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NATO EDUCATIONAL READINESS FOR THE MILLENNIALS

by

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A Dissertation Submitted by the Faculty of
Old Dominion University in Partial Fulfillment of the
Requirements for the Degree of

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ABSTRACT

NATO EDUCATIONAL READINESS FOR THE MILLENNIALS

John P. Kelley
Old Dominion University, 2015
Director: Dr. Dennis Gregory

The North Atlantic Treaty Organization (NATO), formed in 1949 and described as the most successful alliance in history, is facing change. By 2020, the majority of students in the NATO educational institutions will be Millennium Generation students. To best meet this student group's educational needs, changes to the delivery of educational content may be needed. This study determined how Millennial Generation characteristics may change as Millennials mature, how military service may change Millennials, confirmed the international nature of Millennial characteristics across the 28 nations of NATO and predicted the state of educational technology in 2020.

This qualitative study investigated these questions using interviews of subject matter experts from the military and higher education as well as technology companies.

With all of these factors considered, the study's author formulated proposals for changes required to be ready to best meet NATO military Millennial educational needs in 2020.

ACKNOWLEDGMENTS

There are many who contributed to the successful completion of this dissertation. I would like to extend my sincere thanks to the members of my committee. I would also like to thank those who participated in this study. I would like to thank my friends and colleagues, especially those at NATO, for all of the assistance and advice provided, even when you were not aware that you were helping. Above all, I would like to thank my wife, Debby Kelley and my sons, CJ and Matt, for putting up with me during this most arduous work. Finally, I can relax (for a bit).

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Introduction

If Paul Revere were alive in 2015 and working in the North Atlantic Treaty Organization (NATO), instead of “The British are coming, the British are coming!”, he might be inclined to say “The Millennials are coming, the Millennials are coming!” Since the United Kingdom is already a member nation of NATO, why then, would Paul say this? The answer lies in who the Millennials are and what effect they will have on NATO.

Significance of the study

The oldest members of the Millennial Generation, currently approximately 33 years old in 2015 are being promoted in NATO military service to the rank of Major (OF3) and will, by the year 2020, begin to be assigned to NATO. Either enroute or following assignment to these positions, these officers will attend one or more courses in NATO’s higher education institutions and will form the majority population at these institutions. This study sought to determine the changes required for NATO to be ready to meet the educational needs of military Millennial Generation students in 2020 in the most effective manner possible. Without formulating a strategy to enhance Millennial learning, the effectiveness of education delivered at NATO’s institutions will potentially fail to meet the desired educational outcomes, particularly as instructional material becomes more and more complex.

Some question the idea of meeting an educational need as opposed to meeting an educational desire. The educational need is simply expressed as the learning objectives and outcomes of the educational event. However, whenever considering meeting the

educational need, the effectiveness of the instruction and the motivation of the students themselves must be considered. This consideration warrants an examination of how students desire to receive their education. In this way, the most appropriate educational outcome is one that also considers how best to meet the educational delivery desires of the students.

For purposes of this study, the inclusive birth years 1982 to 2002 were used when considering and defining the Millennial Generation.

Background

Millennials have exhibited a number of distinct characteristics in their undergraduate studies. Because they have grown up their entire lives with digital device access, Millennials are often referred to as “digital natives” whereas Generation Xers are known as “digital immigrants” (Palfrey & Gasser, 2010). This characteristic causes them to be bored with traditional teaching techniques, as they expect more technology use in the classroom.

Ironically, although Millennials are arguably more connected through the use of social media, texting, etc., they are actually less adept at building meaningful relationships in a direct and personal way (Levine & Dean, 2012). They do seek more group work in their educational experience, perhaps as a way to cope with and offset the effects of digital isolation (Roehling, Kooi, Dykema, Quisenberry & Vandlen, 2011). Responding to each other in the digital realm, again including social media, texting, etc., has created a need for instant answers to digital inquiry which they have also translated into their communications with staff and faculty and the need for quick responses (Evans & Forbes, 2012). With an overly protected upbringing, their “helicopter parents” would

swoop in and solve problems for them, including on campus (Ferri-Reed, 2012). They never assumed serious risk in decision-making and thus they have self-sufficiency problems once on their own (Perna, 2012).

Millennials see their education from a payment-for-services-rendered perspective (Singleton-Jackson, Jackson & Reinhardt, 2011). Millennials “wants it all and they want it now” suggesting that they have a measure of impatience in attaining career and life goals (Ng, Schweitzer & Lyons, 2010).

Race, gender, ethnicity, sexual orientation, age, socio-economic class and all other selective characteristics of diversity are more represented in the general population on college campuses, and Millennials are more globally focused, perhaps driven by their digital connections (Levine & Dean, 2012).

NATO's 28 member countries

The North Atlantic Treaty Organization was created in 1949

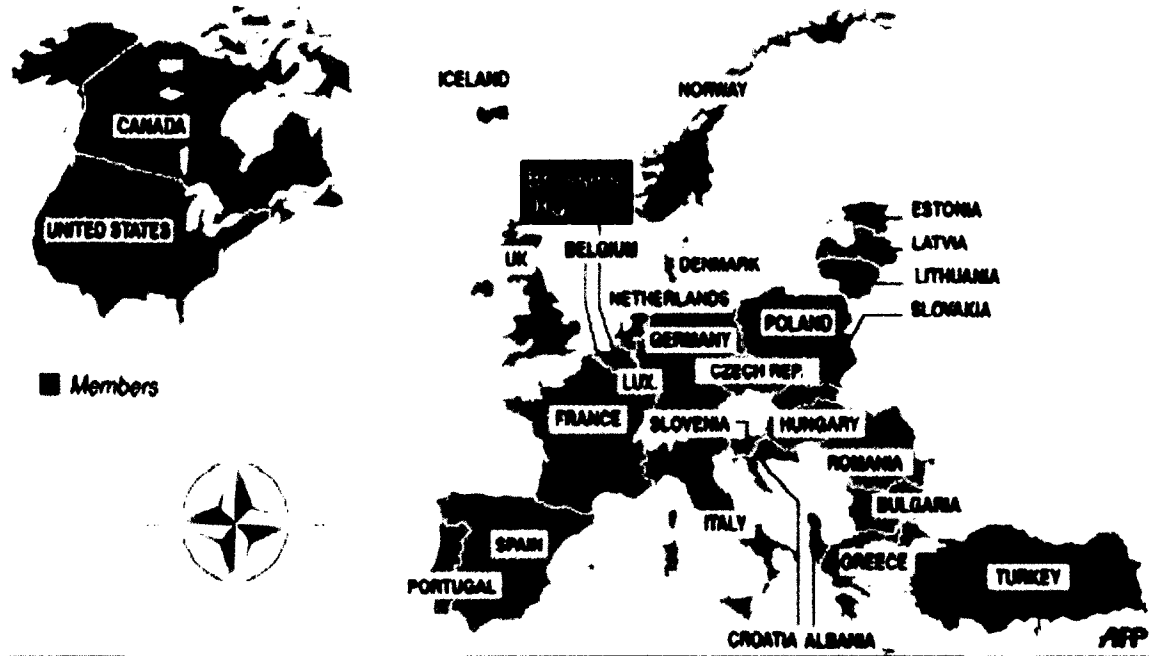


Figure 1. The 28 member nations of NATO include: Albania, Belgium, Bulgaria, Canada, Croatia, the Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Lithuania, Luxemburg, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Turkey, the United Kingdom and the United States.

Since NATO is a 28 member nation organization, as depicted in Figure 1, the question of whether the Millennial Generation phenomena is international across these 28 nations, bears on the study. A recent PricewaterhouseCoopers (PwC) study, conducted in collaboration with the University of Southern California and the London Business School, examined Millennial issues globally. The authors took a regional approach, and the two regions of interest were Western Europe and Central and Eastern Europe. Their findings indicate similar characteristics amongst Millennials in Europe

(PricewaterhouseCoopers, 2013). In Turkey, Millennials are on par with Millennials elsewhere (Kurz, 2013). This evidence leads to the conclusion that this may be an international phenomena.

The characteristics of Millennials are found to carry over into their military service. A global perspective, diversity, use of technology and even the involvement of their parents in decision-making are all found in military Millennials (Hyer, 2013). Senior leaders in military services have indicated that leading Millennials is, in many ways, more challenging than preceding generations and require a more servant style of leadership (Prindle, 2011). Millennials have even affected planning and execution of operations on the battlefield by forcing the issue of social media use and the additional training required to prevent operational security and information security violations.

NATO's educational structures and programs have undergone significant transformation in recent years, and NATO now enjoys access and direct support from a large number of higher education institutions, including graduate education. With six NATO education and training institutions, 19 Centers of Excellence, 24 Partnership Training and Education Centers and a variety of national institutions, all of which are providing courses, degree programs, training events and exercises in support of NATO, issues of change, based on Millennial characteristics, may be needed. Finally, although the Millennials have been studied extensively in higher education in their undergraduate experience, very little is known about them *after* that experience.

Conceptual Framework

The conceptual framework for this study used the existing research literature available on Millennials drawn from studies related to their undergraduate experiences. The variables of maturity, military service and confirmation of the international nature of the phenomenon was applied, leading to projections of Millennials as OF3s (Majors) and OF4s (Lieutenant Colonels) in 2020. The variable of educational technology change, leading to educational delivery change, was also accounted for within the framework. Finally, the projections of all of the variables as they influence, or not, the Millennials by 2020 provided reasonable conclusions about what is required in 2020 to best meet Millennial educational needs in NATO. This information will be used to separately develop investment recommendations.

