, and does not consider there may be social adjustment problems prior to the move (Dupere et al., 2015).

Gillespie (2013) posited that moving may affect children differently depending on their age at the time of the move. Therefore, the primary focus of this research is on middle school grade levels because students are in a critical time of adolescence in which moving can affect their social capital and influence the outcome of their academic success. For this study, all students have either been enrolled in DoDEA schools or have

transitioned away from a DoDEA school. This research aimed to provide educators with data on students' perform and if performance varies significantly between grades. Additionally, the intent of this research is to inform educators about the military student population and what their lifestyle entails. Educators can use the outcome of this study to make faculty and staff aware that highly mobile students are often overlooked in the classroom and that schools can implement new programs and policies to help highly mobile students with transitions from school to school.

Summary

Military students must endure the hardships of moving several times throughout their parents' career. The moves may be within the continental United States or even to another country. Military student moves mean that students must acclimate to a new environment, may face language barriers if the parents' assignment is overseas, and also means that students must say goodbye to friends. For adolescents, the idea of moving so frequently can negatively affect their academic engagement and cause them to feel disassociated in their new school. Not all military students experience negative outcomes from the moves. Conversely, there is a paucity of research that supports the notion that frequent moves do hamper students' academic performance and that the moves may spark behavioral issues.

Organizations such as Military Child Education Coalition are in place to ensure military students can make smooth transitions from one school to the next. Resources such as MCEC also work with schools to accept school credits from other schools and to assist students to meet graduation requirements. This organization is one of many that aim to serve the military community.

Schools experience high turnover when several students begin withdrawing from school. The reason for the students leaving varies, but for military students, the primary reason is due to a change in parents' duty station. High turnover rates affect the school and also the students who remain. Mobile student populations are affected, as well as the individual schools.

Common Core State Standards are in effect to ensure that there are designated learning standards to ensure schools are accountable for students' academic success; the No Child Left Behind Act requires schools to administer standardized assessments. Students' scores on these exams reflect the efficiency of the school regarding how well students are mastering concepts. DoDEA voluntarily incorporates CCSS into its schools and administers TerraNova3 standardized assessments to gauge student achievement.

The topics of student mobility and classroom turnover have large amounts of research. There are areas that need more research such as military lifestyle and adolescent students. This research covered a large scope of military life to contribute to the existing literature and to fill the gaps in the literature about a subject that is lacking, such as military student turnover and its effect on academic achievement.

Chapter 3 highlighted the selected methodology for this research study and its appropriateness. The next chapter includes five research questions, five hypotheses, the population, sampling process, data collection method, instrumentation, validity, and data analyses processes.

Chapter 3

Method

The purpose of this correlational study was to examine the degree of the relationship, if any, of military middle school students' standardized test scores and grade level turnover to determine if grade level turnover had an impact on the outcome of the students' annual standardized test scores. The independent variable was DoDEA military middle school classroom turnover, and the dependent variables were the students' average percentile ranking TerraNova3. Student turnover may affect military student achievement on standardized test scores and the significance may vary by grade level. This research aimed to provide understanding for educators who are unaware of the effect of mobility on students' academic achievement. Additionally, this research served to inform educators about the impact of student mobility and classroom turnover and how it may affect overall school performance measures.

Chapter 2 of this correlational study highlighted who military students are, what the population faces during times of mobility, and other factors that affect them, such as parent deployment. The literature review established that there is a gap in the research that pertains to military students and how classroom turnover may affect them academically. However, research that has been conducted about the effect mobility has on student academic achievement has indicated mixed results (Selya et al., 2016). The available research does not lack information about student mobility, but a majority of the research pertains to civilian students; thus, research is lacking for the military student population in particular.

Chapter 3 of this correlational study provides justification for the selected research methodology and design appropriateness. The chapter includes a detailed description of the targeted population and the sample used for this study. Presented in this chapter are five research questions and five hypotheses. Explanations of the data collection processes, what the data consisted of, and the methods of data analyses are discussed in this chapter, to conclude: internal validity, external validity, and reliability.

Research Method and Design Appropriateness

Research method. The purpose of this correlational study was to examine the degree of the relationship, if any, of military middle school students' standardized test scores and grade level turnover to determine if grade level turnover had an impact on the outcome of the students' annual standardized test scores. The independent variable was DoDEA military middle school classroom turnover, and the dependent variables were the students' average percentile ranking TerraNova3. Student turnover may affect military student achievement on standardized test scores and the significance may vary by grade level. This research aimed to provide understanding for educators who are unaware of the effect of mobility on students' academic achievement. Additionally, this research served to inform educators about the impact of student mobility and classroom turnover and how it may affect overall school performance measures.

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Research design. The most appropriate design for the nature of this research was a bivariate correlational design. According to Neuman (2006), bivariate statistics allow the researcher to observe the relationship between the two variables and describe what type of relationship exists between the variables. In this case, the independent variable was DoDEA middle school classroom turnover, and the dependent variables were the students' test scores on the TerraNova3. A characteristic of a bivariate design includes having two variables (Neuman, 2006; Salkind, 2011). The data collected about these variables indicate "specific measurements of the characteristics in question" (Leedy & Ormrod, 2010, p. 184).

The most commonly used statistic used for correlational designs is Pearson product-moment correlation (Leedy & Ormrod, 2010). In this study, the parametric statistic Pearson product-moment correlation coefficient, *r,* was used to determine the strength of the relationship between the two variables (Pallant, 2010). For this research,

the confidence interval was set at 95%, which indicates that the researcher was "95% confident that the interval includes the population parameter" (Christensen, Johnson, & Turner, 2011). The alpha value, referred to as the significance level, was set at 0.05 (Christensen, Johnson, & Turner, 2011). This alpha value is the standard value and represents that the researcher "will incorrectly reject the null hypothesis only 5% of the time or less" (Christensen, Johnson, & Turner, 2011, p. 432). Christensen, Johnson, and Turner (2011) stated that when testing the hypotheses, "*if the p value is less than (or equal to) 0.05, then reject the null hypothesis and tentatively accept the alternative hypothesis*" (p. 433). When the null hypothesis is rejected, this indicates that the relationship between variables is statistically significant (Christensen, Johnson, & Turner, 2011).

Leedy and Ormrod (2010) stated that correlation coefficient, the statistic found when analyzing the variable groups, will indicate the direction of the relationship and the strength of the relationship. The direction of the relationship can be either positive or negative, and the strength will signify the correlation coefficient's size (Leedy & Ormrod, 2010). When the relationship is negative, one variable decreases as the other increases (Pallant, 2010). Positive relationships indicate that the variables move in the same direction (Pallant, 2010).

Correlational research allows the researcher to observe and measure the relationship between the identified variables without the researcher interfering (Ingham-Broomfield, 2015). Correlational designs are cost and time efficient and can offer "important preliminary research for further studies that can be done to determine cause and effect relationships between variables" (Lappe, 2000, p. 81). Correlational research

does have some disadvantages. The major disadvantage is that researchers cannot determine the causal relationship between the variables (Lappe, 2000; Leedy & Ormrod, 2010). Researchers using correlational designs may end up making spurious explanations because of the conclusions made about the data (Lappe, 2000; Leedy & Ormrod, 2010). The reason this error may occur is that the researcher believes a relationship exists between the predictor and dependent variables when in fact there could be other isolated variables that caused the relationship to occur (Gavin, 2008; Lappe, 2000).

For this correlational study, the independent variable was DoDEA middle school classroom turnover, and the dependent variables were the students' test scores on the TerraNova3. This study had five questions that inquired whether a relationship between the two variables existed. Connelly (2015) stated that "a research question outlines the phenomena under study, who were studied, and what the researcher wanted to know about them" (p. 435).

Research Questions and Hypotheses

Research Question 1: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in reading?

$H1_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 reading scores in grades six through eight.

$H1_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 reading scores in grades six through eight.

Research Question 2: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in language arts?

$H2_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 language arts scores in grades six through eight.

$H2_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 language arts scores in grades six through eight.

Research Question 3: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in math?

$H3_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 math scores in grades six through eight.

$H3_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 math scores in grades six through eight.

Research Question 4: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in science?

$H4_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 science scores in grades six through eight.

$H4_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 science scores in grades six through eight.

Research Question 5: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in social studies?

$H5_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 social studies scores in grades six through eight.

$H5_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 social studies scores in grades six through eight.

Population and Sample

In research studies entire populations are not used because they are too large to be a part of the study; therefore, researchers select a smaller more representative sample of the targeted population (Watala, 2007). For this study, the sample consisted of archival enrollment data on DoDEA students from grades sixth through eighth from the 2012-2013, 2013-2014, and 2014-2015 school years. The population for this study is comprised of 18 DoDEA sixth through eighth-grade middle schools. DoDEA has three branches: Pacific, Americas, and Europe. From the Europe region, five schools were selected. From the Pacific region, seven schools were selected. From the Americas region, six schools were selected. The schools selected for this study are located on military installations and are operated by DoDEA. Although the schools are located in different geographic locations, the schools have the same academic curriculum and students in all schools take the TerraNova3. Some schools shifted their grade compositions during the 2012-2013, 2013-2014, and 2014-2015 school years and were not used because they included student enrollment numbers and TerraNova3 percentile rankings for grades other than six through eight.

Data were reviewed for each DoDEA region to determine which would be appropriate to use for this study. As of April 2015, the last month used in the enrollment data for this study, there were four school districts within the Europe region. The Bavaria district had 16 elementary, middle, and high schools. From that list, only schools with a sixth through eighth composition were selected. Thus, only one was selected from the Bavaria district. The Isles district had 16 elementary, middle, and high schools. From that list, only schools with a sixth through eighth composition were selected. One middle school was selected from this list, although there were two that met the grade level composition requirement. The reason one was selected was because the district established this middle school during the selected school years and thus was excluded, as the test scores and enrollment data would not have been consistent. The Kaiserslautern district had 21 elementary, middle, and high schools. From that list, there were three schools with a sixth through eighth composition. However, only two were selected from the Kaiserslautern district because the third school had another grade level added to its TerraNova3 test scores. The Mediterranean district had 18 elementary, middle, and high schools. From that list, only schools with a sixth through eighth composition were selected. Thus, only one was selected from the Mediterranean district.

As of April 2015, the last month used in the enrollment data for this study, there were four school districts within the Pacific region. The Guam district had four elementary, middle, and high schools. From that list, only schools with a sixth through eighth composition were selected. Thus, only one was selected from the Guam district. The Japan district had 20 elementary, middle, and high schools. From that list, only schools with a sixth through eighth composition were selected. One had sixth through

eighth compositions and was selected for the study. There were two schools that met this grade level composition, however the other school included other grade level TerraNova3 test scores in the data and were excluded. The Korea district had 12 elementary, middle, and high schools. From that list, only schools with a sixth through eighth composition were selected. Thus, two were selected from the Korea district. The Okinawa district had 13 elementary, middle, and high schools. From that list, only schools with a sixth through eighth composition were selected. Three were selected from the Okinawa district.

As of April 2015, the last month used in the enrollment data for this study, there were six school districts within the Americas region. The Georgia/Alabama district had 10 elementary, middle, and high schools. From that list, only schools with a sixth through eighth composition were selected. Thus, only one was selected from the Georgia/Alabama district. The Kentucky district has 13 elementary, middle, and high schools. From that list, only schools with a sixth through eighth composition were selected. Three had sixth through eighth compositions, but only two were selected for the study because one school had added a sixth grade during this school year. The New York/Virginia/Puerto Rico district has 9 elementary, middle, and high schools. From that list, no schools met the criteria of having solely a sixth through eight composition and there were no selections made. The Fort Bragg district had 9 elementary, middle, and high schools. From that list, only schools with a sixth through eighth composition were selected. Two were selected from this district. The Camp Lejeune district had 7 elementary, middle, and high schools. From that list, one school met the criteria of having solely a sixth through eight composition and was selected.

This research study employed purposive sampling. Neuman (2006) stated that purposive sampling is a nonrandom method of obtaining a specific sample. Purposive sampling is used when the researcher has a purpose and selects a particular group (Christensen, Johnson, & Turner, 2011; Leedy & Ormrod, 2010). Tongco (2007) stated that purposive sampling can be implemented in both qualitative and quantitative research. In this case, the selected schools based on their grade compositions. The purpose for targeting this grade level is because students at this level are adolescents, and if they are highly mobile, may experience added challenges to their existing social capital and already changing emotions and anatomy.

DoDEA provides publicly accessible enrollment data about its schools. The first means of gathering the group is to scan the DoDEA website for all the schools that have at least grades sixth through eight compositions. DoDEA had 178 schools in April 2015. The number population of DoDEA schools that had at least grades six through eight in April of 2015 was 54. Of those 54 schools, 18 schools only maintained a sixth through eight grade composition throughout the 2012-2013, 2013-2014, and 2014-2015 school years. Schools that had different grade compositions were omitted from the study, as the primary focus of the study is middle school, thus there were 18 schools selected for the sample, n= 18.

Samples this small can raise the risk of Type II errors. According to Smith (2012), these errors can be prevented by "increasing the numbers of individuals included in our study" (p. 200). However, with the chosen parameters of grade level composition, adding more schools to the sample would not be feasible. Therefore, a power analysis was not conducted for this research, as this sample is representative of all the schools DoDEA had

in the selected time frame that maintained grade compositions of grades six through eight. The possibility of those errors increases when the power is weakened.

Confidentiality

Ethical considerations are at the forefront of research. For this correlational study, all data, attendance and TerraNova3 test percentile rankings were derived from DoDEA's public information website. However, schools names were kept anonymous and only classified by the an abbreviation for school name, district, and region. Because students attending these schools are minors, it was with the utmost intention to protect the students attending these schools by not disclosing names or locations of the schools. DoDEA does not provide any identifying information, such as students' names, genders, or ages on the website. The information provided only specified grade levels and schools. As a standard practice, all the printed data are stored and locked in a file cabinet, and will be destroyed by the researcher after three years.

Data Collection

The archival data for this research project were accessed directly from DoDEA's website, which is available to the public. This site provided up-to-date weekly enrollment numbers from every school in DoDEA. For this study, school enrollment numbers were gathered from the 2012-2013, 2013-2014, and 2014-2015 school years, beginning with the first week of August until the end of April because tests would have been administered by that point. The enrollment data were taken bimonthly for each school by grade level to assess how much the enrollment numbers vary per school month. Once the enrollment was analyzed for each grade level and each school, the student turnover rate per year by grade level was calculated. The numbers were entered into a Microsoft Excel

spreadsheet to calculate the turnover rate for each school, and then transferred to IBM SPSS version 24 for further statistical analyses. The purpose of investigating each grade level and each school over the course of three years provided an indication of student mobility within the selected schools.

The equation $X = | a – b / a |$ was used to determine the schools' turnover rates, where x equaled the absolute value of the monthly grade level turnover, *a* was the enrollment for week one of each month, and *b* was the enrollment for the last week of the month. Each grade level had a turnover rate rounded to three decimal places.