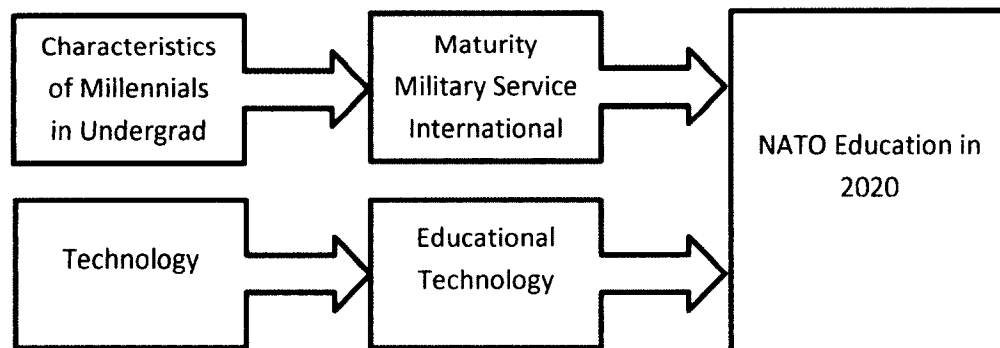


Figure 2. Graphical Conceptual Framework

There are no other studies available which use the conceptual framework in Figure 2. It was derived from the interrelated core concepts and sub-concepts derived from the literature review and was used to frame the study (Roberts, 2010).

Statement of the Purpose and Research Questions

The purpose of this study is to confirm whether Millennial Generation characteristics are international in nature, determine how military service and maturation will affect Millennials by 2020, and determine the state of educational technology in 2020. With all of these factors considered, the study concludes with proposals for changes required to be ready to best meet NATO military Millennial educational needs in 2020, when the Millennials arrive in NATO higher education as Majors and Lieutenant Colonels. The research questions included:

1. Are the defining characteristics of the Millennial Generation international in nature to the extent that they apply to persons from the 28 NATO member nations?
2. How will maturation affect the Millennial Generation characteristics in 2020?
3. How will military service affect the Millennial Generation in 2020?
4. What will be the state of educational technology in 2020?

With the answers to 1-4, the following question can be addressed:

5. What changes will be required to best meet the Millennial Generation's educational needs in 2020?

Definition of Terms

There are a number of terms used throughout this study that are not generally recognized. As such, the following terms are defined for use:

NATO – The North Atlantic Treaty Organization is a political-military alliance formed in 1949 as a means to halt Soviet expansionism in Europe. It originally started with 12 member nations in 1949 and is now 28 member nations. Additional information is provided in Chapter 2, Literature Review.

Millennials – Persons born between 1982 and 2002 with generalized characteristics as studied in undergraduate education. These characteristics are further described in Chapter 2, Literature Review.

OF3 – The rank designator used in NATO for Majors and Lieutenant Commanders. The USA equivalent rank designator is O-4. The difference is due to the lack of O-1 positions in many NATO nations.

OF4 – The rank designator used in NATO for Lieutenant Colonels and Commanders. The USA equivalent rank designator is O-4. The difference is due to the lack of O-1 positions in many NATO nations.

Educational technology – Technologies used in the delivery of education. Examples currently include online education, serious games, simulation and social media.

NATO military leaders – Leaders from the military services of the 28 nations of NATO with experience leading Millennials in a military environment.

NATO military education – Courses, seminars and other venues where students are educated in performance of their jobs in an unpredictable circumstance. Military education teaches one *how* to think about a problem.

NATO military training – Courses, seminars and other venues where students learn to perform jobs in predictable circumstances. Military training teaches one *what* to think about a problem.

College and University faculty and administrators – College and University faculty and administrators from the 28 member nations of NATO who come into daily contact with Millennials and have done so previously for significant periods of time.

Technologists from industry and higher education – Experts in current and emerging technology, including those in higher education institutions, who can predict the technologies in place for the delivery of education in 2020.

Generation X – Name given to the generation prior to the Millennial generation. Generation X, or Xers, were born before 1982.

Overview of the Study

Qualitative data were drawn from interviews with three groups: NATO military leaders, college and university faculty/administrators and technologists from industry and higher education. These were organized into three groups: Higher Education Group, Military Group and Technology Group.

Individual interviews were conducted with the members of each group. Politically important sampling, criterion and theoretical sampling methods were used. The politically important sampling method was used since the results of this study are meant to draw political attention to the phenomenon (Hays and Singh, 2012). In this case, the results will be used to seek approval from the chain of command to potentially make

decisions about future educational investment. The theoretical sampling technique allowed the sampling to be adjusted based on evolving theories developed during the data collection process (Hays and Singh, 2012). It was used in this study to explore further the ideas collected in individual interviews and to adjust the sampling instruments so as to focus on emerging theories. Criterion sampling was used to ensure that the participants meet important criteria ((Hays and Singh, 2012). It was used in this study to ensure that the correct participants were selected so that the interview data is applicable to the research questions.

Eight participants in the Higher Education Group were interviewed until the saturation point, the point at which no new data or theories were identified (Hays and Singh, 2012), was reached. The participants were selected from a variety of colleges and universities in the US and Europe to achieve a multinational perspective. To avoid misunderstandings of language translation and culture, participants' English language fluency was self-identified in the demographic questionnaire. Two research questions were examined using this group, the first research question, the international aspects of the phenomena and the second research question on maturation effects.

Seventeen participants from the Military Group were interviewed until the saturation point was reached. The participants were selected from a variety of national military services in the US, Canada and Europe. Native English-speaking or English fluent participants were most desired to avoid misunderstandings of language and interpretation. The branch of service was not a discriminator since Millennials serve in all three branches (Army, Navy and Air Force). This group was drawn from those in military service who have directly supervised Millennials and, ideally, have Millennial

children of their own and therefore were better placed to project the future effects of military service on Millennials. All research questions were asked of the participants in this group.

The final group, the Technology Group, included those most concerned with technology and its applications in 2020. Seven participants were solicited based on existing technology-related relationships with higher educational institutions or NATO. Participants were solicited from both large and small technology industries. The participants in this group were selected based on their familiarity with information technology and its future developments, particularly within educational applications.

While there was no need to examine across groups sequentially, there was a need to interview in a sequential nature within groups as the theoretical sampling technique was used to refine the interview protocol following each interview.

For qualitative analysis, codebooks to search for repetitive and frequent ideas were used. Horizontalization, as described by Moustakas (1994), was used to analyze the data to develop a textural description leading to the development of a structural description. Field note-taking and formation of memos occurred during and after each interview to record areas of interest as well as to capture research thoughts about statements made during the interviews.

Delimitations

There were several boundaries to this study. First, this study projected ideas about the Millennial Generation in the year 2020 when the lead end of the generation was 32 years old in 2014. Secondly, the study was focused on Millennials in the 28 member

nations of NATO and not as a world-wide phenomenon. As such, the study focused on participants from the US, Canada and the other 26 European nationalities of NATO. This study was specifically for the benefit of NATO higher educational institutions and therefore focused on career military students. Finally, the study was time-constrained between August 2014 and May 2015.

Literature Review

With a general understanding of the study and how it was conducted, it is useful, at this point, to examine what is to be found in the applicable literature.

CHAPTER 2

LITERATURE REVIEW

The Millennial Generation began arriving in higher education in the year 2000. Since that time, they have increased their presence and formed the largest population cohort at the undergraduate level. Much study has been done on Millennial students in terms of defining who they are and what general characteristics delineate them from other generations (Levine & Dean, 2012). As this population matures, how they serve in the military and exert increasing influence on the delivery of higher education by NATO is important to understand. By 2020, NATO's higher education courses and programs will begin to be filled by this population as they age and reach the rank of Major and Lieutenant Colonel (OF3 and OF4). Thus, a keen understanding of who they are and how NATO educational delivery can best be structured to maximize their learning experience, was needed.

Millennial Generation Description

The Millennial Generation has been the subject of debate and study for quite some years in undergraduate higher education. Although it can be tricky to generalize about entire generations of people, the Millennials do seem to exhibit certain commonalities in terms of behavior and needs in their undergraduate experiences. But, before defining their characteristics, we must define the term Millennial Generation itself. It is at this point that the popular truism, "What's in a name?" bears on the question of whom the Millennials are. They have a numbers of nicknames in today's society.

With the preceding generation labelled as Generation X, the Millennials are often referred to as Generation Y, a quite logical term given the order of letters in the alphabet and the sequential aspect of the generation following Generation X. Levine and Dean cite several names such as the Internet Generation and the Digital Generation (Levine and Dean, 2012). The term “Trophy Kids” is used to identify them as the generation who received gratification through the distribution of sports trophies for every child, whether they performed or not (Bracy, Bevill & Roach, 2010). Interestingly, Palfrey and Gasser posit the name “Digital Natives” with the idea that this generation *grew up* in the digital age whereas their predecessors, Generation X, *grew into* the digital age (Palfrey & Gasser, 2010). For the remainder of this study, the terms Millennials and Millennial Generation will be used throughout.

This generation is easy to define by their birth years. However, this can be a bit difficult because authors and researchers in the field vary somewhat on definition of the inclusive years of birth. Most authors place the generation as being born somewhere between 1977 and 1982 and ending between 1994 and 2003 (Bracy, Bevill & Roach, 2010). Some are quite specific in their definitions of the inclusive years. Lykins and Pace define them specifically as having a birth year that falls in the period 1977 and 1997 (Lykins & Pace, 2013). Nicholas defines them as born between 1981 and 2001 (Nicholas, 2008). Similarly, Emanuel defines them as born between 1982 and 2001 (Emanuel, 2013). Ng, Schweitzer & Lyons simply define them as “born in or after 1980” (Ng, Schweitzer & Lyons, 2010) but this definition is problematic in that it places no upward bound on the population. Similarly, Lipponcott’s definition of Millennials as born between 1982 and 1991 is probably too narrow (Lipponcott, 2010). For purposes of

this study, the inclusive birth years 1982 to 2002 will be used when considering and defining the Millennial Generation as this seems to include the majority of published definitions.

Millennial Generation Characteristics and Higher Education

The first, most obvious characteristic that the Millennials have grown *up* in the information age and are the first generation to have done so (Levine & Dean, 2012). Their lives have been full of electronic gadgetry which was connected to, and interacted with, the internet. They have explored, entertained themselves and communicated through this medium as a normal course of life. There is even medical research that describes a different growth in brain synapses in Millennials that may be triggered by working with technology (Hershatter & Epstein, 2010).

Millennials rapidly become bored with traditional, non-technological means of instruction (Newkirk, 2012). As such, these “digital natives” want to see information technologies integrated into their educational experiences (Newkirk, 2012). This gives rise to the idea of “edutainment” whereby technologies are used to teach and entertain Millennials simultaneously. Creating active learning situations, providing feedback, and making learning interesting through the use of serious games and digital tools are all examples of this practice (McGlynn, 2008). Visually literate content, use of webinars and online training modules are also good examples of integrating the use of technologies into the classroom for Millennials (Evans & Forbes, 2012).

Because Millennials have spent a large portion of their lives interacting in the digital world in the form of surfing the web and playing games. They are used to

interacting through text, emails and chats and often struggle with developing relationships with a live person with whom they must directly interact. Ironically, although they communicate with each other in the digital world and are therefore more connected, they are more isolated in terms of direct, personal relationships (Levine & Dean, 2012).

Perhaps due to the lack of the ability to have more direct relationships, Millennials seek and enjoy group work in their educational experiences. A technique to replace traditional lecturing is to execute team-oriented group activities. The traditional style of lectures should only be used to set the conditions for group activities which focus on active learning situations (Roehling, Kooi, Dykema, Quisenberry & Vandlen, 2011). Everyday technology should be integrated to the maximum extent possible through use of online systems like BlackBoard and the use of serious games. (Werth & Werth, 2011).

The nature of their digital communications has led to a desire for instant gratification. Texts and emails must be answered quickly, otherwise, the Millennials get frustrated. Although this is evidenced in their personal relationships, it also translates to their classroom experiences. They expect quick responses from digitally connected faculty and mentors (Evans & Forbes, 2012). Anecdotal evidence exists that many faculty have changed their office practices so as to be responsive to students day and night and on weekends, largely to meet this need for instant gratification.

Many parents of Millennial student, also known as Generation Xers, are often referred to as “Helicopter Parents” ready to swoop in and demand resolution of problems large and small. Throughout their young lives, these parents solved the problems and

never allowed their child to take significant risks. Millennials have therefore grown up in an environment that was overly protective (Ferri-Reed, 2012). In their higher educational experiences, they seek self-sufficiency as the parents are no longer present on a daily basis. Because they have never faced significant risk of failure in their lives, they do not see the need to work hard in higher education, probably because they know their parents will rescue them should they face trouble (Perna, 2012). To best enable their learning, they must have an environment whereby they can take risk and potentially fail, but, in doing so, they will achieve better learning (Pardue & Morgan, 2008). Ironically, because the parents removed risk from Millennial lives, once Millennials are on their own at college, their stress levels, perhaps due to not having their parents there to rescue them, are elevated (Bland, Melton, Welle & Bigham, 2012).

The Millennials have given rise to the idea that higher education is a “service” and that they are “customers” of that service. Likely linked to the role of their “Helicopter Parents” and the need for gratification, Millennials see their education from a payment-for-services-rendered perspective (Singleton-Jackson, Jackson & Reinhardt, 2011). Therefore they demand a measure of quality and responsiveness in the delivery of the educational product. Ironically, in this age of dwindling governmental resources for higher education, colleges and universities rush to enroll and retain as many students as possible to equalize their budget deficits. In this competition for students, the very idea of education as a service is reinforced by the institutions themselves (Bok, 2006).

Millennials want good pay and benefits, rapid advancement, a balance between life and work, work that is interesting and to contribute to society (Ng, Schweitzer & Lyons, 2010). This may not sound surprising as it fairly well matches the generations

before them. However, as the authors suggest, this generation “wants it all and they want it now” (Ng, Schweitzer & Lyons, 2010) suggesting that they have a measure of impatience in attaining these goals that was not previously experienced in other generations.

The Millennials are the most diverse group in educational history. Race gender, ethnicity, sexual orientation, age, socio-economic class and all other selective characteristics of diversity are more representative of the general population on college campuses today (Levine & Dean, 2012). The increases in international student enrollment and participation in higher educational experiences also contribute to diversity in the form of cultural exchange with increases in exchange student programs (Glass, Buus & Braskamp, 2013). As such, Millennials are exposed to a wide variety of perspectives and experiences which they share and ultimately create a more broad view of their circumstances. Indeed, in 2013, the National Survey on Student Engagement focused one of their topical sampling efforts on the issue of diversity (National Survey on Student Engagement, 2013).

Millennials have access to information and news from around the world, beamed to them in an instant on their smart phones, laptops, tablets and Google glasses. They can, if they choose, follow instant updates on Twitter, Facebook and other tools and track people and events as they unfold. This leads to the notion that Millennials are more global in their perspectives because they are able to access information in a more global way. With businesses, higher education and society expanding into the idea of a globally connected society, this reinforces the Millennial global view (Levine & Dean, 2012).

Millennial Generation Characteristics Internationally

NATO is an alliance of 28 nations. The US and Canada are the North American members with the remaining 26 nations to be found in Europe. With the plethora of studies, data and academic material available in the US and Canada on the topic, the question becomes, is the Millennial Generation phenomena international in nature? More specifically, are the phenomena and defining characteristics international across the 28 nations of NATO?

In examining the effects of the recent recession in Belgium, De Hauw and De Vos focus on Millennials and define them along the same lines as Millennials in the US and Canada (De Hauw & De Vos, 2010). These authors confirm that Millennials want good jobs, good pay and good benefits as mentioned by Ng, Schweitzer & Lyons (Ng, Schweitzer & Lyons, 2010) and suggest that these expectations are largely embedded in the generation.

Likewise, a study in the United Kingdom focused on similar lines and drew parallel conclusions (Shaw and Fairhurst, 2008). The authors found that a profile of Generation Y (Millennials) students suggests that the learning styles and expectations of this group are very different from earlier generations and that higher education needs to utilize technology to deliver audio-visually rich, multi-tasking challenges which require collaborative approaches. Their educational experiences must also offer instant feedback while at the same time recognizing that participants may not see the need for or take responsibility for their own development or perceived failings (Shaw and Fairhurst, 2008).

Information technology research on Millennials in France, Germany, Italy and the Netherlands indicate comparable findings (Accenture, 2010). This research reveals that European Millennials are just as technology-bound as their US and Canadian counterparts. Although the research suggests that some areas of Europe lag behind slightly, probably due to infrastructure and access issues, the attitudes and attributes mentioned by Levine and Dean (Levine & Dean, 2012) are applicable, particularly in citing global perspective and technology dependence.

A recent PricewaterhouseCoopers (PwC) study, conducted in collaboration with the University of Southern California and the London Business School, examined Millennial issues globally. They took a regional approach and two regions of interest were Western Europe and Central and Eastern Europe. Their findings indicate similar characteristics amongst Millennials in Europe as are in the US and Canada (PricewaterhouseCoopers, 2013). The authors cite evidence of demand among Millennials for good jobs and pay without sacrificing their personal lives. In addition, working in groups and desire for enhanced technologies are Millennial characteristics in Europe similar to US and Canadian counterparts. (PricewaterhouseCoopers, 2013).

Millennials in Turkey have a global perspective and are on par with Millennials elsewhere (Kurz, 2013) in the areas of use of technology, working in groups and demand for good job, pay and benefits. Although there are some differences in cultural perspective in terms of interactions with government, this differences is not a focus of this study. It appears that the Millennial Generation and its characteristics may be similar across the 28 nations of NATO.

Military Millennials

The first Millennials arrived in military forces beginning around the year 2000 as they turned 18 years of age. The lower and mid-level ranks of the military forces of NATO nations are now dominated by the Millennial population. By the year 2020, they will be moving into the upper ranks of senior officers at the Major and Lieutenant Colonel rank levels across the NATO nations.

The characteristics of Millennials are found to carry over into their military service. A global perspective, appreciation of diversity, use of technology and even the involvement of their parents in decision-making are all found in military Millennials (Hyer, 2013).

Senior leaders in military services have indicated that leading Millennials is, in many ways, more challenging than preceding generations and require a more servant style of leadership (Prindle, 2011). Because Millennials are heavy users of technology, interact with their peers in frequency, have grown up with much more diversity embedded in their experiences, traveled more globally, and have a strong preference for experiential learning instead of the traditional classroom environment (Prindle, 2011). In particular, senior leaders are challenged to keep Millennials engaged in relevant activities by using technological means as they become bored so easily.