The turnover rate consists of the enrollment number at the start of the month and the end of the month. This enrollment numbers were formulated through the equation to calculate a decimal rate of turnover during that month. At the end each month for each school and for each grade level, the decimal rates are averaged together to provide one school turnover rate through the use of Microsoft Excel's averaging formula. Each school year, there were three average turnover rates collected (one for each grade level). The schools' net gain or loss of students was assessed only based on enrollment numbers for the first and last weeks of August through April. The student losses or gains do not affect the outcome of the TerraNova reported scores because the school averages the percentile ranking scores for each subject area, and does not highlight individual student performance.

The independent variable for this study, which was classroom turnover, was determined by average monthly enrollment per school year. However, the annual turnover rate from each grade level per school year was used in the analysis to determine

if there is a relationship between students' scores in reading, language arts, math, science, and social studies.

The next source of data came from the DoDEA website: System Wide Results. This website provided archival data of grade level results on the TerraNova3. The DoDEA website disclosed TerraNova3 test scores from 2013 to 2015. The focus of this study was on school years 2013, 2014, and 2015. On the DoDEA: System Wide Results webpage, there were links for each school year. DoDEA provided scores for its school system as a whole and also provides scores by region. This study included schools from three global regions, the Europe, the Pacific, and Americas. The benefit of this website was that it provided TerraNova3 outcomes for each school and also information about the number of students who took the test, but not the individual students' scores. Data were gathered from the site for the 18 specific schools for students' percentiles rankings in reading, language arts, math, science, and social studies.

Each grade level had a correlational analysis done collectively per school year. For instance, for school year 2012-2013, the sixth grade TerraNova3 percentile rankings from Europe, Pacific, and the Americas were entered in SPSS, along with their annual turnover rates. Therefore, a total of nine correlations were done, one per grade level per school year.

Instrumentation

There were two identified variables for this study. The independent variable was classroom turnover and the dependent variables were students' scores on the standardized assessments. The data on independent classroom turnover were collected through accessing DoDEA's public website. The process began by calculating student enrollment

for school years 2012-2013, 2013-2014, and 2014-2015. The number of students enrolled in grades sixth through eighth-grade compositions were tallied biweekly from the first week of August until the last week of April. The reason for beginning in August was because school start days varied and DoDEA schools begin in August. The reason for measuring until the last week of April was because the TerraNova3 test would have been administered by that date and no later. The turnover equation used for each grade level and each school year was $X = | a – b / a |$ and determined the absolute value of the schools' turnover rates per grade level, where x equaled the absolute value of the average monthly grade level turnover, *a* was the enrollment for week one of each month, and *b* was the enrollment for the last week of the month. The numbers were entered into a Microsoft Excel spreadsheet to calculate the turnover rate by grade for the school, and then transferred to IBM SPSS version 24 to later conduct the statistical analysis. After the turnover rate was assessed, the rate for each school year were summed together to provide an overall turnover rate.

According to CTB (n.d.), percentile ranks range from 1 to 99. The percentile ranks do not include "equal interval data" (CTB, n.d.). The TerraNova3 rankings are based on a normal curve-equivalent (NCE) that parallels with "national percentile scale at 1, 50, and 99" (CTB, n.d.). TerraNova3 is a standardized assessment that DoDEA administers to its students annually (Department of Defense, 2009). Students in grades 3 through 11 take the test and are measured in the areas of reading, language, math, science, and social studies (Department of Defense, 2009). The TerraNova3 assessment gives schools "comparable data to a national sample of students" (Department of Defense, 2009, p. 27). The test results are reported in percentile rankings (Department of

Defense Education Activities, n.d.). DoDEA (n.d.) stated, "a percentile is a measure of comparison that ranks one score against the scores of all other test takers" and that the national average is set at the 50th percentile (2012 TerraNova3 scores - All students, all subjects). The individual schools do not score the tests, but instead, the tests are sent to the test developers for processing.

DoDEA's public website provides the percentile ranking of its students' scores on the TerraNova3 assessment. The scores are general and do not provide individual student scores, rather only percentile rankings by grade in each of the tested areas. Thus, each school's student scores were averaged by DoDEA in all five subject areas and listed on the website by grade level. These averaged percentile rankings of student scores per grade level and tested subject area are what comprised the average percentile ranking used in the data for this research. These scores were gathered and assessed for the 2012-2013, 2013-2014, and 2014-2015 school years for each grade level. After the data were compiled, a bivariate correlation analyzed the data to determine what the relationship was between the variables, if any.

Internal and External Validity

The importance of validity is to ensure that the researcher measured what was intended to be measured (Roberts, Priest, & Traynor, 2006). The several types of validity, but the most expansive are internal and external (Roberts, Priest, & Traynor, 2006).

Internal validity. Internal validity is the degree that the research design and the collected data allow the researcher to make accurate conclusions about the relationships from the data (Leedy & Ormrod, 2011). Zohrabi (2013) stated that one factor of internal validity is to ensure that researcher maintains objectivity while conducting the tests and

even reporting the results. Possible threats to internal validity include participant personal growth, the instrument used, or even history (Drost, 2011). The researcher was not present on the test dates and is not involved with the administration or collection of the tests, yet is only utilizing to use the archived data that has been scored by the testing organization.

Measurement validity involves ensuring that the instrument sufficiently measures what the researcher is aiming to measure (Adcock & Collier, 2001). Errors may occur when measuring, which are known as biases or random errors (Adcock & Collier, 2001). Random errors can occur when the measurement tool provides inconsistent results, which affects the reliability of the measurement tool (Adcock & Collier, 2001). According to Adcock and Collier (2001), some researchers believe that for research to be valid, there needs to be no bias or errors. However, some researchers agree that with validity there may be errors, and in reliability, there may be random errors (Adcock & Collier, 2001).

External validity. External validity is the way that the research can be applied beyond the scope of the research (Leedy & Ormrod, 2011). A way for external validity to be unfavorably affected is if the researcher does not use a sample that is consistent or representative, thus is not generalized to a larger population (Black, 1999). The sample used in the study must not be influenced by outside events or the course of time (Black, 1999). Additionally, the researcher needs to ensure that the identified variables, in this case military middle school classroom turnover and student test outcome, are demonstrative samples to allow generalizations to be made (Black, 1999).

As for this study, the research can be applied to any military school, in any location that is investigating student mobility and student performance. Other researchers

can use different school systems that are in different geographic location to correlate student mobility rates with students' overall academic performance. Additionally, the study could be applied to any grade level that used standardized tests not only sixth through eighth-grade.

Data Analysis

According to Gavin (2008), analyzing correlational data can demonstrate if, and how, strongly variables are related through the use of statistical methods. For this study, a Pearson's bivariate correlation was done to assess the degree of the relationship, if any, between student turnover and achievement on standardized test scores. The tests were completed by grade level, and repeated by year, to accurately assess the relationships for the selected school years. Therefore, there were two enrollment data points collected per month from August through April for each grade level and each school year, making a total of 54 enrollment data points. These were analyzed per school, per grade level, and by year to show a representation of the relationship, if it exists, between student turnover and standardized assessment achievement scores. Once these analyses were completed, the outcomes were compared by grade level based on the outcome of their individual turnover rate and student achievement percentile rankings.

Researchers conduct correlational analyses to measure how strong relationships are between variables (Prion & Haerling, 2014). However, correlational analyses do not provide causality between variables (Prion & Haerling, 2014). The use of correlational analysis allows the researcher make predictions about the relationship between the variables (Prion & Haerling, 2014). For this research study, a bivariate correlation analysis was appropriate to determine the nature of the relationship, if any, between the

two identified variables. Pearson's product- moment correlation test was the test statistic used. Pearson's product-moment correlation is the most frequently used statistical test for correlation (Puth, Neuhäuser, & Ruxton, 2014). With the Pearson's test, the intent is to find the relationships between variables signified as the correlational coefficient *r* (Gavin, 2008). The correlation coefficient ranges from 1 to -1, in which 0 indicates no relationship or a random relationship between variables, 1 indicates a linear and perfect relationship between variables, and -1 indicates a negative linear relationship (Emerson, 2015; Gavin, 2008; Prion & Haerling, 2014). Some assumptions when using *r* for determining correlational relationships are that the all the members of the sample "are statistically independent of each other" and that there is a normal distribution of the population of where the sample was derived (Puth, Neuhäuser, & Ruxton, 2014). The alpha level was set to 0.05 and the confidence interval set for this research is 95%.

Summary

Chapter 3 presents the research method and clarity of the design and its appropriateness for the nature of the study. The research questions and hypotheses are presented in this chapter, along with the population sample and how the sample represents three different geographical locations of the DoDEA system to give a wide view about the students' outcome. Also discussed in this chapter is confidentiality and geographic locations of each school. This chapter included information about the data collection methods, the instruments to be used, internal and external validity, reliability, and data analyses process.

Chapter 4 presents the data, the findings, and results of this study. The chapter begins with an overview of the purpose of the study and closes with the research questions, hypotheses, and summary of the analysis processes used.

Chapter 4

Presentation and Analysis of the Data

3Presented in this chapter are the results of the analyses of data which are presented in tables and then described. The purpose of this study was to determine the degree of the relationship, if any, of military middle school students' test scores across the DoDEA system to determine if student turnover had an impact on the outcome of the students' standardized test scores. For this correlational study, the independent variable was DoDEA middle school classroom turnover, and the dependent variables were the average percentile rankings as a grade level on the TerraNova3. This chapter includes detailed information about the population and sample, data analyses process, the results conducted of the Pearson product-moment correlational analyses, error corrections, and concludes with a summary.

Population, Sample, and Data Collection

The data used in this research was archival and was retrieved from the publicly available DoDEA website. DoDEA schools consist of military student populations and this study used TerraNova3 test data from 18 DoDEA schools and student enrollment numbers from the selected schools during the targeted school years. The sample for this study came from 18 DoDEA middle schools, $n = 18$. The schools were located across DoDEA's three regions: Europe, Pacific, and the Americas. From the Europe region, five schools were selected. Each school represented smaller districts in Europe. From the Pacific region, seven schools were selected, with each school from various districts in this region. From the Americas region, six schools were selected. Each school came from various districts within this region.

The focus of this study were schools that had grade compositions sixth through eighth only, and schools with compositions other than sixth through eight were not considered. The reason for this specific grade level selection was to focus on adolescent aged students who are at a critical developmental period both physiologically and emotionally.

The sample for this study is relatively small. Because of nature of this research focused primarily on schools with compositions of grades sixth through eight out of the entire population of DoDEA schools, a power analysis was not conducted. When using Pearson's product-moment correlation, there are assumptions that must be considered prior to conducting the analysis. In this case, the assumption that the data distribution is normal was not applicable, as the sample is small to make such a determination. Additionally, scatterplots could not be produced for this sample as the plots would not be indicative of any normal distribution because of the sample size. Thus, the linearity of the relationships between variables could not be assumed.

The student enrollment data was collected from DoDEA's publicly available website for school years 2012-2013, 2013-2014, and 2014-2015 provided insight on turnover and how it may or may not have correlated with the students' performance on the annual TerraNova3 assessment. TerraNova3 average percentile rankings were collected from DoDEA's publicly available website per school year, per grade level, and per subject area. Data were inputted into corresponding SPSS charts and later analyzed with the turnover rate.

Data Analysis Procedures

For the nature of this type of research, bivariate correlational analyses were the most appropriate selection to analyze the data. The archival data gathered were numerical, and therefore quantitative. Before the analyses could be conducted, the archival attendance data were entered on nine Excel spreadsheets. The sheets were organized by region per school year, and then data were subcategorized by school and grade level (See Appendix A). To keep the data anonymous, each school was coded with an abbreviation within the Excel spreadsheet. The same abbreviations were entered in SPSS as well.

At the top of the Excel sheet, the student enrollment numbers were manually entered for the first and last date per month from August to April for the school years 2012-2013, 2013-2014, and 2014-2015. After the enrollment dates were entered for each school year, the turnover rate was calculated by hand and entered on the spreadsheet. The equation used for this procedure was $x = | a - b / a |$, whereas x equaled the absolute value of the monthly grade level turnover, a was the enrollment for week one of each month, and b was the enrollment for the last week of the month. Each grade level had a turnover rate rounded to three decimal places. To ensure there were no errors, each turnover rate was calculated twice to check for errors that can commonly occur when calculations are conducted by hand. After the turnover rate was found for each month, the grade level's average turnover rate per year was assessed through Excel's average tool. The average turnover rate per grade level per school year was entered on individual SPSS data sheets. These data were entered on nine SPSS data sheets, according to grade level and school year.

Next, each individual grade level's test score percentile rankings were gathered from DoDEA's publicly available website. The data were gathered per school, per grade level by TerraNova3 subject category: reading, language arts, math, science, and social studies. These percentile rankings were entered into the SPSS data sheets and were separated by school year and by grade level. The names of the schools were coded with abbreviations to keep the data anonymous. Before the bivariate correlations were completed, descriptive statistics were done to provide the means, standard deviations, and for grade level turnover and the subject areas of reading, language arts, math, science, and social studies. Once the data were entered on the sheets, nine bivariate correlational analysis were completed for each school year and per grade level. Pearson product-moment correlation was the selected statistic for the tests.

There were nine bivariate correlational analyses conducted on SPSS for this research. Conducting several tests increases the chances of Type I and Type II errors, particularly because the sample size is small. These errors could make the results appear significant, when in fact they are not. These types of errors cause the researcher to falsely reject the null hypotheses when they are true. Because these errors are serious and can taint the integrity of the results, error corrections had to be made. The Bonferroni error correction was applied to each test, and a familywise error correction was done to offset the inflated alpha value and to project the probability of committing a Type I error.

Research Questions and Hypotheses

The research questions for this study served as the foundation for the inquiry. There were five research questions posed: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the

TerraNova3 standardized assessment in reading? Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in language arts? Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in math? Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in science? Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in social studies?

The research questions were tested, along with the hypotheses:

$H1_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 reading scores in grades six through eight.

$H1_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 reading scores in grades six through eight.

$H2_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 language arts scores in grades six through eight.

$H2_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 language arts scores in grades six through eight.

$H3_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 math scores in grades six through eight.

$H3_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 math scores in grades six through eight.

$H4_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 science scores in grades six through eight.

$H4_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 science scores in grades six through eight.

$H5_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 social studies scores in grades six through eight.

$H5_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 social studies scores in grades six through eight.

Correlations between classroom turnover and the five subject areas of reading, language arts, math, science, and social studies were conducted and tested the hypotheses and the null hypotheses. Pearson's product-moment correlation was used to test the significance between these interval data. Two-tailed tests were chosen in SPSS version 24. For the relationships to be deemed significant, the significance value will be less than 0.05. The significance level generated in every correlation determines whether or not the null will be accepted or rejected.

Findings

The purpose of this correlational study was to examine the degree of the relationship, if any, of military middle school students' standardized test scores and grade level turnover to determine if grade level turnover had an impact on the outcome of the students' annual standardized test scores. Data were collected on 18 DoDEA middle schools from three regions. The findings included the descriptive statistics of mean, standard deviation, and nine bivariate correlations per grade level and per school year using Pearson's *r* statistic.

Pearson's correlation coefficient, *r*, can range from -1 to +1. A *r* with a negative value indicates a negative correlation, however the closer the value is to -1 indicates a very strong negative relationship. A *r* with a positive value indicates a positive correlation, however the closer the value is to +1 indicates a strong positive relationship.

When the analyses are completed, the researcher must determine the effect of the *r* value. There are standard values that can determine the size of the *r*. For example, a *r* with a value between 0.0 to 0.02 can represent either no existing relationship or an extremely weak relationship. Pearson's *r* values between 0.2 and 0.4 indicate there is a weak relationship between the variables. Coefficient *r* with values between 0.4 and 0.6 can indicate that there is a medium relationship between the variables. Values of *r* between 0.6 and 0.8 indicate a robust relationship between variables. Lastly, values between 0.8 and 1.0 indicate that the variables have an extremely robust relationship. These numbers provide a sense of the size of the relationship in a subjective manner. Researchers can use more stringent methods in better determining the size of the relationship.

2012-2013 School Year Sixth Grade

Beginning with the sixth grade 2012-2013 school year, enrollment data were collected from August until April and an average turnover rate was established for each school. The means depict the average percentile scores of students in each subject area. The mean of the turnover is the average percentage of turnover between all the schools. Listed in table 1 are the maximum and minimum scores and turnover rate, which represents the highest and lowest of all the data for that category. The standard deviation

gives numerical range to how much variation exists between the scores and the turnover rate.

Table 1

Descriptive statistics for sixth grades in the DoDEA's three regions for the 2012-2013 school

(n = 18)

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Average Turnover Rate for 2012-2013 School Year	18	.008	.033	.01700	.006481
TerraNova Percentile Rankings in Reading 2013 Test	18	57	78	68.28	6.201
TerraNova Percentile Rankings in Language Arts 2013 Test	18	56	74	66.11	5.593
TerraNova Percentile Rankings in Math 2013 Test	18	47	74	60.17	8.291
TerraNova Percentile Rankings in Science 2013 Test	18	53	72	66.11	5.593
TerraNova Percentile Rankings in Social Studies 2013 Test	18	55	76	67.39	4.889
Valid N (listwise)	18				

The comparison of mean percentile rankings show that math had the lowest average percentile ranking of 60.17, and reading had the highest mean score of 68.28. The subject area that showed the highest standard deviation between scores is math, 8.291, which indicates varying outcomes between the students' scores in these schools. Science had the lowest standard deviation, 4.889, which demonstrates that the students' outcome in this area had the least change compared to the students' performance in the other subject areas.

A Pearson's product-moment correlational coefficient was calculated for the variables (see Table 2). For the selected school year, the relationship between average turnover rates/average percentile rankings from the TerraNova3 percentile rankings in reading, language arts, math, science, and social studies was investigated using Pearson product-moment correlation coefficient (See Table 2). The correlation between average

turnover rate for sixth grade and 2013 TerraNova3 percentile rankings in reading showed that there was a negative relationship between all subject area variables and student turnover. There was a negative correlation between the reading and turnover, $r(18) = -0.01$, There was a negative correlation between language arts and turnover, $r(18) = -0.16$. There was a negative correlation between math and turnover, $r(18) = -0.10$. There was a negative correlation between science and turnover, $r(18) = -0.13$. There was a negative correlation between social studies and turnover, $r(18) = -0.01$. All the correlations for this six grade 2012-2013 school year were negative, which indicates an extremely weak relationship between variables.

The correlations in Table 2 indicate that none of the variables for this school year have a significant relationship. The two-tailed tests of significance indicated that relationships do exist between variables; however, the relationships that exist are weak and are not significant at the 0.05 level. Therefore, the researcher failed to reject the null hypotheses for the 2012-2013 sixth grade school year.

The power was insufficient due to the small sample size for this study. Therefore, a Bonferroni correction was applied. The corrections for this test indicate that the null hypotheses would be rejected if they were smaller than 0.006. In this test, all significance values were larger than the corrected values which showed that all tests still would reject the hypotheses. This indicates that there is a possibility that relationships may exist between variables, however, the relationships are very weak.

Table 2

Correlations between average sixth grade turnover rates for school years 2012-2013, 2013-2014, and 2015 and TerraNova3 percentile rankings in reading, language arts, math, science, and social studies.

Correlations 6th Grade		TerraNova Percentile Rankings in Reading	TerraNova Percentile Rankings in Language Arts	TerraNova Percentile Rankings in Math	TerraNova Percentile Rankings in Science	TerraNova Percentile Rankings in Social Studies
Average Turnover Rate for 2012-2013 School Year	Pearson Correlation	-0.005	-0.161	-0.104	-0.125	-0.130
Average Turnover Rate for 2013-2014 School Year	Pearson Correlation	-0.113	-0.043	-0.009	-0.120	-0.128
Average Turnover Rate for 2014-2015 School Year	Pearson Correlation	0.550*	0.335	0.406	0.205	0.482*

*. Correlation is significant at the 0.05 level (2-tailed).
(n = 18) for all years.

2013-2014 School Year Sixth Grade

In the sixth grade 2013-2014 school year, Table 3 shows the mean and standard deviation for both the independent and dependent variables (per subject area). The means depict the average percentile scores of students in each subject area. The mean of the turnover is the average percentage of turnover between all the schools. Listed in Table 3 are the maximum and minimum scores and turnover rate, which represents the highest and lowest of all the data for that category. The standard deviation gives numerical range to how much variation exists between the scores and the turnover rate.

Table 3

Descriptive statistics for sixth grades in the DoDEA's three regions for the 2013-2014 school

(n = 18)

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Average Turnover Rate for 2013-2014 School Year	18	.007	.028	.01807	.006505
TerraNova Percentile Rankings in Reading 2014 Test	18	57	80	70.44	6.519

TerraNova Percentile Rankings in Language Arts 2014 Test	18	52	81	68.17	7.679
TerraNova Percentile Rankings in Math 2014 Test	18	47	77	62.56	7.898
TerraNova Percentile Rankings in Science 2014 Test	18	53	83	68.56	6.913
TerraNova Percentile Rankings in Social Studies 2014 Test	18	52	82	69.28	7.706
Valid N (listwise)	18				

The comparison of mean percentile rankings show that math had the lowest average percentile ranking of 62.56, and reading had the highest mean score of 70.44. Math had the highest standard deviation, 7.898. However, language arts and social studies had close standard deviations, ($SD_{language\ arts}$=7.679, $SD_{socialstudies}$=7.706). Reading had the lowest standard deviation, 6.519.

A Pearson's product-moment correlational coefficient was calculated for the variables (see Table 2). All the correlations for this six grade year were negative. For the 2013-2014 school year, the relationship between average turnover rates/average percentile rankings from the TerraNova3 percentile rankings in reading, language arts, math, science, and social studies was investigated using Pearson product-moment correlation coefficient (See Table 2). The correlation between average turnover rate for sixth grade and 2014 TerraNova3 percentile rankings in reading showed that there was a negative relationship between all subject area variables and student turnover. There was a negative correlation between the reading and turnover, $r(18) = -0.11$. There was a negative correlation between language arts and turnover, $r(18) = -0.04$. There was a negative correlation between math and turnover, $r(18) = -0.01$. There was a negative correlation between science and turnover, $r(18) = -0.12$. There was a negative correlation between social studies and turnover, $r(18) = -0.13$.

The correlations in Table 2 indicate that none of the variables for this school year have a significant relationship. The two-tailed tests of significance indicated that relationships do exist between variables; however, the relationships that exist are very weak and are negative. Therefore, the null hypotheses were accepted for the 2013-2014 sixth grade school year.

The power was insufficient due to the small sample size for this study. Therefore, a Bonferroni correction was applied. The corrections for this test indicate that the null hypotheses would be rejected if they were smaller than 0.006. In this test, all significance values were larger than the corrected values which showed that all tests still would reject the hypotheses. This indicates that there is a possibility that relationships may exist between variables, however, the relationships are very weak.

2014-2015 School Year Sixth Grade

In the sixth grade 2014-2015 school year, Table 4 shows the mean and standard deviation for both the independent and dependent variables (per subject area). The means depict the average percentile scores of students in each subject area. The mean of the turnover is the average percentage of turnover between all the schools. Listed in Table 4 are the maximum and minimum scores and turnover rate, which represents the highest and lowest of all the data for that category. The standard deviation gives numerical range to how much variation exists between the scores and the turnover rate.

Table 4

Descriptive statistics for sixth grades in the DoDEA's three regions for the 2014-2015 school

(n = 18)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Average Turnover Rate for 2014-2015 School Year	18	.007	.032	.01847	.007114
TerraNova Percentile Rankings in Reading 2015 Test	18	65	77	71.06	3.842
TerraNova Percentile Rankings in Language Arts 2015 Test	18	61	77	67.83	4.033
TerraNova Percentile Rankings in Math 2015 Test	18	53	80	65.11	7.364
TerraNova Percentile Rankings in Science 2015 Test	18	60	76	69.22	4.037
TerraNova Percentile Rankings in Social Studies 2015 Test	18	56	78	69.11	6.615
Valid N (listwise)	18				

The comparison of mean percentile rankings show that math had the lowest average percentile ranking of 65.11, and reading had the highest mean score of 71.06. The subject area that showed the highest standard deviation between scores is math, 7.367, indicating that there are more changes happening in the outcome of these students' scores in this subject area. The lowest standard deviation was for reading, 3.842.

For the 2014-2015 school year, the relationship between average turnover rates average percentile rankings from the TerraNova3 percentile rankings in reading, language arts, math, science, and social studies was investigated using Pearson product-moment correlation coefficient (See Table 2). All the correlations for this six grade year were positive. The correlation between average turnover rate for sixth grade and 2015 TerraNova3 percentile rankings in reading showed that there was a positive relationship between all subject area variables and student turnover. There was a positive correlation between the reading and turnover, $r(18) = 0.55$, $*p < .018$. There was a weak, positive relationship between language arts and turnover, $r(18) = 0.34$.There was a positive correlation between math and turnover, $r(18) = 0.41$. There was a positive correlation between science and turnover, $r(18) = 0.21$. There was a positive correlation between social studies and turnover, $r(18) = 0.48$, $*p < .043$.

The correlations in Table 2 indicate that some of the variables for the 2014-2015 have a significant relationship, only reading and social studies. The two-tailed tests of significance indicated that several positive relationships do exist between variables;

however, only two were significant at the 0.05 level. The null hypotheses were rejected for reading and social studies for the 2014-2015 sixth grade school year. The null hypotheses failed to be rejected for language arts, math, and science for the 2014-2015 sixth grade school year.

The power was insufficient due to the small sample size for this study. Therefore, a Bonferroni correction was applied. The corrections for this test indicate that the null hypotheses would be rejected if they were smaller than .006. In this test, all significance values were larger than the corrected values which showed that all tests still would reject the hypotheses. The correlations between reading and turnover, and social studies and turnover indicate with this correction show that a moderate relationship does exist.

2012-2013 School Year Seventh Grade

In the seventh grade 2012-2013 school year, Table 5 shows the mean and standard deviation for both the independent and dependent variables (per subject area). The means depict the average percentile scores of students in each subject area. The mean of the turnover is the average percentage of turnover between all the schools. Listed in Table 5 are the maximum and minimum scores and turnover rate, which represents the highest and lowest of all the data for that category. The standard deviation gives numerical range to how much variation exists between the scores and the turnover rate.

Table 5

Descriptive statistics for seventh grades in the DoDEA's three regions for the 2012-2013 school

(n = 18)

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Average Turnover Rate for 2012-2013 School Year	18	.007	.028	.01638	.005337
TerraNova Percentile Rankings in Reading 2013 Test	18	59	75	67.17	5.316
TerraNova Percentile Rankings in Language Arts 2013 Test	18	58	80	68.11	6.324

TerraNova Percentile Rankings in Math 2013 Test	18	52	84	66.17	9.160
TerraNova Percentile Rankings in Science 2013 Test	18	58	76	67.17	6.119
TerraNova Percentile Rankings in Social Studies 2013 Test	18	61	79	69.06	5.352
Valid N (listwise)	18				

The comparison of mean percentile rankings show that math had the lowest mean score, 66.17; however, language arts and science had exact means close to math, 67.17. Social studies had the highest mean score of 69.06. The subject area that showed the highest standard deviation between scores is math, 9.160. Reading and social studies had very close standard deviations, which indicates the scores show similar deviations between the schools.

A Pearson's product-moment correlational coefficient was calculated for the variables (see Table 6). All the correlations for this seventh grade year indicated very weak relationships between the variables. For the 2012-2013 school year, the relationship between average turnover rates average percentile rankings from the TerraNova3 percentile rankings in reading, language arts, math, science, and social studies was investigated using Pearson product-moment correlation coefficient (See Table 6). The correlation between average turnover rate for seventh grade and 2013 TerraNova3 percentile rankings in reading showed that there was a weak positive relationship between reading and student turnover, $r(18) = 0.02$. There was a weak positive relationship between language arts and turnover, $r(18) = 0.06$. There was a weak relationship between math and turnover, $r(18) = 0.07$. There was a negative correlation between science and turnover, $r(18) = -0.11$. There was a weak, positive correlation between social studies and turnover, $r(18) = 0.15$.

The correlations in Table 6 indicate that none of the variables have a significant relationship for the 2012-2013 school year. The two-tailed tests of significance indicated

that relationships do exist between variables; however, the relationships that exist are very weak and at the 0.05 level cannot be deemed significant. Therefore, the null hypotheses were accepted for the 2012-2013 seventh grade school year.

Table 6

Correlations between average seventh grade turnover rates for school years 2012-201, 2013-2014, and 2015 and TerraNova3 percentile rankings in reading, language arts, math, science, and social studies.

Correlations 7th Grade		TerraNova Percentile Rankings in Reading	TerraNova Percentile Rankings in Language Arts	TerraNova Percentile Rankings in Math	TerraNova Percentile Rankings in Science	TerraNova Percentile Rankings in Social Studies
Average Turnover Rate for 2012-2013 School Year	Pearson Correlation	0.021	0.056	0.073	-0.113	0.148
Average Turnover Rate for 2013-2014 School Year	Pearson Correlation	0.443	0.315	0.288	0.277	0.248
Average Turnover Rate for 2014-2015 School Year	Pearson Correlation	0.473*	0.548*	0.294	0.372	0.425

*. Correlation is significant at the 0.05 level (2-tailed).

The power was insufficient due to the small sample size for this study. Therefore, a Bonferroni correction was applied. The corrections for this test indicate that the null hypotheses would be rejected if they were smaller than .006. In this test, all significance values were larger than the corrected values which showed that all tests still would reject the hypotheses. The correlations between reading and turnover, and social studies and turnover indicate with this correction show that a moderate relationship does exist.

2013-2014 School Year Seventh Grade

In the seventh grade 2013-2014 school year, Table 7 shows the mean and standard deviation for both the independent and dependent variables (per subject area). The means depict the average percentile scores of students in each subject area. The mean of the turnover is the average percentage of turnover between all the schools. Listed in Table 7 are the maximum and minimum scores and turnover rate, which represents the highest and lowest of all the data for that category. The standard deviation gives numerical range to how much variation exists between the scores and the turnover rate.