The Millennials are such a focus of military concern that major, long-term studies are being undertaken to better understand them, including a 21 year study on the impact of military service on Millennials (Ryan et al, 2007) which will complete and present findings in 2028. The Millennial phenomenon has even led to changes in recruiting and

retention through the use of social media so as to attempt to reach Millennials through their preferred communication methods (Smith, 2009).

The military Millennials have affected the planning and prosecution of war and operations. In the early years of conflict in Afghanistan and Iraq, the simple Generation X response to social media on the battlefield was to jam the cell towers and thereby cut off all external communications, rendering smart phones and other electronic media useless. Largely cited as a need for operational security, the reality was that leaders from Generation X simply did not understand the Millennials need for technology and communication. As late as 2009, social media was continuing to be blocked in Iraq (Majorman, 2009). However, slowly, planners have realized that Millennial use of social media is necessary on the battlefield, particularly from a morale standpoint. Training efforts in operational security and information security were launched and the use of social media is now planned for and integrated into operations. General communications between leadership and military units have integrate many of the technological aspects of the Millennial Generation by leveraging the social media systems that are most effective when communicating with Millennials. Indeed, Millennials seem to be having an effect on how the military operates and may also affect how military education should be delivered to them.

NATO and Higher Education

NATO educational structures and programs have undergone significant transformation in recent years and NATO now enjoys access and direct support from a large number of higher education institutions, including graduate education. With six

NATO education and training institutions, 19 Centers of Excellence, 24 Partnership Training and Education Centers and a variety of national institutions all of whom are providing courses, degree programs, training events and exercises in support of NATO. With a large body of partnerships that provide education and training, issues of organization, governance and student populations need to be studied for future consideration for the benefit of all of these institutions.

The North Atlantic Treaty Organization (NATO), originated within the Washington Treaty of 1949. It was formed in response to the imminent threat of communist expansion by the Soviet Union as well as the need for continued economic reform following World War II (Public Diplomacy Division, 2006). It served as the basis for demonstrating military and political solidarity in the face of economic reconstruction under the Marshal Plan and the defense from a perceived, ever-expanding Soviet empire. Since 1949, the Alliance has enlarged numerous times and today enjoys membership of 28 nations (Public Diplomacy Division, 2006) as shown in *Figure 3*.

NATO's 28 member countries

The North Atlantic Treaty Organization was created in 1949

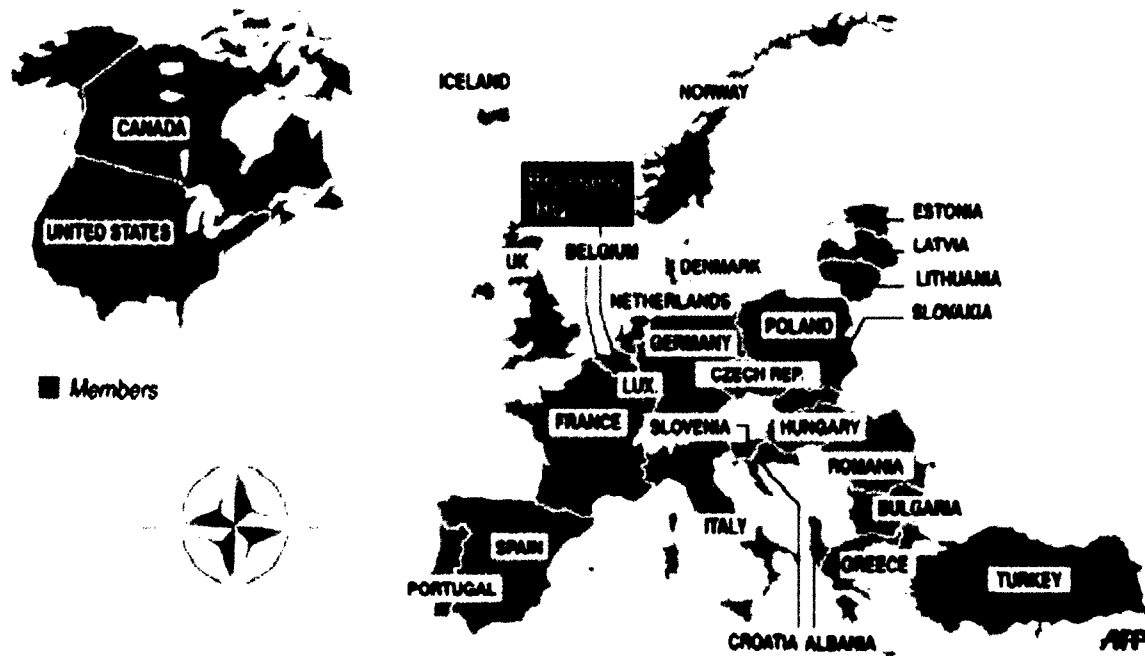


Figure 3. The 28 member nations of NATO include: Albania, Belgium, Bulgaria, Canada, Croatia, the Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Lithuania, Luxemburg, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Turkey, the United Kingdom and the United States.

The ability for the member nations to work together in conducting military operations and achieve common objectives was considered the major strength of the alliance. This ability, known in NATO as “interoperability”, is arguably as the most crucial element of NATO’s success as it unites the efforts of 28 nations towards common political and military goals and objectives.

From the very beginning of the Alliance, the NATO member nations realized that they needed a common frame of reference within which to operate. This thought led to

adoption of English as the primary language in both written and oral form (Public Diplomacy Division, 2006). This allowed the military personnel from all nations, whether or not they were native English speakers, to communicate with each other effectively. Eventually, there was discovery that written and verbal communications were simply not enough to achieve large-scale interoperability. Systems, procedures, logistics and even ammunition types also required standardization to more fully realize true interoperability (Public Diplomacy Division, 2006). These changes increased the ability of the alliance to bring the member nations even closer together to achieve increased effectiveness and efficiency.

With these procedural and technical changes in place, there was additional realization that tactics, techniques and procedures also needed to be understood in a common fashion. This gave rise to the understanding that this level of interoperability could only be achieved through common military education and training. Throughout the 1970s, 80s and 90s, much effort was placed in the establishment of common educational facilities and programs, namely the NATO Defense College in Rome, Italy and the NATO School in Oberammergau, Germany. These efforts increased interoperability even farther and facilitated the added benefit of accelerating the “westernization” of former Warsaw Pact nations as they aspired to, and gained, NATO membership (Public Diplomacy Division, 2006).

Throughout the 2000s and until recently, NATO has undergone numerous revisions to its structure, role and mission. In 2003, 2008, 2010 and 2012, as NATO nations struggled to afford their own national forces, their commitments to NATO were re-prioritized and NATO’s personnel structures were downsized. As is often the case,

although major cutbacks were executed, the demand for increased interoperability rose. The often-heard colloquial expression “do more with less” became the rule of the day. Now, NATO faces major challenges with emerging threats to alliance security in the form of terrorism, cyber-attack, weapons of mass destruction proliferation and ballistic missile defense. More than ever before, NATO has to adjust its approach to military education and training to meet these new threats as well as maintain previous responsibilities, all within more effective, efficient and affordable interoperability frameworks.

Because many use the terms education and training in an interoperable fashion, it is important at this point to distinguish between military education and training. In NATO, military education is defined as courses, seminars and other venues whereby one is educated in the performance of their jobs in unpredictable circumstances (Military Committee, 2014). Military education teaches one *how* to think about a problem. NATO military training is defined as courses, seminars and other venues where students learn to perform jobs in predictable circumstances (Military Committee, 2014). Military training teaches one *what* to think about a problem.

Although NATO’s military education and training systems, including the management thereof, have undergone significant transformation in the last decades, there is a need to review these mechanisms and prepare for future education and training needs. These future education and training needs must encompass the continued need to transform and embrace selected mechanisms as best practices from civilian college and university management, particularly with respect to Millennials.

NATO, as such, does not “own” military forces. All units, ships and aircraft used in NATO operations are drawn from the member nations through a force generation process and are placed under NATO operational control. These units arrive certified and ready to accomplish their collective tasks and missions. NATO provides the command and control staffs at the operational level and strategic levels and these units are “plugged” into that architecture. NATO’s responsibilities for education therefore differ from that of the nations. Per NATO policy, the member nations are responsible for educating and training their personnel whether provided as collective units or in individual assignments to NATO staffs (Military Committee, 2009). However, there are often deficiencies in the educational qualifications of NATO staff members based on lack of opportunities in national institutions or a need for NATO-specific education and training. Recognition of this need led to the rise of NATO’s higher educational institutions and the role they play in educating NATO professionals as well as national personnel prior to their NATO assignments (Military Committee, 2014).

In terms of the students themselves, they come from all 28 nations and all services within the nations, as well as NATO’s own professional civilian service corps. Each service member’s military culture is a function of their nationality combined with their specific service. While most nations have 3 services (Army, Navy and Air Force), some are, in fact, landlocked and do not have navies. Accounting for this, there are a total of 76 different military cultures within the diverse perspectives and experiences represented in the classroom.

With a continuing need to educate such a broadly diverse body of NATO and national personnel, the preminent NATO higher educational institution, the NATO

School in Oberammergau, Germany (NSO) delivers advanced courses to over 10,000 students per year. As shown in *Figure 4*, the majority of students at the NATO School are at the Major and Lieutenant colonel level (OF-3 and OF-4).