Table 7

Descriptive statistics for seventh grades in the DoDEA's three regions for the 2013-2014 school

(n = 18)

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Average Turnover Rate for 2013-2014 School Year	18	.008	.067	.02116	.013562
TerraNova Percentile Rankings in Reading 2014 Test	18	53	76	66.89	5.999
TerraNova Percentile Rankings in Language Arts 2014 Test	18	58	80	69.33	5.861
TerraNova Percentile Rankings in Math 2014 Test	18	56	80	66.72	7.201
TerraNova Percentile Rankings in Science 2014 Test	18	57	80	68.72	5.768
TerraNova Percentile Rankings in Social Studies 2014 Test	18	62	76	69.83	3.869
Valid N (listwise)	18				

The comparison of mean percentile rankings show that reading had the lowest mean score, 66.89. Social studies had the highest mean score of 69.83. The subject area that showed the highest standard deviation between scores is math, 7.201. Social studies had the lowest standard deviation, 3.869, which indicates that the scores did not deviate as much as the other subject areas. For example, math had the highest standard deviation and the lowest mean, which indicates the most change among student scores, and the lowest mean between the subject areas.

A Pearson's product-moment correlational coefficient was calculated for the variables (see Table 6). All the correlations for this seventh grade year indicated very weak relationships between the variables. For the 2013-2014 school year, the relationship between average turnover rates/average percentile rankings from the TerraNova3 percentile rankings in reading, language arts, math, science, and social studies was investigated using Pearson product-moment correlation coefficient (See Table 6). The correlation between average turnover rate for seventh grade and 2014 TerraNova3 percentile rankings in reading showed that there was a weak positive relationship between reading and student turnover, $r(18) = .443$. There was a weak positive between language arts and turnover, $r(18) = .315$. There was a weak relationship between math and turnover, $r(18) = .288$. There was a weak positive correlation between science and turnover, $r(18) = .227$. There was a weak, positive correlation between social studies and turnover, $r(18) = .248$.

The correlations in Table 6 indicate that none of the variables have a significant relationship for the 2013-2014 school year. The two-tailed tests of significance indicated that relationships do exist between variables; however, the relationships that exist are very weak and at the 0.05 level cannot be deemed significant. Therefore, the null hypotheses were accepted for the 2013-2014 seventh grade school year.

The power was insufficient due to the small sample size for this study. Therefore, a Bonferroni correction was applied. The corrections for this test indicate that the null hypotheses would be rejected if they were smaller than .006. In this test, all significance values were larger than the corrected values which showed that all tests still would reject the hypotheses.

2014-2015 School Year Seventh Grade

In the seventh grade 2014-2015 school year, Table 8 shows the mean and standard deviation for both the independent and dependent variables (per subject area). The means depict the average percentile scores of students in each subject area. The mean of the turnover is the average percentage of turnover between all the schools. Listed in Table 8 are the maximum and minimum scores and turnover rate, which represents the highest and lowest of all the data for that category. The standard deviation gives numerical range to how much variation exists between the scores and the turnover rate.

Table 8

Descriptive statistics for seventh grades in the DoDEA's three regions for the 2014-2015 school

(n = 18)

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Average Turnover Rate for 2014-2015 School Year	18	.010	.029	.02051	.005828
TerraNova Percentile Rankings in Reading 2015 Test	18	56	78	69.56	7.031
TerraNova Percentile Rankings in Language Arts 2015 Test	18	57	82	70.61	6.491
TerraNova Percentile Rankings in Math 2015 Test	18	53	84	69.00	8.303
TerraNova Percentile Rankings in Science 2015 Test	18	55	78	70.28	6.649
TerraNova Percentile Rankings in Social Studies 2015 Test	18	56	80	70.06	6.760
Valid N (listwise)	18				

The comparison of mean percentile rankings show that reading and math had very close mean scores, ($Mean_{reading}$=69.56, $Mean_{math}$=69.00). The other three subject areas had close means, ($Mean_{languagearts}$=70.61, $Mean_{science}$=70.28, $Mean_{socialstudies}$=70.06). The subject area that showed the highest standard deviation between scores is math, 8.303. Language arts, science, and social studies had close standard deviations (See Table 8). The similar standard deviations indicate that the students' scores in each area had about

the same amount of change, thus the average percentile rankings in these areas were similar as well, around 70%.

A Pearson's product-moment correlational coefficient was calculated for the variables (see Table 6). All the correlations for the seventh grade 2014-2015 school year indicated very weak relationships between the variables. The relationship between average turnover rates average percentile rankings from the TerraNova3 percentile rankings in reading, language arts, math, science, and social studies was investigated using Pearson product-moment correlation coefficient (See Table 6). The correlation between average turnover rate for seventh grade and 2015 TerraNova3 percentile rankings in reading showed that there was a significant relationship between reading and student turnover, $r(18) = 0.47$, $*p < .047$. There was a significant relationship between language arts and turnover, $r(18) = 0.55$, $*p < .019$. There was a weak positive relationship between math and turnover, $r(18) = 0.29$. There was a weak positive correlation between science and turnover, $r(18) = 0.37$. There was a weak, positive correlation between social studies and turnover, $r(18) = 0.43$.

The correlations in Table 6 indicate that two of the variables have a significant relationship with turnover, reading and language arts. The two-tailed tests of significance indicated that relationships do exist between variables; however, only two were significant at the 0.05 level. The null hypotheses were rejected for reading and language arts for the 2014-2015 seventh grade school year. The null hypotheses were accepted for math, science, social studies for the 2014-2015 seventh grade school year.

The power was insufficient due to the small sample size for this study. Therefore, a Bonferroni correction was applied. The corrections for this test indicate that the null

hypotheses would be rejected if they were smaller than .006. In this test, all significance values were larger than the corrected values.

2012-2013 School Year Eighth Grade

In the eighth grade 2012-2013 school year, Table 9 shows the mean and standard deviation for both the independent and dependent variables (per subject area). The means depict the average percentile scores of students in each subject area. The mean of the turnover is the average percentage of turnover between all the schools. Listed in Table 9 are the maximum and minimum scores and turnover rate, which represents the highest and lowest of all the data for that category. The standard deviation gives numerical range to how much variation exists between the scores and the turnover rate.

Table 9

Descriptive statistics for eighth grades in the DoDEA's three regions for the 2012-2013 school

(n = 18)

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Average Turnover Rate for 2012-2013 School Year	18	.011	.045	.01873	.007515
TerraNova Percentile Rankings in Reading 2013 Test	18	60	75	67.44	4.643
TerraNova Percentile Rankings in Language Arts 2013 Test	18	64	79	71.06	4.385
TerraNova Percentile Rankings in Math 2013 Test	18	53	81	68.11	7.078
TerraNova Percentile Rankings in Science 2013 Test	18	62	86	71.44	6.706
TerraNova Percentile Rankings in Social Studies 2013 Test	18	58	80	70.22	5.826
Valid N (listwise)	18				

The comparison of mean percentile rankings show that reading had the lowest mean score, 67.44. Social studies had the highest mean score of 69.89. Language arts and science had close mean scores, ($Mean_{languagearts}$=71.06, $Mean_{science}$=71.44). The subject area that showed the highest standard deviation between scores is math, 7.078. Reading

and language arts had similar standard deviations, which indicates the change that happened in these areas is minimal compared to the other subject areas for these students.

A Pearson's product-moment correlational coefficient was calculated for the variables (see Table 10). All the correlations for this eighth grade year indicated very weak relationships between the variables. For the 2012-2013 school year, the relationship between average turnover rates average percentile rankings from the TerraNova3 percentile rankings in reading, language arts, math, science, and social studies was investigated using Pearson product-moment correlation coefficient (See Table 10). The correlation between average turnover rate for eighth grade and 2013 TerraNova3 percentile rankings in reading showed that there was a negative relationship between reading and student turnover, $r(18) = -0.19$. There was a negative between language arts and turnover, $r(18) = -0.22$. There was a negative relationship between math and turnover, $r(18) = -0.09$. There was a weak negative correlation between science and turnover, $r(18) = -0.21$. There was a negative correlation between social studies and turnover, $r(18) = -0.23$.

Table 10

Correlations between average eighth grade turnover rates for school years 2012-201, 2013-2014, and 2015 and TerraNova3 percentile rankings in reading, language arts, math, science, and social studies.

Correlations 8th Grade						
		TerraNova Percentile Rankings in Reading	TerraNova Percentile Rankings in Language Arts	TerraNova Percentile Rankings in Math	TerraNova Percentile Rankings in Science	TerraNova Percentile Rankings in Social Studies
Average Turnover Rate for 2012-2013 School Year	Pearson Correlation	-0.191	-0.219	-0.087	-0.213	-0.226

Average Turnover Rate for 2013-2014 School Year	Pearson Correlation	-0.008	-0.028	0.101	0.004	-0.152
Average Turnover Rate for 2014-2015 School Year	Pearson Correlation	0.535*	0.318	0.472*	0.218	0.467

*. Correlation is significant at the 0.05 level (2-tailed).

The correlations in Table 10 indicate that none of the variables have a significant relationship for the 2012-2013 school year. The two-tailed tests of significance indicated that relationships do exist between variables; however, the relationships that exist are very weak and negative, and at the 0.05 level cannot be deemed significant. Therefore, the null hypotheses were accepted for the 2012-2013 eighth grade school year.

The power was insufficient due to the small sample size for this study. Therefore, a Bonferroni correction was applied. The corrections for this test indicate that the null hypotheses would be rejected if they were smaller than 0.006. In this test, all significance values were larger than the corrected values which showed that all tests still would reject the hypotheses.

2013-2014 School Year Eighth Grade

In the eighth grade 2013-2014 school year, Table 11 shows the mean and standard deviation for both the independent and dependent variables (per subject area). The means depict the average percentile scores of students in each subject area. The mean of the turnover is the average percentage of turnover between all the schools. Listed in Table 11 are the maximum and minimum scores and turnover rate, which represents the highest and lowest of all the data for that category. The standard deviation gives numerical range to how much variation exists between the scores and the turnover rate.

Table 11

Descriptive statistics for seventh grades in the DoDEA's three regions for the 2013-2014 school

(n = 18)

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Average Turnover Rate for 2013-2014 School Year	18	.007	.028	.01739	.005152
TerraNova Percentile Rankings in Reading 2014 Test	18	56	80	67.00	6.287
TerraNova Percentile Rankings in Language Arts 2014 Test	18	56	81	72.06	7.158
TerraNova Percentile Rankings in Math 2014 Test	18	53	84	68.39	9.037
TerraNova Percentile Rankings in Science 2014 Test	18	62	84	71.00	7.146
TerraNova Percentile Rankings in Social Studies 2014 Test	18	53	82	70.61	8.001
Valid N (listwise)	18				

The comparison of mean percentile rankings show that reading had the lowest mean score, 67.00. Language arts had the highest mean score of 72.06. The subject area that showed the highest standard deviation between scores is math, 7.039. Math had the highest standard deviation, 9.037. The subject area with the lowest standard deviation is reading; however, reading had the lowest mean scores among average percentile rankings.

A Pearson's product-moment correlational coefficient was calculated for the variables (see Table 10). All the correlations for this eighth grade year indicated very weak relationships between the variables. For the 2013-2014 school year, the relationship between average turnover rates average percentile rankings from the TerraNova3 percentile rankings in reading, language arts, math, science, and social studies was investigated using Pearson product-moment correlation coefficient (See Table 10). The correlation between average turnover rate for eighth grade and 2014 TerraNova3 percentile rankings in reading showed that there was a weak negative relationship between reading and student turnover, $r(18) = -0.01$. There was a weak negative between

language arts and turnover, $r(18) = -0.03$. There was a weak positive relationship between math and turnover, $r(18) = 0.10$. There was a weak positive correlation between science and turnover, $r(18) = 0.004$. There was a negative correlation between social studies and turnover, $r(18) = -0.15$.

The correlations in Table 10 indicate that none of the variables have a significant relationship for the 2013-2014 school year. The two-tailed tests of significance indicated that relationships do exist between variables; however, the relationships that exist are very weak and at the 0.05 level cannot be deemed significant. Therefore, the null hypotheses were accepted for the 2013-2014 eighth grade school year.

The power was insufficient due to the small sample size for this study. Therefore, a Bonferroni correction was applied. The corrections for this test indicate that the null hypotheses would be rejected if they were smaller than 0.006. In this test, all significance values were larger than the corrected values which showed that all tests still would reject the hypotheses.

2014-2015 School Year Eighth Grade

In the eighth grade 2014-2015 school year, Table 12 shows the mean and standard deviation for both the independent and dependent variables (per subject area). The means depict the average percentile scores of students in each subject area. The mean of the turnover is the average percentage of turnover between all the schools. Listed in Table 12 are the maximum and minimum scores and turnover rate, which represents the highest and lowest of all the data for that category. The standard deviation gives numerical range to how much variation exists between the scores and the turnover rate.

Table 12

Descriptive statistics for eighth grades in the DoDEA's three regions for the 2014-2015 school

(n = 18)

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Average Turnover Rate for 2014-2015 School Year	18	.010	.043	.01985	.007269
TerraNova Percentile Rankings in Reading 2015 Test	18	61	77	69.06	4.696
TerraNova Percentile Rankings in Language Arts 2015 Test	18	62	78	73.50	4.062
TerraNova Percentile Rankings in Math 2015 Test	18	58	81	69.39	6.011
TerraNova Percentile Rankings in Science 2015 Test	18	63	86	74.28	6.229
TerraNova Percentile Rankings in Social Studies 2015 Test	18	58	80	71.83	5.884
Valid N (listwise)	18				

The comparison of mean percentile rankings show that reading had the lowest mean score, 69.06. However, math had a close mean, 69.39. Science had the highest mean score of 74.28. The subject area that showed the highest standard deviation between scores is science, 6.229.

A Pearson's product-moment correlational coefficient was calculated for the variables (see Table 10). All the correlations for this eighth grade year indicated some moderate relationships between the variables. For the 2014-2015 school year, the relationship between average turnover rates average percentile rankings from the TerraNova3 percentile rankings in reading, language arts, math, science, and social studies was investigated using Pearson product-moment correlation coefficient (See Table 10). There was a significant correlation between average turnover rate for eighth grade and 2014 TerraNova3 percentile rankings in reading, $r(18) = 0.54$, $*p<.022$. There was a weak positive between language arts and turnover, $r(18) =0.32$. There was a significant relationship between math and turnover, $r(18) = 0.47$, $*p<.048$. There was a weak positive correlation between science and turnover, $r(18) =0.22$. There was a positive correlation between social studies and turnover, $r(18) =0.467$.

The correlations in Table 10 indicate that reading and math have a significant relationship with turnover during for the eighth grade 2014-2015 school year. The two-tailed tests of significance indicated that relationships do exist between variables; however, the relationships that exist cannot be deemed significant at the 0.05 level. The null was rejected for reading and math and the null hypotheses were accepted for language arts, science, and social studies for the 2014-2015 eighth grade school year.

The power was insufficient due to the small sample size for this study. Therefore, a Bonferroni correction was applied. The corrections for this test indicate that the null hypotheses would be rejected if they were smaller than 0.006. In this test, all significance values were larger than the corrected values which showed that all tests still would reject the hypotheses.

Post-Hoc Tests

Because of the number of analyses conducted, corrections had to be made. The Bonferroni correction is the alpha value divided by the number of tests to produce the corrected significance value to test the hypotheses. Therefore, because there were nine correlations conducted the formula would be 0.05/9 = 0.006. Thus, the null hypotheses would be rejected if they were smaller than the corrected value of 0.006. This value was applied to all nine tests.

Another correction made was the familywise error (FWE) correction. This was done to correct the inflated alpha value. The formula used for this is was FWE = $\leq 1 - (1 - 0.05)^9 = .369$. The result of this test, .369, indicate that there is about a 36.9% probability that there was a Type I error made. This is a high percentage because there were only 9 tests conducted.

Summary

Chapter 4 included a detailed explanation about the processes used when collecting the data. Pearson's product-moment correlation was used to determine to the nature of the relationship, if any, between school turnover rates (independent variable) and percentile rankings from the TerraNova3 standardized achievement tests (dependent variable).

There were some issues addressed during the research. In this research, the data was not tested for normality and was not assumed to be normal given the size of the sample and the fact that scatterplots could not be conducted to verify normality. Next, the number of correlational analyses conducted increased the chances of Type I and II errors. Another area of concern was the weak power due to small sample size. These issues were addressed with the Bonferroni and familywise error corrections.

Before beginning the data analysis, Microsoft Excel spreadsheets helped in the organization of the data and determining the schools' average turnover rates over the course of nine school months. The rate was gathered by using DoDEA's publicly accessible website, in which all the enrollment numbers are frequently updated. The school turnover rate varied per year and by weeks in the month.

The results of the data analysis varied by grade and by school year. Some school years showed significant positive relationships with turnover and percentile rankings on certain subject areas of the TerraNova3; however, most tests showed no significant relationships. Relationships existed between the variables, but the relationships were weak and not significant at the 0.05 level. Thus, this indicates that there are relationships between turnover and student outcome on the standardized assessment; however, the

relationships were mostly not significant. Bonferroni and familywise error corrections were conducted to ensure that the risk for Type I and Type II errors were minimized since there were several tests conducted per school year and per grade level.

Chapter 5 provides a detailed discussion of the findings, provide recommendations to educators and parents, and provide concluding remarks.

Chapter 5

Summary and Recommendations

The purpose of this correlational study was to examine the degree of the relationship, if any, of military middle school students' standardized test scores and grade level turnover to determine if grade level turnover had an impact on the outcome of the students' annual standardized test scores. Chapter 5 presents a detailed overview of the study, results of the tests, implications, and recommendations for educators and parents. The recommendations suggested are rooted from the results of the analyses.

Research Questions

Research Question 1: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in reading?

Research Question 2: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in language arts?

Research Question 3: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in math?

Research Question 4: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in science?

Research Question 5: Is there a statistically significant relationship between military average students' classroom turnover rates and performance on the TerraNova3 standardized assessment in social studies?

Hypotheses

$H1_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 reading scores in grades six through eight.

$H1_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 reading scores in grades six through eight.

$H2_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 language arts scores in grades six through eight.

$H2_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 language arts scores in grades six through eight.

$H3_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 math scores in grades six through eight.

$H3_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 math scores in grades six through eight.

$H4_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 science scores in grades six through eight.

$H4_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 science scores in grades six through eight.

$H5_0$: Military student average classroom turnover is not a statistically significant predictor of TerraNova3 social studies scores in grades six through eight.

$H5_A$: Military student average classroom turnover is a statistically significant predictor of TerraNova3 social studies scores in grades six through eight.

Findings and Interpretations

The analyses of the data, with consideration to the five research questions, provided varying results. The literature supported the notion that mobility does have an effect on students' academic outcome. Therefore, the researcher had expectations that the results would indicate many significant relationships between school turnover and the students' percentile rankings on the TerraNova3. However, the results showed that there were only a few significant relationships between the variables.

Research Question 1. Research question 1 questioned what the relationship was between military middle school students' classroom turnover rates and military middle school students' performance on standardized tests in reading. The null hypothesis that paralleled this research question stated that there would be no significant relationship between student classroom turnover rates and student scores on standardized tests in reading. To test this hypothesis, a bivariate correlational analysis was conducted on SPSS version 24. The answer to the research question is that reading scores were correlated with student turnover within the schools only in the 2014-2015 school years.

There were more insignificant relationships between classroom turnover and students' scores in reading, than significant based on the collected data. Out of the analyses conducted, one test for sixth grade 2014-2015 school year, one for seventh grade 2014-2015 school year, and one test for eighth grade in the 2014-2015 rejected the null hypothesis, which indicated that there were some significant relationships in reading. The 2014-2015 school year appeared to have the most correlations with school turnover and

outcome in reading compared to reading in the 2012-2013 and 2013-2014 school years. A possibility for this outcome could be that school enrollment either steadied or was constantly fluctuating, depending on the school and the area the school was located in.

Between the 2014-2015 school years, many deployments to Afghanistan, Iraq, Korea, Europe, and some Pacific Island locations were taking way (Army Times, 2015). These deployments could have created tensions within the home and students could have possibly been moving with their other guardians to homes closer to other relatives while the service member completed their assignment. Alternatively, students could have been moved during this time period to the service member's new duty location as he or she prepared for the upcoming deployment. The tensions of deployment and uncertainty about the future may be outside factors that were not measured for their impact on school turnover and student outcome in on standardized assessments.

Research Question 2. Research question 2 questioned what the relationship was between military middle school students' classroom turnover rates and military middle school students' performance on standardized tests in language arts. The null hypothesis that paralleled this research question stated that there would be no significant relationship between student classroom turnover rates and student scores on standardized tests in language arts. To test this hypothesis, a bivariate correlational analysis was conducted on SPSS version 24. The answer to the research question is that there were mostly no relationships between language arts and turnover. Only one test for the seventh grade during the 2014-2015 school year indicated that there was a significant relationship between student outcome in language arts and turnover was significant. Because eight of the nine tests did not show any significance, it can be concluded that the one significant

test could be result of error since the tests were repeated several times and the sample size was small.

The turnover rates fluctuate per school, per grade, and per school year. Considering the size of this sample, it may be hard to determine what the actual effect of the turnover has on the student performance in this particular tested subject area.

Research Question 3. Research question 3 questioned what the relationship was between military middle school students' classroom turnover rates and military middle school students' performance on standardized tests in math. The null hypothesis that paralleled this research question stated that there would be no significant relationship between student classroom turnover rates and student scores on standardized tests in math. To test this hypothesis, a bivariate correlational analysis was conducted on SPSS version 24. The answer to the research question is that there were mostly no relationships between math and turnover. Only one test for the eighth grade during the 2014-2015 school year indicated that there was a significant relationship between student outcome in math and turnover was significant. Because eight of the nine tests did not show any significance, it can be concluded that the one significant test could be result of error and is thus not significant. The turnover rates fluctuate per school, per grade, and per school year. Considering the size of this sample, it may be hard to determine what the actual effect of the turnover has on the student performance in this particular tested subject area. The test could have come up significant due to an error since there were several tests conducted.

Research Question 4. Research question 4 questioned what the relationship was between military middle school students' classroom turnover rates and military middle

school students' performance on standardized tests in science. The null hypothesis that paralleled this research question stated that there would be no significant relationship between student classroom turnover rates and student scores on standardized tests in science. To test this hypothesis, a bivariate correlational analysis was conducted on SPSS version 24. The answer to the research question is that there were mostly no relationships between science and turnover. None of the tests indicated that there were significant relationships between student outcome in science and turnover. The turnover rates fluctuate per school, per grade, and per school year. Considering the size of this sample, it may be hard to determine what the actual effect of the turnover has on the student performance in this particular tested subject area.

Research Question 5. Research question 5 questioned what the relationship was between military middle school students' classroom turnover rates and military middle school students' performance on standardized tests in social studies. The null hypothesis that paralleled this research question stated that there would be no significant relationship between student classroom turnover rates and student scores on standardized tests in social studies. To test this hypothesis, a bivariate correlational analysis was conducted on SPSS version 24. The answer to the research question is that there were no relationships between social studies and turnover. None of the tests indicated that there were significant relationships between student outcome in social studies and turnover.

Reliability and Validity

"Reliability and validity are ways of demonstrating and communicating the rigour of the research processes and the trustworthiness of the findings" (Roberts, Priest, & Traynor 2006, p. 41). To ensure the research is fair and unbiased, the researcher should

be forthcoming with the results to maintain the integrity of the research conducted. The reliability of the research depends on the research questions used to guide the study, the data collection processes, analyses of the data, and the deductions gathered from the outcome of the study (Roberts, Priest, & Traynor, 2006). For this research study, the data were gathered carefully and arranged on organized Microsoft Excel spreadsheets that were stratified by year, grade level, and school. Once the data for school turnover rates were assessed, the data were then compiled on IBM SPSS program, along with the yearly percentile rankings. The data were analyzed and reassessed for accuracy. Then the data were presented in chapters 4 to inform the reader of the outcomes of each test. Additionally, the research questions were answered and hypotheses were stated as either rejected or accepted, depending on the individual test. The purpose of the presentation of all data is to ensure all data are presented truthfully, accurately, and meticulously to the reader to ensure no misrepresentations were made by the researcher.

In this research, the intended measurement was turnover rate from each school. Therefore, the publicly available DoDEA website provided the enrollment data for the specific dates, and the numbers were collected solely from that site. Once the enrollment numbers were taken from that site, they were entered on to a spreadsheet to keep the data organized. This study did not measure the standardized assessments, as the test creators have their methods for determining the percentile rankings, in which DoDEA provided on their website. Zohrabi (2013) stated that one factor of internal validity is to ensure that researcher maintains objectivity while conducting the tests and even reporting the results. Thus, internal validity was maintained as the research study lacked any personal influence to change or manipulate the results.

Limitations of the study

There were some limitations of this study. The first limitation is that the study focused only on grades sixth through eight, which caused the sample size to be limited to only 18 schools. Having insufficient power creates issues in the process of the research. A power analysis could not be conducted with this sample size. Additionally, other tests that check for assumptions of correlational analyses could not be done, such as scatter plots to check for normal data distribution or even linearity of the data. Therefore, because of insufficient power size in a study with this size population, the Bonferroni correction and the familywise correction had to be applied. The Bonferroni correction helped minimize the number of Type II errors and the familywise correction gave insight as to how much the Type I error would occur. If this study was replicated in the future, the sample size could be expanded over a larger population to provide a stronger alpha and minimize the risks of Type I and Type II errors.

Recommendations for Educators

Civilian school educators may not be aware of the stressors that affect military students within their schools (Brendel, Maynard, Albright, & Bellomo, 2014). Educators should be aware that military moves do affect students' well-being, and may have an impact on their academic performance. School administrators can address this issue with their faculty to ensure there are policies in place to ease the transitions to and from schools for these students. Garner and Nunnery (2014) suggested having schools create a partnership with a support organization to help provide support to this population of learners. A larger scale study may be able to investigate a possible relationship between student turnover and student outcome on the TerraNova3 in more DoDEA schools across

more grade levels and in more geographical regions. Researchers interested in replicating the study could also add more school years to the scope of the study for a more broader view. Additionally, the study could also include students in elementary or high school to adjust the sample population.

Schools cannot stop military students from moving, and thus must be accommodating in the classroom by helping students get acclimated quickly. Military adolescents may have a difficult time moving particularly because of the constant breaks in their social capital, which can have a negative effect on their emotional well-being (Park, 2011).

According to Brendel, Maynard, Albright, and Bellomo (2013) DoDEA schools are more likely to have intervention programs like MCEC in place, compared to civilian schools, to help students transition into schools and to help these students deal with the stressors of their complex lifestyles. MCEC has the Student 2 Student program which allows volunteer students to help other students who are transitioning in and out of schools (Park, 2011). Schools who are not in contact with MCEC can establish a similar school ambassador system, where current students serve on a team to help new students meet new friends and establish a new network of friends. Ambassadors can also introduce new students to the available extracurricular activities the school offers, including clubs and sports. The faster the student acclimates to the social spectrum of the school, the easier the student will be able to feel at ease in the classroom where learning takes place.

For students who are leaving their current schools, school administrators should devise a system where parents can give schools advanced notice before the family moves to ensure that students are tracked before they depart. If schools work to mentor students

before they leave, students will leave with the feeling that the school cared and reassured that their new school will be a positive experience. If the parents know what school the student will be attending, it can be recommended that the current school administrator contact the new school to inform the new administrator about the new student to help bridge the gap for the student between the old school and the new school.

Military students may not be easy to identify if they are attending schools that are outside of military installations (Kudler & Porter, 2013). Although they are resilient and can handle the challenges they are faced with, they still need support and understanding throughout (Kudler & Porter, 2013). As educators, a support system should be in place to help this highly mobile community adapt and adjust for the duration of the time they fill the seats in our schools.

Recommendations for Parents

Moving does not necessarily have to be a negative experience. Families that maintain a positive outlook about the move are more inclined to have a better experience with the move itself (Park, 2011). The move can be a positive experience because students will be able to learn a new culture and will be able to make new friends (Park, 2011). Parents can encourage their adolescent child to reach out to old friends via online chatting sites and to make new friends through local events and organizations (Rhodes, 2016). This will remind the child that their old friends will still be a part of their lives, as the student transitions in the new location and adapts by making new friends.

Cole (2016) stated that parents do often need help during the transitional moving period, but do not seek assistance from a knowledgeable school counselor. The school counselor could help address particular emotional or behavioral issues that the student is

experiencing during difficult times such as parent deployment (Cole, 2016) or even a move to a new place.

Suggestions for Further Research

There can be several recommendations made for future research on the issue of military student turnover and its impact on academic achievement. Specifically, this study could be expanded to focus on schools that serve military students but are operated by individual states, rather than DoDEA. However, the difficulty in this may be finding a common assessment by all state-run schools that serve the same population. The tests conducted in this sample combined all schools' scores by grade level, and further research is necessary to determine how each individual school's outcome could affect the students' performance on standardized assessments.

Future research would be beneficial if the data honed in on specific schools and the students' outcome from these schools. For example, researching the students' individual tests scores and possibly tracking where he or she may have moved from will provide a wealth of knowledge to the existing research. Considering other external factors such as number of moves made and parental deployment may add to that research and provide educators with a richer and more detailed understanding of how the students' moves can possibly affect their academic outcome.

Additionally, if the same nature of the study was to be conducted and expanded, the researcher could include more grade levels to further broaden the scope of student turnover and its impact on student achievement on the TerraNova3 assessment. DoDEA operates schools in various areas around the world and a large scale study could include

more than just schools with grade compositions of sixth through eighth grade, but can also include elementary or high school compositions.

To expand on the foundation of social capital theory, further research could be conducted to include a survey about how military students' feel about the moves, particularly about the international moves, along with the school turnover rate, and the percentile rankings on the assessment to get a more panoramic view into the complex lifestyle of military students. One interested in expanding on the existing research can use a different research design than correlation, depending on the depth of inquiry of the study.