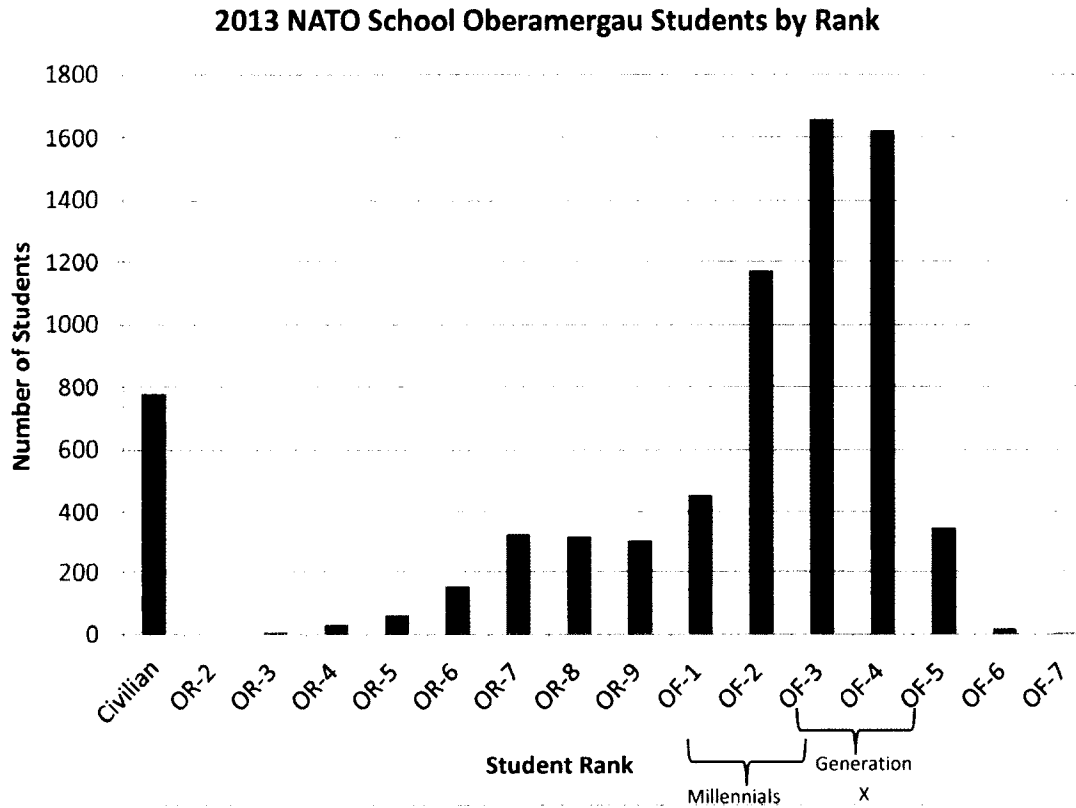


Figure 4. 2013 student population at NATO School Oberammergau by rank groups with OF-3 and OF-4 as majority populations.

Further, this majority population is also described by age group as in *Figure 5*.

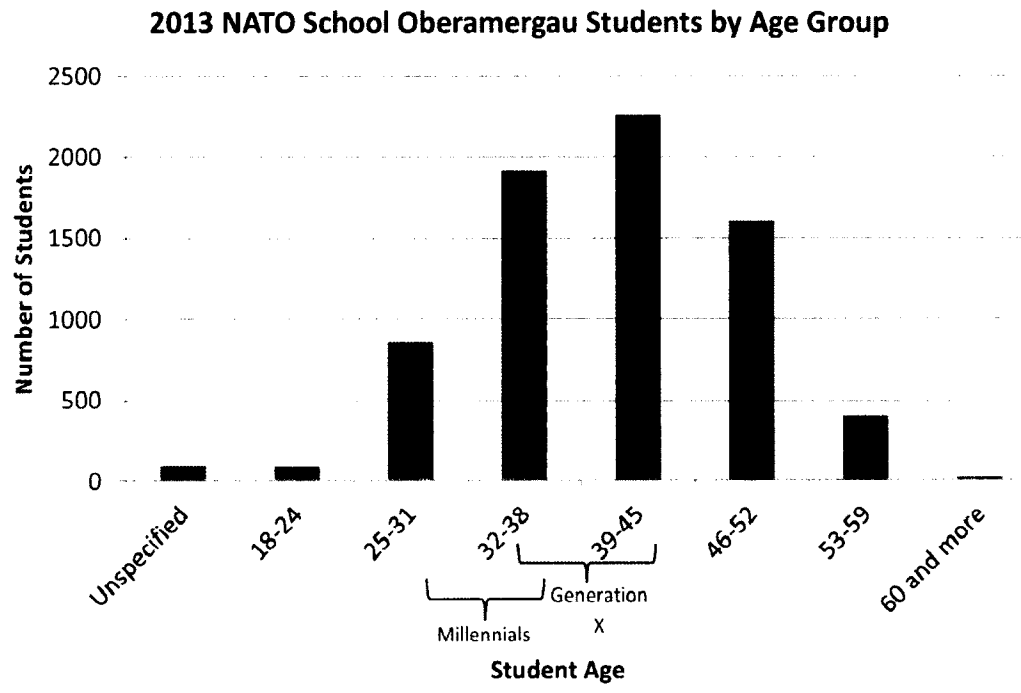


Figure 5. 2013 student population at NATO School Oberammergau by age group.

These figures depict the linkage between the majority of students at the school and their age group and define the majority population as OF-3s and OF-4s in the 39-45 year old age group.

Millennials today are still too young to be in this target population. Those born in 1982 are 32 years old in 2014 and just undergoing promotion procedures to be selected for advancement to the rank of major. However, by 2020, Millennials will be promoted into the OF-3 and OF-4 ranks and will be arriving increasingly as part of the population in NSO as they are promoted into the OF-3 ranks.

Courses at the NATO School, and many other NATO-affiliated educational institutions are usually one or two weeks in length and conducted as institutes whereby students attend class all day, every day. Classes range in size from 20 to 50 and are

conducted as lecture-based venues initially and then usually transitioning to small group projects for knowledge application. Lectures are delivered in PowerPoint with guest speaker commentary. There are frequent breaks throughout the instructional day. Some courses utilize asynchronous online pre-requisite preparation packages with the aim of providing information to students prior to arrival.

In considering of the arrival of military Millennials as the majority population, an examination of how to best meet their educational needs was warranted. The defining characteristics of the generation, as drawn from the literature, were used as guidelines for content and delivery design, but an additional factor for deliberation was that of technological change and how it will influence educational delivery in 2020.

Technology in Higher Education in 2020

The single constant true today in society is the constant of technological change. Educators have been struggling with the integration of technological change throughout higher education's history (Nickerson & Zodhiates, 2009). Throughout the 90s, higher education experimented with web-based tools and CD-ROM based training courses as the access to personal computers exploded in the general population. In the 2000s, distance and blended learning was popularized in higher education and the birth of the virtual university was realized (Garrison & Kanuka, 2004). Virtual reality has the potential to immerse the learner in a variety of situations where they can visualize information and see hidden phenomena and help students understand concepts and processes unlike any previous experience (Mihalca & Miclea, 2007). In addition, virtual worlds allow the learner to explore new ideas and concepts without the fear of failure as the virtual

experience can always be terminated and restarted (Martin et al., 2011). NATO's own analysis of online learning and virtual reality indicate that educational delivery will change in substantive ways (North Atlantic Treaty Organization, 2013).

With the approach of virtual reality and its potential to fundamentally change the nature of education, combined with the individualized educational experience that technology allows in the future, the 2020s will mark an evolution, perhaps even a revolution, in higher education (Silberglitt et al., 2006). A keen understanding of the future technological developments, how they affect higher education, and the resulting necessary business processes in higher educational institutions is needed to prepare for this future state (Brynjolfsson & Hitt, 2000).

Chapter Summary and Significance

The very nature of students has changed with the arrival of the Millennial Generation. This generation has brought its own unique set of characteristics to undergraduate education and caused changes in educational systems. They have changed the nature of military education as well as effected change on the battlefield itself. As they grow older and get promoted, the Millennials will achieve higher rank levels within military structures and increased influence and responsibility. As the military officers of each of the services of the 28 member nations of NATO move into the Major and Lieutenant Colonel senior officer ranks, they have potential to be assigned to a position in a NATO staff. It is likely that they will need to attend one or more higher educational courses at the NATO School-Oberammergau (NSO) or NATO Defence College (NDC) to prepare for, or perhaps while serving in, their NATO assignment. By 2020, they will

be entering the majority target populations at NSO and NDC and NATO must be ready for them. Finally, technology will continue to advance and stands to potentially further revolutionize higher education. NATO's higher education institutions must also be ready for, and embrace, technological changes by 2020.

However, there are several questions that needed to be addressed in order to prepare for the shift in needs with the arrival of the Millennials. How does maturation affect Millennials as they age and take on familial and social responsibilities? How does career military service affect Millennials? Are the Millennial Generation characteristics truly common in all nations of NATO? How will higher education be delivered in 2020?

The answers to these questions will contribute to answering the fundamental question for NATO - How can NATO best meet Millennial educational needs in 2020? The purpose of this study was to confirm if Millennial Generation characteristics are international in nature, determine how military service and maturation will affect Millennials by 2020 and determine the state of educational technology in 2020. Finally, with all of these factors considered, it provides proposals for change required to be ready to best meet NATO military Millennial educational needs in 2020 when the Millennials arrive as the majority student group in NATO higher education as Majors and Lieutenant Colonels. The research questions were:

1. Are the defining characteristics of the Millennial Generation international in nature to the extent that they apply to persons from the 28 NATO member nations?