Summary and Conclusions

Chapter 5 concludes this research study. The findings produced several themes that revealed military student turnover affects; a) student relationships, b) academic success, c) the new and departing schools, and d) families. The recommendations made in this research study request school leaders to be aware of the growing population of military students that are filling seats in classrooms around the nation, not only in military affiliated schools. This population of learners is extremely mobile and school administrators need to implement support systems to help students transitioning in and out of the school. These support systems will ease the burden of the move, while comforting the delicate emotional state that the student will endure as they break ties with old friends and look to their uncertain future. Additionally, the transition can also help administrators plan ahead for more students leaving and help the school make the necessary adjustments in terms of academic planning.

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Appendix A

Excel Spreadsheets for Turnover Rate

EUROPE 2012-2013	Aug. 7	Aug. 24	Sept. 7	Sept. 28	Oct. 5	Oct. 26	Nov. 2	Nov. 23	Nov. 30
RMS Grade 6	279	296	298	299	298	299	299	302	301
Turnover 6	0.061		0.003		0.003		0.01		0.011
RMS Grade 7	257	277	285	288	290	291	291	293	293
Turnover 7	0.078		0.011		0.003		0.007		0.01
RMS Grade 8	248	274	274	273	274	272	271	269	269
Turnover 8	0.105		0.004		0.007		0.007		0.011
LMS Grade 6	192	198	198	194	196	195	196	195	192
Turnover 6	0.031		0.02		0.005		0.005		0.026
LMS Grade 7	167	176	180	182	183	182	181	181	180
Turnover 7	0.054		0.011		0.005		0		0.011
LMS Grade 8	144	155	157	153	154	151	152	153	152
Turnover 8	0.076		0.025		0.019		0.007		0.02
KMS Grade 6	155	172	173	178	177	178	175	173	173
Turnover 6	0.011		0.029		0.006		0.011		0.006
KMS Grade 7	130	144	142	140	138	138	137	138	138
Turnover 7	0.108		0.014		0		0.007		0.007
KMS Grade 8	150	166	170	170	169	169	165	165	165
Turnover 8	0.107		0		0		0		0.03
VMS Grade 6	63	78	83	84	84	83	83	83	83
Turnover 6	0.238		0.012		0.012		0		0
VMS Grade 7	83	89	88	88	89	89	89	89	89
Turnover 7	0.072		0		0		0		0.011
VMS Grade 8	77	83	85	85	85	85	85	84	84
Turnover 8	0.078		0		0		0.012		0.012

Feb. 22	Mar. 1	Mar. 22	5-Apr	26-Apr	Average Turnover Per Grade Level
306	307	306	306	311	
	0.003		0.016		0.014444444
290	287	290	289	292	
	0.01		0.01		0.016222222
275	273	270	266	264	
	0.011		0.008		0.018666667
197	195	193	192	192	
	0.01		0		0.010777778
182	180	180	181	182	
	0		0.006		0.010777778
151	151	150	150	149	
	0.007		0.007		0.01866667
172	172	170	170	168	
	0.012		0.012		0.01288889
138	137	138	138	140	
	0.007		0.014		0.019
159	159	159	158	157	
	0		0.006		0.016555556

83	83	84	84	83	
	0.012		0.012		0.033111111
90	90	90	90	90	
	0		0		0.010444444
87	87	87	87	86	
	0		0.011		0.01811111

EUROPE 2012-2013	Aug. 7	Aug. 24	Sept. 7	Sept. 28	Oct. 5	Oct. 26	Nov. 2	Nov. 23	Nov. 30
NMS Grade 6	171	178	180	182	178	178	176	171	171
Turnover 6	0.041		0.011		0		0.028		0.023
NMS Grade 7	173	181	184	182	183	176	177	173	170
Turnover 7	0.046		0.011		0.038		0.023		0.047
NMS Grade 8	147	156	157	157	156	153	151	150	150
Turnover 8	0.061		0		0.019		0.007		0.073

Dec. 28	Jan. 4	Jan. 25	Feb. 1	Feb. 22	Mar. 1	Mar. 22	5-Apr	26-Apr	Average Turnover Per Grade Level
167	168	173	174	172	172	169	167	166	
	0.03		0.011		0.017		0.006		0.01855556
162	160	157	157	158	159	156	155	156	
	0.019		0.006		0.019		0.006		0.023888889
139	137	141	143	144	145	144	142	143	
	0.03		0.007		0.007		0.007		0.023444444

EUROPE 2013-2014	Aug. 2	Aug. 23	Sept. 6	Sept. 27	Oct. 4	Oct. 25	Nov.1	Nov. 22	Dec. 2
RMS Grade 6	236	265	269	264	265	266	263	266	266
Turnover 6	0.123		0.019		0.004		0.011		0.015
RMS Grade 7	270	285	293	287	283	282	284	285	284
Turnover 7	0.556		0.02		0.004		0.004		0.004
RMS Grade 8	245	268	273	272	269	267	266	268	266
Turnover 8	0.094		0.004		0.007		0.008		0.008
LMS Grade 6	151	171	171	172	173	172	170	171	171
Turnover 6	0.132		0.006		0.006		0.006		0.029
LMS Grade 7	167	183	186	186	184	184	184	185	184
Turnover 7	0.01		0		0		0.005		0.016
LMS Grade 8	160	174	172	174	174	175	174	171	171
Turnover 8	0.088		0.012		0.006		0.017		0.012
KMS Grade 6	143	154	149	151	151	152	151	151	151
Turnover 6	0.077		0.071		0.007		0		0.007
KMS Grade 7	141	149	145	142	142	141	140	141	141
Turnover 7	0.06		0.021		0.007		0.007		0
KMS Grade 8	126	135	130	127	127	128	127	126	126
Turnover 8	0.071		0.023		0.008		0.008		0.008
VMS Grade 6	90	104	103	103	102	103	103	102	103
Turnover 6	0.016		0		0.01		0.01		0.019
VMS Grade 7	74	89	87	87	87	88	87	85	85
Turnover 7	0.203		0		0.012		0.023		0
VMS Grade 8	81	93	94	92	92	97	97	95	95
Turnover 8	0.0148		0.021		0.054		0.021		0

Dec. 20	Jan. 3	Jan. 24	Feb. 7	Feb. 28	7-Mar	28-Mar	4-Apr	25-Apr	
262	260	266	268	269	269	267	267	267	
	0.023		0.004		0.007		0		0.02288889
283	283	286	285	284	284	284	285	286	
	0.011		0.004		0		0.004		0.06744444

264	262	264	264	267	267	268	265	264	
	0.008		0.011		0.004		0.004		0.016444444
166	165	164	165	167	165	162	163	163	
	0.006		0.012		0.018		0		0.02388889
181	180	179	179	181	180	178	175	178	
	0.006		0.011		0.011		0.017		0.00844444
173	172	174	173	173	171	169	169	170	
	0.012		0		0.012		0.006		0.01833333
152	152	151	151	149	148	147	143	143	
	0.007		0.013		0.007		0		0.021
141	138	140	139	138	137	137	136	136	
	0.014		0.007		0		0		0.01288889
125	125	123	122	122	122	123	122	123	
	0.016		0		0.008		0.008		0.016666667
101	99	100	96	96	96	96	99	99	
	0.01		0		0		0		0.00722222
85	85	85	84	85	85	86	87	88	
	0		0.012		0.012		0.011		0.030333333
95	94	97	97	97	97	98	98	97	
	0.032		0		0.01		0.01		0.018088889

	Aug. 2	**Aug. 23**	**Sept. 6**	**Sept. 27**	**Oct. 4**	**Oct. 25**	**Nov.1**	**Nov. 22**	**Dec. 2**
NMS Grade 6	168	188	189	191	190	189	189	190	188
Turnover 6	0.119		0.011		0.005		0.005		0.016
NMS Grade 7	148	167	167	167	165	162	163	162	160
Turnover 7	0.128		0		0.019		0.006		0.03
NMS Grade 8	148	154	154	156	153	152	152	155	152
Turnover 8	0.041		0.013		0.007		0.02		0.007

Jan. 24	**Feb. 7**	**Feb. 28**	**7-Mar**	**28-Mar**	**4-Apr**	**25-Apr**	**AVERAGE TURNOVER**
186	183	181	181	178	176	179	
	0.011		0.017		0.017		0.02233333
156	158	154	155	157	156	159	
	0.025		0.013		0.019		0.02811111
155	154	152	153	153	153	155	
	0.013		0		0.013		0.014888889

	1-Aug	**22-Aug**	**Sept. 8, 2014**	**Sept. 26, 2014**	**Oct. 3, 2014**	**Oct. 24, 2014**	**Nov. 7, 2014**	**Nov. 28, 2014**	**Dec. 5, 2014**
RMS Grade 6	269	304	306	303	303	307	309	314	318
Turnover 6	0.13		0.01		0.013		0.016		0.019
RMS Grade 7	217	253	256	256	258	255	254	254	255

Turnover 7	0.166		0		0.012		0		0.008
RMS Grade 8	233	265	265	267	268	267	268	266	266
Turnover 8	0.137		0.008		0.004		0.007		0.034
LMS Grade 6	147	167	163	161	162	161	159	159	159
Turnover 6	0.0136		0.012		0.006		0		0
LMS Grade 7	131	141	142	142	142	142	142	141	142
Turnover 7	0.076		0		0		0.007		0.042
LMS Grade 8	146	158	161	161	160	159	161	160	161
Turnover 8	0.082		0		0.006		0.006		0.012
KMS Grade 6	147	160	158	161	161	158	160	163	164
Turnover 6	0.088		0.019		0.019		0.019		0.006
KMS Grade 7	122	132	129	132	129	130	129	126	126
Turnover 7	0.082		0.023		0.008		0.023		0.008
KMS Grade 8	121	132	132	131	129	127	129	128	128
Turnover 8	0.091		0.008		0.016		0.008		0.031
VMS Grade 6	74	87	88	88	89	91	92	92	93
Turnover 6	0.0176		0		0.022		0		0.075
VMS Grade 7	84	91	90	92	92	93	94	98	98
Turnover 7	0.083		0.022		0.011		0.043		0.01
VMS Grade 8	79	87	87	87	87	87	87	88	89
Turnover 8	0.101		0		0		0.011		0.045

Dec. 26, 2014	**Jan. 2, 2015**	**Jan. 23, 2015**	**Jan 30 (Week of Feb. 1st)**	**20-Feb**	**Feb. 27 (Week of March 1st)**	**20-Mar**	**3-Apr-15**	**28-Apr-15**	**Average Turnover Per Grade Level**
312	312	321	320	315	315	314	310	313	
	0.029		0.016		0.003		0.01		0.02733333
253	253	259	261	260	260	262	260	259	
	0.024		0.004		0.008		0.004		0.02511111
257	257	262	262	262	262	262	259	258	
	0.019		0		0		0.004		0.02366667
159	159	161	163	165	164	164	162	163	
	0.013		0.012		0		0.006		0.00695556
136	136	133	134	133	133	132	130	132	
	0.022		0.007		0.008		0.015		0.019666667
159	159	159	159	156	156	156	155	156	
	0		0.019		0		0.006		0.01455556
165	165	164	165	166	165	165	166	166	
	0.006		0.006		0		0		0.018111111
127	127	123	123	124	124	127	127	125	
	0.031		0.008		0.024		0.016		0.02477778
132	134	131	131	132	131	130	132	134	
	0.022		0.008		0.008		0.015		0.023

86	86	89	88	87	89	86	87	84	
	0.035		0.011		0.034		0.034		0.0254
97	97	101	103	103	102	100	100	99	
	0.041		0		0.02		0.01		0.02666667
85	85	88	88	87	87	87	87	86	
	0.035		0.011		0		0.011		0.023777778

EUROPE 2014-2015	**1-Aug**	**22-Aug**	**Sept. 8, 2014**	**Sept. 26, 2014**	**Oct. 3, 2014**	**Oct. 24, 2014**	**Nov. 7, 2014**	**Nov. 28, 2014**	**Dec. 5, 2014**
NMS Grade 6	148	170	175	176	177	175	177	181	182
Turnover 6	0.149		0.006		0.011		0.023		0.005
NMS Grade 7	150	161	168	173	172	167	166	168	169
Turnover 7	0.073		0.03		0.029		0.012		0.006
NMS Grade 8	139	151	156	162	163	160	160	164	162
Turnover 8	0.086		0.038		0.018		0.025		0

Dec. 26, 2014	**Jan. 2, 2015**	**Jan. 23, 2015**	**Jan 30 (Week of Feb. 1st)**	**20-Feb**	**Feb. 27 (Week of March 1st)**	**20-Mar**	**3-Apr-15**	**28-Apr-15**	**Average Turnover Per GradeL evel**
183	182	187	189	184	183	181	181	186	
	0.027		0.026		0.011		0.028		0.031777778
170	170	168	168	169	169	174	174	174	
	0.012		0.006		0.03		0		0.022
162	161	158	159	159	159	161	161	161	
	0.019		0		0.013		0		0.022111111

Pacific

PACIFIC 12-13	Aug. 7	Aug. 24	Sept. 7	Sept. 28	Oct. 5	Oct. 26	Nov. 2	Nov. 23	Nov. 30
SMS Grade 6	181	174	171	169	163	164	163	163	163
Turnover 6	0.039		0.012		0.006		0		0.037
SMS Grade 7	124	142	144	146	146	146	146	145	144
Turnover 7	0.145		0.014		0		0.007		0.028
SMS Grade 8	123	135	139	140	140	138	138	136	137
Turnover 8	0.098		0.007		0.014		0.014		0.022
AndMS Grade 6	97	95	96	96	96	95	94	95	94
Turnover 6	0.021		0		0.01		0.011		0.021
AndMS Grade 7	76	74	74	74	74	74	73	72	71
Turnover 7	0.026		0		0		0.014		0.014
AndMS Grade 8	102	104	104	107	106	107	106	105	102
Turnover 8	0.02		0.029		0.009		0.009		0.01
YMS Grade 6	116	120	120	121	121	121	120	121	122
Turnover 6	0.034		0.008		0		0.008		0.008
YMS Grade 7	90	93	93	93	92	92	92	91	91
Turnover 7	0.033		0		0		0.011		0.011
YMS Grade 8	82	94	96	94	94	93	93	93	93
Turnover 8	0.015		0.021		0.011		0		0
OMS Grade 6	49	60	59	59	60	61	61	61	61
Turnover 6	0.0224		0		0.017		0		0.016
OMS Grade 7	48	52	54	54	55	58	58	58	58
Turnover 7	0.083		0		0.055		0		0
OMS Grade 8	45	51	49	49	49	51	51	51	51