2. How will maturation affect the Millennial Generation characteristics in 2020?
3. How will military service affect the Millennial Generation in 2020?
4. What will be the state of educational technology in 2020?

With the answers to 1-4, the following question was addressed:

5. What changes will be required to best meet the Millennial Generation's educational needs in 2020?

Study Method

With a literature review of current research and the research questions in mind, the method for the conduct of the study was developed and executed.

CHAPTER 3

METHODS

Introduction

The purpose of this study was to confirm if Millennial Generation characteristics are international in nature, determine how military service and maturation will affect Millennials by 2020 and determine the state of educational technology in 2020. Finally, with all of these factors considered, the author makes proposals for changes required to be ready to best meet NATO military Millennial educational needs in 2020 when the Millennials arrive in NATO higher education as majors and Lieutenant Colonels. The research questions were:

1. Are the defining characteristics of the Millennial Generation international in nature to the extent that they apply to persons from the 28 NATO member nations?
2. How will maturation affect the Millennial Generation characteristics in 2020?
3. How will military service affect the Millennial Generation in 2020?
4. What will be the state of educational technology in 2020?

With the answers to 1-4, the following question was addressed: 5. What educational delivery changes are required to best meet the Millennial Generation's educational needs in 2020?

Research Design

The design for this study was qualitative within a social constructivism paradigm and a phenomenological tradition (Hays and Singh, 2012).

Because of its future orientation, data about the year 2020 simply does not exist. There are no datasets, interviews or experiments that can be examined because these types of measures will not be available for some years to come. As a result, predictions were made about the future as captured through qualitative means.

Because of the multinational focus of this study, there was a great variety of cultural, historical and political processes which affect each participant's perspective. Thus, examining the participants' projections about the year 2020 was subject to their own learned experiences, interpretations and constructed knowledge. Therefore, a social constructivist paradigm was used in the study (Hays and Singh, 2012). Bias associated with collecting information based on personal experiences, personal identities, as well as multicultural and linguistic perspectives, was recognized and appropriate mitigation applied. Trustworthiness was examined to ensure that scientific rigor was provided in the absence of reliability and validity (Hays & Singh, 2012).

The phenomenological tradition was used in this study because of the qualitative focus on individual experiences and beliefs about the future (Hays and Singh, 2012). Because there was a potentially large effect based on the participants' individual perspectives about this future phenomena, understanding about how they thought about the future as well as the thoughts themselves, was of interest and among the foci of study.

These perspectives were even more complex because of the varied nature of the audiences selected to examine each of the research questions.

Participants

The varied nature of each of the research questions required differing participant groups. For example, the group best poised to make subjective projections about how maturity will affect Millennial generation students was different than the group best poised to project how military service affects Millennials. Likewise, the group that is most informed about technology and its future application, particularly in higher education, differed from the first two groups. As such, the participants were organized in three differing groups based on professional familiarity with each of the four research questions.

The participants represented 13 nationalities from NATO nations in North America and Europe including the United States, Canada, the United Kingdom, Belgium, France, Italy, the Czech Republic, Turkey, Greece, the Netherlands, Norway, Germany and Portugal. Further, these participants had worked, served or lived in an additional six nations including Luxemburg, Denmark, Bulgaria, Romania, Spain and Albania. Finally, the participants had worked, served or lived in other nations around the world and shared their experiences there as well.

Participants were not interviewed nor had observations about six NATO countries: Estonia, Latvia, Lithuania, Slovakia, Slovenia, Poland, Croatia, Hungary and Iceland.

Purposeful Sampling

To obtain information-rich cases, purposeful sampling was used. Homogeneous sampling was used for representativeness of sample purposes (Hays & Singh, 2012). Although there are three differing groups, each group was homogeneous within their group and shared similarities. In terms of the description of the phenomena, politically important sampling was used since the results of the study will likely draw significant political attention and possible investment (Hays & Singh, 2012). In terms of theory development, theoretical sampling was used to make adjustments as needed to the instruments as theories emerged (Hays & Singh, 2012). These purposive sampling methods were defined for each group.

Higher Education Group

The first group, labelled henceforth as the Higher Education (HIED) Group, was concerned with maturation effects on Millennials and were those persons who most closely deal with Millennials currently in higher education. These participants were college and university higher education professionals who have interacted with Millennial students for some time. Given that Millennials have been college-age for just over 10 years, the ideal participants were professors or student affairs administrators with direct experience for a decade or more. These participants had experiences and personal insights available to accurately predict the effects that maturity will have on Millennials. The criteria for inclusion of participants were that they have completed their personal college and university experience more than a decade ago and have families and other social responsibilities. This was important to the study as they could best integrate these

aspects into their projections of Millennials in the future based on their personal experience of the maturation process. Members of this group held advanced degrees in their field so that they were familiar with research techniques and best understood how to provide information-rich descriptions. In addition, this group was poised to formulate inputs as to how best to meet the higher educational needs of Millennial generation students in 2020. In seeking to determine if the Millennial generation characteristics were international in nature, this group provided some insights from international higher education institutions.

Eight participants for this group were interviewed until the saturation point was reached (Hays and Singh, 2012). The participants were selected from a variety of colleges and universities in the US and Europe and achieved a multinational consensus. Native English-speaking or English fluent participants were the most desirable participants to avoid misunderstandings of language translation and culture. The participants were asked to self-identify their English fluency based on the NATO scale of 1 through 4 in the four categories of reading, writing, speaking and oral comprehension. A “4” is fully fluent. For all non-native English speakers, this scale is developed through national testing mechanisms. For native English speakers, “4s” are automatically assumed in NATO. Table 1 provides some characteristics of this group along with the pseudonym, starting with the letter “H”, assigned to each member of this group.

Table 1

Characteristics of the Higher Education Group

Pseudonym	Age	Nation of Origin	Millennial Children	Years of interaction with Millennials	English Fluency
Hadley	48	United Kingdom	Yes	10	4444
Hadrian	50	Germany	Yes	10	4433
Hailey	37	France	No	12	3333
Harold	57	Canada	No	14	4444
Harry	50	United Kingdom	Yes	14	4444
Harvey	54	Netherlands	Yes	14	4444
Hattie	53	United Kingdom	Yes	6	4444
Hazel	51	United States	Yes	11	4444

Access to participants in this group was solicited through email contact, recommendations and introductions and formed a purposeful and convenience sample. Four interviews of participants who were located in the US were easily scheduled and executed. Three participants were located in Europe and arrangements for the date and time of the interview were scheduled during periods of travel to provide convenient circumstances for participants. All interviews were conducted in person with one exception that was conducted by telephone.

To provide a richer and thicker description as well as to enhance understanding of the participants' lived experiences, summaries of each of the members of the Higher Education Group are provided. These summaries were drawn from written field notes, memos taken, demographic information forms and personal interactions during the interview process.

The pseudonyms used for each participant were randomized from a gender perspective so as to protect identities. Thus, a male could have been assigned a female pseudonym and vice versa. As such, the pronoun usage in the portraits below is based on the gender of the pseudonym and does not necessarily reflect the actual gender of the participant.

Summaries of HIED Group Participants

Hadley. Hadley was an energetic higher education professional with two Master's degrees and a terminal degree. He was of United Kingdom nationality, but employed at a higher education institution in The Netherlands. He was married and had three Millennial children of his own. He was keen to participate in the study, not only to better understand Millennial students, but also to identify the behaviors present in his own children. He had 14 years of experience in dealing with Millennials, both in a higher educational setting as well as with his own children.

Hadrian. Hadrian was of German nationality, but employed as a higher education institution in The Netherlands. He held the terminal degree and was almost wholly focused on research efforts at the institution. Hadrian was a bit stand-offish initially, but warmed up to the conversation once the demographic questions were completed. Unfortunately, before getting to know Hadrian better, the interview was terminated early due to his reception of an urgent phone-call.

Hailey. Hailey was a higher education professional employed at an institution in Belgium. She was an unmarried French academic with no children, however, she had very close ties with her siblings and their children. She was very much motivated to

participate in the study so that she could draw on her lived experiences with students as well as her nieces and nephews. Her accent was thick and she sometimes paused to find the right words in English to make herself clear. She spoke multiple languages, was well-travelled and related some of her memorable experiences from the Balkans and elsewhere.

Harold. Harold was a career higher education professional working at a higher education institution in Belgium, although he was Canadian in nationality. He had no Millennial children of his own, but had significant experience with Millennial students. He was thoughtful in his responses and often paused, as if in deep thought, before replying to a question. He had worked in a variety of institutions in Canada, Europe and had taken several field trips to Asia and the Middle East. Harold was able to share insights about a variety of countries around the world.

Harry. Harry was of English nationality and working at a higher education institution in the United Kingdom. He held a terminal degree already and was currently working on a second degree while also employed at the institution. He was knowledgeable about NATO educational institutions, particularly the NATO School in Oberammergau and the NATO Defense College. He had two Millennial children of his own and seemed to enjoy the conversation, often relating examples of dealing with students as well as with his own children.

Harvey. Harvey was a Dutch higher education professional employed at an institution in the Netherlands. Harvey squeezed the interview in between two other appointments and, in his rush to complete the interview, spoke very quickly in replying to

questions. Although his English was very good, the rushed nature of his diction required several follow up questions for clarity which seemed to frustrate him a bit. Harvey had travelled and vacationed extensively in Europe.

Hattie. Hattie was an English academic employed at a higher education institution in the United Kingdom. He held a terminal degree and taught numerous courses where he interacted with Millennial students. He had two Millennial children of his own and injected observations about students and his own children when answering questions.

Hazel. Hazel an American higher education professional employed at an institution in Belgium and spoke multiple languages. Hazel had two Millennial children, including one serving in the US military. Because she revealed this during the interview, the military questions were added to this interview and Hazel shared her lived experiences with her military Millennial son.

Homogeneous sampling, politically important sampling and theoretical sampling was used (Hays and Singh, 2012). Homogeneous sampling was appropriate as the participants shared similar characteristics of occupation, time in occupation, marital, familial and social responsibility status. The politically important sampling method was used as the results of this study may be used to seek approval to integrate findings into future organizational and investment programs as well as the potentially diverse political backgrounds and perspectives based on country of origin. Finally, the theoretical sampling technique was used to further refine the direction of the sampling as the individual interviews unfold and theories emerge.

Military Group

The second group, hereafter designated the Military (MIL) Group, was drawn from those most knowledgeable of military service and therefore best placed to project the future effects of military service on Millennials. As with the first group, this group were in the senior ranks of professional military service and had direct interaction with Millennials who are in military service. The criteria for inclusion of participants was that they had direct supervisory or leadership experiences of Millennial military personnel so as to provide some insight into how the Millennial perspective changes, or not, based on military service over the last decade. This was important to the study as they could best integrate their personal experiences and their observations of Millennials into their projections of the future. Ideally, significant military experience with a length of 20 years or more ensured that the participant themselves are not Millennials, yet had the desired interactions. This group was also best poised to formulate ideas as to how best to meet the military higher educational needs of Millennium Generation students in 2020. Ideally, the participants also had Millennial children of their own so as to provide even richer descriptions of Millennial maturity. Finally, Millennial military members were solicited for discussion with the purpose of triangulating the conclusions of the senior military personnel.

Seventeen participants for this group were interviewed until the saturation point was reached (Hays and Singh, 2012) including two Millennial military officers. The participants were selected from a variety of national military services in the US, Canada and Europe. Native English-speaking or English fluent participants were most desired to avoid misunderstandings of language and interpretation. Just as with the Higher

Education group, the participants were asked to self-identify their English fluency based on the NATO scale of 1 through 4 in the four categories of reading, writing, speaking and oral comprehension with the assumption of fluency for native speakers. The branch of service was not a discriminator in selection of participants as Millennials serve in all three branches (Army, Navy and Air Force). Table 2 depicts characteristics for this group along with the pseudonym assigned, which started with the letter “M”.

Table 2

Characteristics of the Military Group

Pseudonym	Age	Nation of Origin and Military Service	Millennial Children	Years of interaction with Millennials	English Fluency
Mable	22	German Army	No	1	3333
Mack	63	German Air Force	Yes	2	4433
Macy	52	Canadian Army	Yes	14	4444
Mattie	48	Belgian Army	Yes	6	4433
Madison	41	Turkish Army	No	12	3333
Madonna	48	Dutch Navy	Yes	14	4433
Magda	58	Norwegian Navy	Yes	14	3333
Maggie	23	United States Army	No	1	4444
Magnus	51	Dutch Army	Yes	8	4433
Mahmut	53	United States Army	No	5	4444
Maike	51	German Navy	Yes	14	4434
Malak	43	German Army	Yes	8	4433
Malcolm	51	Portuguese Navy	Yes	14	4444
Malik	47	Greek Navy	Yes	2	3333
Mandy	40	Czech Army	Yes	8	3333
Manfred	46	United Kingdom Navy	Yes	6	4444
Manuel	38	Italian Navy	No	10	3333

Access to participants in this group was solicited through direct military channels and communications available in the workplace within a purposeful and convenience sampling selection. Sixteen participants were located in the US and the interviews were easily scheduled and executed. One participant was located in Europe and arrangements for the date and time of the interview were scheduled during periods of travel in Europe to provide convenient circumstances for participants. All interviews were conducted in person.

Summaries of MIL Group Participants

As with the HIED Group, the pseudonyms used for the MIL Group participants were randomized from a gender perspective so as to protect identities.

Mable. Mable was a Millennial officer serving in the German Army. She was unmarried and had no children of her own, but was very close with her family members. She was on an internship in the United States which was sponsored by the German Army and the German higher education institution where she was pursuing her Master's degree. She was delighted to be interviewed about the Millennial phenomena and was very thoughtful and insightful in answering questions.

Mack. Mack was a very a very senior military officer and in the Baby Boomer Generation. He had served in the German Air Force for over 40 years. He had several children and grand-children in the Millennial generation and related his experiences with airmen as well as with his own Millennial family members. He had obviously spent time preparing for the interview as his answers were both experience-based as well as

philosophical in nature. He was also well-read on the Millennial topic and made references to the literature quite often.

Macy. Macy was a Canadian Army officer with significant experience in Canadian Army educational institutions as well as in NATO institutions. He had two Millennial children of his own, one of which was serving in the Canadian military forces. Thus, he was motivated to share his lived experiences about Millennials from a military leadership standpoint, a military education viewpoint and a parental perspective.

Mattie. Mattie was a Belgian Army officer with Millennial children and quite a bit of experience in interacting with Millennial military personnel. She was an engineer by degree and brought this perspective into the interview. It was obvious that Mattie had spent time and thought in preparing for the interview because the insights provided were profound and deep in their content.

Madison. Madison was a Turkish Army officer experienced in leading Millennials. Although she was one of the youngest participants, she was still within the Generation X timelines in terms of age. She proved to be invaluable based on her insights into Turkish culture, particularly as applied to the Millennials.

Madonna. Madonna was a Dutch Navy officer and had Millennial children of her own. She was keen to share her insights and took steps to ensure clear understanding during the interview. She was currently working on an advanced degree herself and provided insights about some Millennials in her online educational program.

Magda. Magda, a Norwegian Navy officer, shared insights about Norwegian Millennials in particular and about Scandinavian Millennials in general. She had two Millennial children and was able to illustrate experiences with her children as well.

Maggie. Maggie was a Millennial officer serving in the United States Army. Maggie shared a number of insights about the use of social media in leading Millennial subordinates as well as the characteristics of the Millennials, including herself. She was open to sharing her experiences to expand the body of knowledge about a phenomena which challenged her every day in her military life.

Magnus. Magnus was a Dutch Army officer with Millennial children of his own as well as significant experience in leading Millennials in military service. Magnus had prepared for the interview including creating drawings and mind maps. He used these figures throughout the interview to ensure that he shared every piece of information that he had prepared prior.

Mahmut. Mahmut was a senior United States Army officer with over 30 years of military service, most of which was spent specializing in military foreign relations. Although he had no children of his own, he had significant experience in leading and interacting with Millennials. He was well-read and related many of his comments to research in the fields of higher education and technology. In addition, he brought in remarks that cited news headlines related to the points he made as the interview unfolded.

Maike. Maike was a German Navy officer with Millennial children, one of whom is in service in the German Army. Maike had significant experience with Millennials from a variety of countries in Europe, North America and the Middle East.

Maike was relaxed, but keen to participate in the study because she saw how it could potentially help in identifying issues in academia and NATO.

Malak. Malak was a German Army officer with children too young to be Millennials, however he had many experiences in leading Millennials in military service and in deployed theaters of operations. Malak shared issues of culture and language in discussing Millennial behavior. Malak was very interested in this topic as he was soon faced with a senior leadership position in which most of his subordinates were to be Millennials and he would be leading them.

Malcolm. Malcolm was a Portuguese Navy officer who had served aboard a variety of ships in deployed operational environments. He has significant experience with leading Millennial officers and enlisted while at sea. He was very calm, relaxed and thoughtful in providing answers to interview questions. He related every comment made to specific, lived experiences.

Malik. Malik was a Greek Navy officer with experience in leading Millennials in the Greek Navy. He had children of his own, but they were too young to be in the Millennial generation. His accented English was somewhat difficult to understand at times, but he attempted to make his point clear by re-wording certain key points. He seemed to enjoy the interview and the interaction.

Mandy. Mandy was a Czech Republic officer with children too young to be Millennials. However, Mandy had spent quite a lot of time in leadership positions of units with Millennials in them. She related a number of situations that highlighted the

Millennial characteristics. Although Mandy had thick, accented English, she was careful to make sure she was clearly understood.

Manfred. Manfred was a United Kingdom Navy officer with Millennial children of his own. He had spent quite a lot of time deployed at sea with Millennials and related numerous anecdotes about Millennials. He particularly highlighted the Millennial behavior of delving into the technology found on board the ship.

Manuel. Manuel was an Italian Navy officer with a child too young to be a Millennial. However, Manuel had served aboard ships in the Italian Navy wherein Millennials formed the majority of the young sailors. He related cases of Generation X and Millennial interaction wherein neither party had clearly understood the other. He related stories of how this could lead to problems.

Homogeneous sampling, politically important sampling and theoretical sampling were used. Homogeneous sampling was appropriate as the participants shared similar characteristics of occupation, time in occupation, marital, familial and social responsibility status. The politically important sampling method was used as the results of this study may be used to seek approval from the chain of command to integrate findings into future organizational and investment programs as well as the potentially diverse political-military backgrounds and perspectives based on country of origin. Finally, as with the first group, the theoretical sampling technique was used to further refine the direction of the sampling as the study unfolds.