Turnover 8	0.0133		0		0.041		0	0.039

Dec. 28	Jan. 4	Jan. 25	Feb. 1	Feb. 22	Mar. 1	Mar. 22	5-Apr	26-Apr	Average Turnover Per Grade Level
157	158	158	160	160	159	158	159	160	
	0		0		0.006		0.006		0.01177778
140	143	148	148	147	147	147	147	150	
	0.035		0.007		0		0.02		0.02844444
134	138	139	139	140	140	142	144	145	
	0.007		0.007		0.014		0.007		0.021111111
96	97	97	95	96	97	97	95	95	
	0		0.011		0		0		0.008222222
70	70	71	71	72	72	73	73	74	
	0.014		0.014		0.014		0.014		0.01222222
101	102	103	102	102	102	101	99	100	
	0.009		0		0.01		0.01		0.01177778
121	121	119	118	119	117	118	119	119	
	0.017		0.008		0.009		0		0.01022222
92	92	93	93	93	93	91	90	90	
	0.011		0		0.022		0		0.00977778
93	94	95	95	97	96	95	96	98	
	0.011		0.021		0.01		0.021		0.01222222
62	62	68	68	70	70	70	69	68	
	0.088		0.03		0		0.014		0.020822222
58	59	57	57	58	58	58	57	57	
	0.034		0.018		0		0		0.02111111
53	53	55	55	56	56	56	55	55	
	0.038		0.018		0		0		0.01658889
PACIFIC 2012-2013	Aug. 7	Aug. 24	Sept. 7	Sept. 28	Oct. 5	Oct. 26	Nov. 2	Nov. 23	Nov. 30
KadMS Grade 6	188	197	195	194	192	190	189	187	187
Turnover 6	0.048		0.005		0.01		0.011		0.021
KadMS Grade 7	189	203	203	201	201	197	198	199	198
Turnover 7	0.074		0.01		0.02		0.005		0.005
KadMS Grade 8	156	168	168	169	170	168	168	170	170
Turnover 8	0.077		0.006		0.012		0.012		0.024
LeMS Grade 6	171	192	191	192	191	195	195	196	195
Turnover 6	0.123		0.005		0.021		0.005		0.01
LeMS Grade 7	171	179	179	180	181	183	182	180	180
Turnover 7	0.048		0.006		0.011		0.011		0.022
LeMS Grade 8	149	159	164	162	163	161	161	162	164
Turnover 8	0.067		0.012		0.012		0.006		0.006
RyMS Grade 6	161	169	172	176	175	179	180	182	184
Turnover 6	0.05		0.023		0.023		0.011		0.038
RyMS Grade 7	160	170	171	170	168	167	168	167	165
Turnover 7	0.063		0.006		0.006		0.006		0.024
RyMS Grade 8	141	150	148	153	151	152	154	154	154
Turnover 8	0.064		0.034		0.007		0		0.006

Dec. 28	Jan. 4	Jan. 25	Feb. 1	Feb. 22	Mar. 1	Mar. 22	5-Apr	26-Apr	Average Turnover Per Grade Level
183	183	186	186	186	186	188	187	186	
	0.016		0		0.011		0.005		0.01411111
199	199	197	197	197	196	197	198	198	
	0.01		0		0.005		0		0.01433333
174	174	175	175	172	172	170	171	171	
	0.006		0.017		0.012		0		0.01844444
193	192	193	192	190	190	194	193	190	
	0.005		0.01		0.021		0.016		0.024
176	175	177	177	177	177	175	174	172	
	0.011		0		0.011		0.011		0.01455556
165	165	167	167	169	169	167	165	165	
	0.012		0.012		0.012		0		0.01544444
177	177	179	180	179	180	180	177	177	
	0.011		0.006		0		0		0.018
161	162	164	163	160	161	159	159	161	
	0.012		0.018		0.012		0.013		0.0177778
153	153	157	159	159	159	157	156	157	
	0.026		0		0.013		0.006		0.01733333

PACIFIC 2013-2014	**Aug. 2**	**Aug. 23**	**Sept. 6**	**Sept. 27**	**Oct. 4**	**Oct. 25**	**Nov.1**	**Nov. 22**	**Dec. 2**
SMS Grade 6	146	162	162	163	164	164	162	160	159
Turnover 6	0.11		0.006		0		0.012		0.025
SMS Grade 7	136	155	151	152	152	152	151	150	150
Turnover 7	0.14		0.007		0		0.007		0.02
SMS Grade 8	134	144	145	148	148	150	148	147	147
Turnover 8	0.075		0.021		0.014		0.007		0.014
AndMS Grade 6	110	114	114	114	115	112	112	111	109
Turnover 6	0.036		0		0.026		0.009		0.009
AndMS Grade 7	82	88	87	87	88	86	86	85	85
Turnover 7	0.073		0		0.023		0.012		0.012
AndMS Grade 8	64	70	69	68	68	70	70	71	70
Turnover 8	0.094		0.014		0.029		0.014		0.014
YMS Grade 6	123	127	127	127	127	127	124	124	124
Turnover 6	0.033		0		0		0		0.008
YMS Grade 7	103	108	107	109	109	111	111	113	113
Turnover 7	0.049		0.019		0.018		0.018		0.018
YMS Grade 8	75	76	76	78	77	78	78	79	79
Turnover 8	0.013		0.026		0.013		0.013		0.038
OMS Grade 6	66	71	71	72	75	70	70	68	68
Turnover 6	0.076		0.014		0.067		0.029		0.015
OMS Grade 7	60	61	61	58	58	60	60	59	59
Turnover 7	0.017		0.049		0.034		0.017		0.034
OMS Grade 8	50	54	54	54	55	55	55	55	55
Turnover 8	0.08		0		0		0		0.018

Dec. 20	**Jan. 3**	**Jan. 24**	**Feb. 7**	**Feb. 28**	**7-Mar**	**28-Mar**	**4-Apr**	**25-Apr**	
155	155	154	156	160	160	159	159	158	
	0.006		0.026		0.006		0.006		0.02188889
147	146	147	148	151	152	153	153	151	
	0.007		0.02		0.007		0.013		0.02455556
145	145	142	143	144	144	143	143	143	
	0.021		0.007		0.007		0		0.01844444

108	102	102	102	102	101	103	102	102	
	0		0		0.02		0		0.01111111
86	84	85	85	84	84	84	84	84	
	0.012		0.012		0		0		0.016
69	68	69	65	68	68	68	68	69	
	0.015		0.046		0		0.015		0.02677778
125	125	125	125	126	125	127	127	128	
	0		0.008		0.016		0.008		0.00811111
111	111	110	110	108	110	108	108	108	
	0.009		0.018		0.018		0		0.01855556
82	82	82	82	84	84	84	84	83	
	0		0.024		0		0.012		0.01544444
67	67	67	67	66	66	66	66	65	
	0		0.015		0		0.015		0.02566667
61	61	66	66	66	66	65	65	65	
	0.082		0		0.015		0		0.02755556
54	54	56	57	55	56	57	56	56	
	0.037		0.035		0.018		0		0.02088889

PACIFIC 2013-2014	**Aug. 2**	**Aug. 23**	**Sept. 6**	**Sept. 27**	**Oct. 4**	**Oct. 25**	**Nov.1**	**Nov. 22**	**Dec. 2**
KadMS Grade 6	201	229	227	225	224	225	225	226	224
Turnover 6	0.04		0.009		0.004		0.004		0.031
KadMS Grade 7	160	179	175	177	177	179	179	177	176
Turnover 7	0.0119		0.011		0.011		0.011		0.006
KadMS Grade 8	156	169	168	167	167	167	166	166	167
Turnover 8	0.083		0.006		0		0		0.018
LeMS Grade 6	199	222	222	222	222	222	221	222	222
Turnover 6	0.116		0		0		0.005		0.013
LeMS Grade 7	159	173	175	176	177	177	176	176	177
Turnover 7	0.088		0.006		0		0		0.006
LeMS Grade 8	140	154	154	154	156	158	157	156	154
Turnover 8	0.01		0		0.013		0.006		0.006
RyMS Grade 6	170	183	185	186	187	189	190	188	188
Turnover 6	0.076		0.005		0.011		0.011		0.011
RyMS Grade 7	159	169	170	170	171	170	171	168	168
Turnover 7	0.063		0		0.006		0.018		0.006
RyMS Grade 8	129	140	143	143	143	143	142	142	141
Turnover 8	0.085		0		0		0		0.021

Dec. 20	**Jan. 3**	**Jan. 24**	**Feb. 7**	**Feb. 28**	**7-Mar**	**28-Mar**	**4-Apr**	**25-Apr**	
217	217	215	213	213	212	215	214	216	
	0.009		0		0.014		0.009		0.01333333
177	177	179	179	176	175	174	174	176	
	0.011		0		0.006		0.011		0.00876667
164	164	165	163	163	162	162	163	166	
	0.006		0		0		0.018		0.01455556
219	219	219	220	218	218	219	221	219	
	0		0.009		0.005		0.009		0.017444444

176	175	176	176	175	174	174	174	171	
	0.006		0.006		0		0.017		0.01433333
153	153	154	156	153	153	153	153	153	
	0.007		0.019		0		0		0.00677778
190	183	185	184	182	180	183	180	181	
	0.011		0.011		0.017		0.006		0.01766667
167	166	166	169	167	167	168	165	165	
	0		0.012		0.006		0		0.01233333
138	135	135	136	134	134	135	136	136	
	0		0.015		0.007		0		0.01422222

PACIFIC 2014-2015	**1-Aug**	**22-Aug**	**Sept. 8, 2014**	**Sept. 26, 2014**	**Oct. 3, 2014**	**Oct. 24, 2014**	**Nov. 7, 2014**	**Nov. 28, 2014**	**Dec. 5, 2014**
SMS Grade 6	140	152	152	154	154	152	149	149	149
Turnover 6	0.086		0.013		0.013		0		0.034
SMS Grade 7	143	166	167	169	169	169	168	171	171
Turnover 7	0.161		0.012		0		0.018		0.023
SMS Grade 8	120	127	130	131	132	134	133	132	132
Turnover 8	0.058		0.008		0.015		0.008		0.038
AndMS Grade 6	77	79	79	78	79	79	77	79	78
Turnover 6	0.026		0.013		0		0.026		0.038
AndMS Grade 7	79	85	85	85	85	86	86	84	84
Turnover 7	0.076		0		0.012		0.023		0
AndMS Grade 8	70	77	76	76	75	76	77	78	78
Turnover 8	0.1		0		0.013		0.013		0.026
YMS Grade 6	99	114	114	114	114	115	117	118	118
Turnover 6	0.152		0		0.009		0.009		0.008
YMS Grade 7	99	104	105	105	105	106	105	107	107
Turnover 7	0.051		0		0.01		0.019		0.009
YMS Grade 8	81	91	91	91	91	91	91	93	93
Turnover 8	0.123		0		0		0.022		0.011
OMS Grade 6	44	53	53	54	54	54	56	57	57
Turnover 6	0.205		0.019		0		0.018		0
OMS Grade 7	57	60	61	61	61	61	61	58	58
Turnover 7	0.053		0		0		0.049		0.017
OMS Grade 8	53	62	64	63	63	60	63	61	61
Turnover 8	0.17		0.016		0.053		0.032		0.033

Dec. 26, 2014	**Jan. 2, 2015**	**Jan. 23, 2015**	**Jan 30 (Week of Feb. 1st)**	**20-Feb**	**Feb. 27 (Week of March 1st)**	**20-Mar**	**3-Apr-15**	**28-Apr-15**	**Average Turnover Per GradeL evel**
144	144	147	148	146	145	147	146	145	
	0.021		0.014		0.014		0.007		0.02244444
167	167	171	171	170	172	172	173	175	
	0.024		0.006		0		0.012		0.02844444
127	127	133	134	134	133	132	132	134	
	0.047		0		0.008		0.015		0.02188889
75	75	76	74	74	74	73	74	73	
	0.013		0		0.014		0.014		0.016
84	85	88	88	87	87	85	85	88	
	0.035		0.011		0.023		0.035		0.02388889
76	78	78	77	78	78	77	74	72	

	0		0.013		0.013		0.027		0.02277778
119	119	116	115	117	117	116	117	117	
	0.025		0.017		0.009		0		0.02544444
106	106	106	107	107	106	106	105	105	
	0		0		0		0		0.00988889
92	92	90	89	88	88	87	84	85	
	0.022		0.011		0.011		0.012		0.02355556
57	57	57	57	57	55	56	55	54	
	0		0		0.018		0.018		0.03088889
57	57	56	57	58	56	59	59	58	
	0.018		0.018		0.054		0.017		0.02511111
63	64	65	64	62	59	59	61	63	
	0.016		0.03		0		0.033		0.04255556

PACIFIC 2014-2015	**1-Aug**	**22-Aug**	**Sept. 8, 2014**	**Sept. 26, 2014**	**Oct. 3, 2014**	**Oct. 24, 2014**	**Nov. 7, 2014**	**Nov. 28, 2014**	**Dec. 5, 2014**
KadMS Grade 6	169	186	186	187	188	188	187	184	184
Turnover 6	0.101		0.005		0		0.016		0.043
KadMS Grade 7	199	211	211	208	209	210	208	202	205
Turnover 7	0.06		0.014		0.005		0.029		0.01
KadMS Grade 8	155	164	162	166	163	167	171	172	171
Turnover 8	0.058		0.025		0.025		0.006		0.053
LeMS Grade 6	152	169	171	170	172	173	174	172	172
Turnover 6	0.112		0.006		0.006		0.011		0.006
LeMS Grade 7	170	188	189	187	188	188	187	187	186
Turnover 7	0.106		0.11		0		0		0.005
LeMS Grade 8	148	154	156	155	157	154	154	153	154
Turnover 8	0.041		0.006		0.019		0.006		0
RyMS Grade 6	187	195	197	193	191	191	186	187	187
Turnover 6	0.043		0.02		0		0.005		0
RyMS Grade 7	153	174	175	175	177	178	175	177	179
Turnover 7	0.137		0		0.006		0.011		0.011
RyMS Grade 8	143	149	155	153	153	150	148	149	147
Turnover 8	0.042		0.013		0.02		0.007		0.02

Dec. 26, 2014	**Jan. 2, 2015**	**Jan. 23, 2015**	**Jan 30 (Week of Feb. 1st)**	**20-Feb**	**Feb. 27 (Week of March 1st)**	**20-Mar**	**3-Apr-15**	**28-Apr-15**	**Average Turnover Per GradeL evel**
176	176	177	176	177	177	176	174	177	
	0.006		0.006		0.006		0.017		0.022222222
203	203	200	201	202	202	195	195	195	
	0.015		0.005		0.035		0		0.01922222
162	162	159	158	160	161	161	158	158	
	0.019		0.013		0		0		0.02211111
171	171	168	168	166	166	167	170	170	
	0.018		0.012		0.006		0		0.01966667
185	185	183	183	180	179	178	181	182	
	0.011		0.016		0.006		0.006		0.02888889
154	154	154	154	154	152	154	158	157	

	0		0		0.013		0.006		0.010111111
187	187	194	194	194	193	195	193	188	
	0.037		0		0.01		0.026		0.01566667
177	177	181	183	181	180	183	183	184	
	0.023		0.011		0.017		0.005		0.02455556
143	143	144	144	143	140	139	138	139	
	0.007		0.007		0.007		0.007		0.01444444

Americas

	Aug. 7	Aug. 24	Sept. 7	Sept. 28	Oct. 5	Oct. 26	Nov. 2	Nov. 23	Nov. 30
DCFMS Grade 6	250	232	234	229	229	229	231	232	231
Turnover 6	0.072		0.021		0		0.004		0.017
DCFMS Grade 7	243	214	217	217	218	219	219	217	222
Turnover 7	0.119		0		0.005		0.009		0.018
DCFMS Grade 8	202	186	185	182	180	181	182	183	184
Turnover 8	0.079		0.0162		0.006		0.005		0.022
MMS Grade 6	156	156	155	155	148	149	149	153	153
Turnover 6	0		0		0.007		0.027		0.02
MMS Grade 7	159	159	162	163	162	160	162	162	163
Turnover 7	0		0.006		0.012		0		0.012
MMS Grade 8	118	121	122	124	120	116	117	122	120
Turnover 8	0.025		0.016		0.033		0.004		0
WAMS Grade 6	206	194	191	189	188	183	183	183	183
Turnover 6	0.058		0.01		0.027		0		0.066
WAMS Grade 7	145	141	141	137	136	133	135	135	134
Turnover 7	0.028		0.028		0.022		0		0.045
WAMS Grade 8	154	152	150	150	150	151	148	145	145
Turnover 8	0.013		0		0.007		0.02		0.048
AMS Grade 6	243	258	253	253	251	254	253	253	253
Turnover 6	0.062		0		0.012		0		0.004
AMS Grade 7	205	214	201	195	197	195	193	192	192
Turnover 7	0.044		0.03		0.01		0.005		0.01
AMS Grade 8	189	199	194	190	190	191	190	191	191
Turnover 8	0.053		0.021		0.005		0.005		0.016

Jan. 4	Jan. 25	Feb. 1	Feb. 22	Mar. 1	Mar. 22	5-Apr	26-Apr	Average Turnover Per Grade Level
227	232	229	223	223	222	223	223	
0.022		0.026		0.004		0		0.018444444
218	219	219	219	218	215	213	214	

0.005		0		0.014		0.005		0.019444444
181	188	187	189	190	189	188	182	
0.039		0.011		0.005		0.032		0.023911111
150	150	150	151	151	147	146	147	
0		0.007		0.026		0.007		0.010444444
161	163	162	160	160	159	159	160	
0.012		0.012		0.006		0.006		0.007333333
120	121	121	116	116	116	115	116	
0.008		0.041		0		0.009		0.015111111
171	170	169	168	164	157	157	155	
0.006		0.006		0.043		0.013		0.025444444
128	130	129	128	125	121	118	117	
0.016		0.008		0.032		0.008		0.02077778
138	138	138	139	136	137	136	136	
0		0.007		0.007		0		0.011333333
248	247	246	241	241	238	230	228	
0.004		0.02		0.012		0.009		0.013666667
193	193	192	188	188	187	184	183	
0		0.021		0.005		0.005		0.014444444
187	184	182	181	180	176	174	174	
0.016		0.005		0.022		0		0.015888889

AMERICAS 2012-2013	**Aug. 7**	**Aug. 24**	**Sept. 7**	**Sept. 28**	**Oct. 5**	**Oct. 26**	**Nov. 2**	**Nov. 23**	**Nov. 30**
BMS Grade 6	193	208	205	201	200	198	199	199	199
Turnover 6	0.078		0.02		0.01		0		0.025
BMS Grade 7	163	183	184	183	184	183	185	184	186
Turnover 7	0.123		0.005		0.005		0.005		0
BMS Grade 8	120	155	149	145	145	144	145	143	146
Turnover 8	0.292		0.027		0.007		0.014		0.034
SHMS Grade 6	167	179	180	185	183	178	177	178	179
Turnover 6	0.072		0.03		0.027		0.006		0.017
SHMS Grade 7	149	149	142	146	144	145	143	143	142
Turnover 7	0		0.028		0.007		0		0.049
SHMS Grade 8	126	127	127	125	126	122	119	122	122
Turnover 8	0.008		0.016		0.032		0.025		0.016

Dec. 28	**Jan. 4**	**Jan. 25**	**Feb. 1**	**Feb. 22**	**Mar. 1**	**Mar. 22**	**5-Apr**	**26-Apr**	**Average Turnover Per Grade Level**
194	195	199	199	197	198	198	197	196	

	0.021		0.01		0		0.005		0.18777778
186	190	190	190	190	187	187	185	187	
	0		0		0		0.011		0.016555556
141	140	142	142	141	140	139	139	138	
	0.014		0.007		0.007		0.007		0.045444444
176	180	181	179	175	173	177	173	174	
	0.006		0.022		0.023		0.006		0.023222222
135	137	135	135	134	133	127	126	127	
	0.015		0.007		0.045		0.008		0.017666667
120	123	124	124	121	120	122	120	121	
	0.008		0.024		0.017		0.008		0.017111111

AMERICAS 2013-2014	**Aug. 2**	**Aug. 23**	**Sept. 6**	**Sept. 27**	**Oct. 4**	**Oct. 25**	**Nov.1**	**Nov. 22**	**Dec. 2**
DCFMS Grade 6	243	223	224	223	223	219	218	218	218
Turnover 6	0.082		0.004		0.018		0		0.06
DCFMS Grade 7	241	202	205	203	202	203	204	201	201
Turnover 7	0.162		0.01		0.005		0.014		0
DCFMS Grade 8	208	194	192	197	196	194	192	191	192
Turnover 8	0.067		0.026		0.01		0.005		0.01
MMS Grade 6	176	178	180	182	176	173	170	171	171
Turnover 6	0.011		0.011		0.017		0.006		0.012
MMS Grade 7	131	133	133	133	128	126	125	126	127
Turnover 7	0.015		0		0.016		0.008		0.008
MMS Grade 8	140	144	143	142	138	141	139	140	140
Turnover 8	0.029		0.007		0.022		0.007		0.014
WAMS Grade 6	170	158	155	153	152	150	149	150	148
Turnover 6	0.071		0.013		0.013		0.007		0
WAMS Grade 7	145	142	145	143	143	137	137	135	134
Turnover 7	0.021		0.014		0.042		0.015		0.022
WAMS Grade 8	110	109	110	110	109	108	108	104	104
Turnover 8	0.009		0		0.009		0.037		0.029

AMS Grade 6	207	219	225	222	222	221	220	217	215
Turnover 6	0.058		0.013		0.005		0.014		0.028
AMS Grade 7	198	201	202	204	202	199	196	198	198
Turnover 7	0.015		0.01		0.015		0.01		0.02
AMS Grade 8	157	153	158	155	156	157	155	154	151
Turnover 8	0.025		0.019		0.006		0.006		0

Dec. 20	**Jan. 3**	**Jan. 24**	**Feb. 7**	**Feb. 28**	**7-Mar**	**28-Mar**	**4-Apr**	**25-Apr**	**Average Turnover Rate Per Grade**
205	203	208	208	206	207	202	202	197	
	0.025		0.01		0.024		0.025		0.02755556
201	200	205	203	202	201	199	199	197	
	0.025		0.005		0.011		0.01		0.02688889
190	189	189	188	188	188	186	186	181	
	0		0		0.011		0.027		0.01733333
169	162	163	162	161	161	161	163	163	
	0.006		0.006		0		0		0.00766667
126	123	125	123	122	121	122	123	125	
	0.016		0.008		0.008		0.016		0.01055556
138	133	139	136	136	135	133	133	132	
	0.045		0		0.015		0.008		0.016333333
148	148	145	144	140	137	135	135	140	
	0.02		0.028		0.015		0.037		0.02266667
131	131	126	126	124	124	121	123	125	
	0.038		0.016		0.024		0.016		0.02311111
101	101	101	101	96	96	94	95	96	
	0		0.05		0.021		0.011		0.01844444
209	205	201	200	195	196	192	192	190	
	0.02		0.025		0.02		0.01		0.021444444
194	197	194	194	194	191	188	189	188	
	0.015		0		0.016		0.005		0.011777778
151	147	146	148	147	147	145	144	144	
	0.007		0.007		0.014		0		0.00933333

AMERICAS 2013-2014	**Aug. 2**	**Aug. 23**	**Sept. 6**	**Sept. 27**	**Oct. 4**	**Oct. 25**	**Nov.1**	**Nov. 22**	**Dec. 2**
BMS Grade 6	201	224	220	218	219	220	220	220	220
Turnover 6	0.011		0.009		0.005		0		0.032
BMS Grade 7	166	175	170	167	167	167	167	166	165
Turnover 7	0.054		0.018		0		0.006		0.024
BMS Grade 8	160	172	175	171	171	170	173	174	174
Turnover 8	0.075		0.023		0.006		0.006		0.006

SHMS Grade 6	159	171	172	170	172	172	170	171	168
Turnover 6	0.075		0.012		0		0.006		0.018
SHMS Grade 7	159	171	170	172	173	173	173	174	172
Turnover 7	0.075		0.012		0		0.006		0.012
SHMS Grade 8	113	124	126	127	127	126	126	122	121
Turnover 8	0.097		0.008		0.008		0.032		0.025

Dec. 20	**Jan. 3**	**Jan. 24**	**Feb. 7**	**Feb. 28**	**7-Mar**	**28-Mar**	**4-Apr**	**25-Apr**	**Average Turnover Rate Per Grade**
213	213	212	211	208	208	204	204	201	
	0.005		0.014		0.019		0.015		0.012222222
161	162	170	168	168	168	168	167	167	
	0.049		0		0		0		0.016777778
173	172	177	177	175	177	171	172	171	
	0.029		0.011		0.034		0.006		0.021777778
171	171	180	179	182	182	183	182	181	
	0.053		0.017		0.005		0.005		0.021222222
170	165	173	169	168	166	161	158	156	
	0.048		0.006		0.03		0.013		0.022444444
118	116	124	119	118	118	117	117	117	
	0.069		0.008		0.008		0		0.028333333

AMERICAS 2014-2015	**1-Aug**	**22-Aug**	**Sept. 8, 2014**	**Sept. 26, 2014**	**Oct. 3, 2014**	**Oct. 24, 2014**	**Nov. 7, 2014**	**Nov. 28, 2014**	**Dec. 5, 2014**
DCFMS Grade 6	201	212	214	215	216	219	215	214	215
Turnover 6	0.055		0.005		0.014		0.005		0.005
DCFMS Grade 7	174	185	184	186	187	187	188	188	187
Turnover 7	0.063		0.011		0		0		0.011
DCFMS Grade 8	156	170	167	168	165	166	167	161	159
Turnover 8	0.091		0.006		0.006		0.036		0
MMS Grade 6	125	122	121	122	120	121	118	121	119
Turnover 6	0.024		0.008		0.008		0.025		0.017
MMS Grade 7	121	119	119	113	110	112	112	111	110
Turnover 7	0.017		0.05		0.018		0.009		0.018
MMS Grade 8	100	99	98	97	96	99	98	97	97
Turnover 8	0.01		0.01		0.031		0.01		0.01
WAMS Grade 6	164	167	164	161	155	154	153	150	152
Turnover 6	0.018		0.018		0.006		0.02		0.053
WAMS Grade 7	142	146	147	141	137	139	137	136	133
Turnover 7	0.028		0.041		0.015		0.007		0.023
WAMS Grade 8	101	99	98	95	90	92	91	89	89
Turnover 8	0.02		0.031		0.022		0.022		0.045

AMS Grade 6	183	177	170	168	162	162	160	160	161
Turnover 6	0.033		0.012		0		0		0
AMS Grade 7	160	168	171	173	173	172	172	174	174
Turnover 7	0.05		0.012		0.006		0.012		0.029
AMS Grade 8	156	163	158	158	160	158	151	150	151
Turnover 8	0.045		0		0.0125		0.007		0.007

Dec. 26, 2014	**Jan. 2, 2015**	**Jan. 23, 2015**	**Jan 30 (Week of Feb. 1st)**	**20-Feb**	**Feb. 27 (Week of March 1st)**	**20-Mar**	**3-Apr-15**	**28-Apr-15**	**Average Turnover Per GradeL evel**
214	214	219	220	219	218	211	211	211	
	0.023		0.005		0.032		0		0.016
189	189	191	188	188	188	188	188	187	
	0.011		0		0		0.005		0.011222222
159	159	158	158	159	158	158	158	159	
	0.006		0.006		0		0.006		0.01744444
117	119	121	122	122	119	117	118	118	
	0.017		0		0.017		0		0.01288889
108	108	109	109	109	108	108	108	109	
	0.009		0		0		0.009		0.014444444
96	96	99	101	103	100	99	98	99	
	0.031		0.02		0.01		0.01		0.015777778
144	144	149	149	151	150	149	148	149	
	0.035		0.013		0.007		0.007		0.019666667
130	130	129	128	126	124	123	119	119	
	0.008		0.016		0.008		0		0.016222222
85	85	88	87	87	88	88	88	88	
	0.035		0		0		0		0.019444444
161	161	158	155	154	156	159	157	156	
	0.019		0.006		0.019		0.006		0.010555556
169	169	167	167	167	167	164	164	166	
	0.012		0		0.018		0.012		0.016777778
152	152	152	151	147	146	145	142	142	
	0		0.026		0.007		0		0.011611111

AMERICAS 2014-2015	**1-Aug**	**22-Aug**	**Sept. 8, 2014**	**Sept. 26, 2014**	**Oct. 3, 2014**	**Oct. 24, 2014**	**Nov. 7, 2014**	**Nov. 28, 2014**	**Dec. 5, 2014**
BMS Grade 6	138	154	155	149	146	147	147	145	146
Turnover 6	0.012		0.039		0.007		0.014		0.021
BMS Grade 7	174	183	183	184	180	180	178	177	177
Turnover 7	0.052		0.005		0		0.006		0.023
BMS Grade 8	145	153	153	153	149	148	148	146	146
Turnover 8	0.055		0		0.007		0.014		0.021
SHMS Grade 6	154	158	156	155	154	154	154	152	153
Turnover 6	0.026		0.006		0		0.013		0
SHMS Grade 7	158	168	167	166	167	166	166	165	163
Turnover 7	0.063		0.006		0.006		0.006		0.025
SHMS Grade 8	122	126	126	126	125	124	122	120	119
Turnover 8	0.033		0		0.008		0.016		0.008

Dec. 26, 2014	**Jan. 2, 2015**	**Jan. 23, 2015**	**Jan 30 (Week of Feb. 1st)**	**20-Feb**	**Feb. 27 (Week of March 1st)**	**20-Mar**	**3-Apr-15**	**28-Apr-15**	**Average Turnover Per GradeL evel**
143	143	147	148	148	145	146	145	145	
	0.028		0		0.007		0		0.014222222

173	173	172	173	171	173	172	171	174	
	0.006		0.012		0.006		0.018		0.014222222
143	143	144	143	143	142	143	140	142	
	0.007		0		0.007		0.014		0.013888889
153	154	153	153	151	149	147	148	147	
	0.013		0.013		0.013		0.007		0.010111111
159	159	160	161	157	156	154	154	152	
	0.006		0.025		0.013		0.013		0.018111111
120	120	122	124	121	121	121	122	119	
	0.017		0.024		0		0.025		0.014555556

Author Biography

Katherine L. Sheffield is a proud Army spouse who currently resides in Hawaii. She is an educator who has a bachelor's degree in English, a master's degree in secondary education, and a doctoral degree in educational leadership. She is the self-published author of *Building of the Ruins*, a collection of poems that are based on her life accounts.