Technology Group

The participants in the third group, henceforward designated as the Technology (TECH) Group, were those most concerned with technology and its applications in 2020. Participants were drawn from those most familiar with information technology and its future developments particularly within educational applications. Senior employees of information technology-based industry were sampled including both small and large companies so that a broad sampling was achieved. These employees were older than 40 years of age to ensure that they themselves are not Millennials. The criteria for inclusion of participants was that they had direct experience with technological trends and developments and described the integration of these developments into higher education delivery.

Seven participants were interviewed until the saturation point was reached. The participants were selected from a variety of information technology companies in the US and Europe. Native English-speaking or English fluent participants were desired to avoid misunderstandings of language and interpretation. Just as with the first two groups, the participants were asked to self-identify their English fluency based on the NATO scale of 1 through 4 in the four categories of reading, writing, speaking and oral comprehension. Table 3 depicts characteristics for this group along with the pseudonym assigned, which started with the letter “T”.

Table 3

Characteristics of the Technology Group

Pseudonym	Age	Nation of Origin	Years of experience in technology	English Fluency
Tad	41	Italy	10	4434
Tatiana	47	United States	8	4444
Taylor	49	United Kingdom	14	4444
Tamara	67	United States	4	4444
Tammy	45	United States	3	4444
Tancredo	42	Unites States	6	4444
Tania	48	United Kingdom	3	4444

Access to participants in this group was solicited through a variety of means including introductions made by the members of the Capability Engineering and Innovation Division of Allied Command Transformation as well as by solicitation of companies providing technological and educational support to NATO. Convenience and purposeful sampling drove the selection of participants. The interviews were easily scheduled and executed. Two interviews were conducted in person and the remaining five were conducted by telephone.

Summaries of TECH Group Participants

Summary portraits of the members of the Technology Group were also generated. These portraits were prepared from written field notes, memos taken, demographic information forms and personal interactions during the interview process.

Just as with the HIED and MIL Groups, the pseudonyms used for each participant were randomized from a gender perspective to further protect identities and does not necessarily reflect the actual gender of the participant.

Tad. Tad was a technology expert in a large company that deals with a variety of technology topics and specializes somewhat in educational technology. He had spent quite a bit of time in the United States, particularly in California, where he worked with his American colleagues on issues surrounding virtual reality. He is currently conducting significant research in this area.

Tatiana. Tatiana was a United States technology expert employed at a medium-sized company that built a number of products for use in delivering higher education. She had particular expertise in online content delivery with significant experience in Massive Open Online Courses (MOOCs). She was able to provide a number of inputs about lessons that were learned with these types of online courses.

Taylor. Taylor was of United Kingdom nationality and had Millennial children of her own. She was employed in a technology company that specialized in educational content delivery and was very keen to discuss it. She was able to describe specific problem areas with technologies that are currently in use as well as the problems associated with virtual reality and enhanced simulations.

Tamara. Tamara, an American, was a career educator who was now employed in consultancy for a small technology company in the United States. She was able to provide anecdotal stories about the evolution of technology in education over the past

three decades. She currently worked extensively in virtual worlds and was eager to share insights into how virtual reality could change the educational experience.

Tammy. Tammy, an American, was employed at a large technology company in the United States. Although not an educator by training and education, she was intimately involved with a variety of projects in the company which dealt with educational content issues. She was in direct contact with a variety of educational consultants and was able to share their viewpoints on her work.

Tancredo. Tancredo was American and employed at a mid-sized technology company in California. Tancredo specialized in the internet and internet coding and was willing to share insights about the data flow associated with certain applications and infrastructure changes in the near future.

Tania. Tania was a United Kingdom technology specialist at a large company in England. Tania was eager to discuss educational technology as she had just been put onto a project of this type. She had no children of her own, but was close with other family members who had Millennial children and was familiar with the associated challenge in the classroom.

Criterion sampling and theoretical sampling was used. Criterion sampling was appropriate as the participants shared the criterion of occupation in the information technology occupation. As with the first two groups, the theoretical sampling technique was used to further refine the direction of the sampling as the study unfolded.

Other Considerations

There was no particular direct link between the samples taken or the theories developed within each group, there was no need to sample these groups sequentially. The outputs of one group of participants did not directly affect the inputs of another, so there was no need to schedule completion of the Higher Education Group sampling before or after either of the other two groups and so forth. As such, the timing and sequence of sampling was independent between groups, however, as theoretical sampling applied in all three groups, sampling within a group was sequential to build upon theories identified in the sampling process as well as to modify the instrument as needed. Thus, simultaneous sampling of the each of the groups was achievable and of relevance from an efficiency and timeliness standpoint.

In keeping with the ethical considerations of Human Subjects Review procedures, personal identity information was safeguarded and recordings destroyed once transcription and participant authentication of each transcript was completed. This process was submitted in detail to the Old Dominion University College of Education Human Subjects Committee (HSC) process in order to gain approval of the study. The HSC approval letter is included as Appendix A. There was no requirement for approval from NATO. All participants read and understood the Informed Consent at Appendix B and agreed to participate.

Instrumentation

Demographic information and criterion information was collected from each participant for verification of target group inclusion and the interview questions

themselves. The demographic information sheet is in Appendix C. The demographic sheet contained information about the participant's age (to determine their generation) as well as their occupation (for criterion selection) and their English language fluency (to determine the need for adjustment based on translation and culture). The demographic information and criterion information did not change over succeeding editions of the interview questions as the theoretical sampling unfolded.

A set of initial interview questions was built for each of the three groups based on the research focus of that group. The blueprints and final set of interview questions for the Higher Education Group, the Military Group and the Technology Group are located in the Appendices.

Appendix E contains the blueprint and interview instrument for the Higher Education Group. As this group was most closely dealing with Millennials currently in higher education, the questions were targeted to provide information and understanding about Millennial students currently and about projections of Millennial student change based on maturity, familial obligations and social responsibilities. Example questions included:

How will getting older, with new and different responsibilities, change Millennial characteristics?

How will having a family change Millennial Generation characteristics?

How do Millennial Generation characteristics compare in Europe as in the US?

Responses were intended to be open-ended and interviews semi-structured so as to seek maximum reflection and interaction in theory development.

Appendix F is the blueprint and instrument for use with the Military Group. As this group was most closely dealing with Millennials currently in military service, the questions were targeted to provide information and understanding about Millennials in military service currently and about projections of how Millennials change based on their military service. Example questions included:

How do you think having a military chain of command affects Millennial characteristics?

How do you think military deployments affect Millennial characteristics?

How do you think international military assignments affect Millennial characteristics?

What thoughts do you have about a Millennial being an officer as opposed to being enlisted?

Responses were intended to be open-ended and interviews semi-structured so as to seek maximum reflection and interaction in theory development. As the study unfolded, it became apparent that the Military Group could provide useful and substantial perspectives about all of the research questions, so the interviews of the MIL Group participants were expanded to include the questions asked of the HIED and TECH groups

Appendix G is the instrument used in interviewing the Technology Group. As this group was most closely dealing with technology and educational application, the

questions were targeted to provide information and understanding about how technology will evolve and mature by 2020 and how it will be applied in the delivery of higher education. Example questions included:

What do you predict will be the state of educational technology in 2020?

What infrastructure would be needed to support educational technology in 2020?

Responses were intended to be open-ended and interviews semi-structured so as to seek maximum reflection and interaction in theory development.

Within each of the three groups, the interview transcripts were used to further refine the interview questions and subsequent question sets updated. A tracking system of modifications to interview questions was maintained to examine how the questions were changed over the course of the study.

In the interviews of all three groups, field notes were used to record facial and body language, reaction of participants or environmental factors of interest to the interview.

Data Collection Procedures

Once identified and solicited for participation, the interviews were scheduled. The interviews were conducted in convenient locations for the participants, however, telephonic or written interviews were also necessary based on time and distance factors. The interviews were recorded, transcripts were prepared, summary transcripts, which captured the key points from the interview, were created and then provided to the participants for their review.

Each interview began with review of the Informed Consent form (Appendix B). Once agreed and consented, the form was signed by the participant, or, in the case of a telephonic interview, audio recorded and captured on the transcript and retained. The participants were informed that the interview was audio recorded for transcribing purposes. Two different recording devices were used to record the session in case of failure of one device.

As the interviews unfolded in each group, the instrument for each group was refined. Several of the technology questions were determined to be repetitious and were removed. The transition zone idea was shared early on in the interview process and a question about it was added to the military group questions. A question was added to the military group about whether they believed that Millennials would become helicopter parents themselves.

What did change significantly was in the application of the question sets. Realization sat in quickly that two of the three groups had more to offer than the original questions specifically targeted to them. The HIED Group was familiar with technology, so the technology questions were added to the HIED question set. The MIL Group had inputs to provide across virtually every question, so the MIL Group participants were asked all the MIL, HIED and TECH group questions. The only group that was asked the originally targeted set of questions was the TECH group.

Since the three groups were not interdependent, interviews of participants from each group were not sequential and were scheduled in no particular order. As some of the participants were located in Europe, interviews were scheduled coincident with travel

to the maximum extent possible. Interviews lasted 30 to 45 minutes and this time limit was adhered to the maximum extent possible for purposes of respecting senior personnel schedules. Appendix D contains the observation guidelines that were reviewed prior to interviews.

Prior to the conduct of interviews of the HIED or MIL groups, it was necessary to provide a short information sheet about the Millennial Generation and its characteristics. This information sheet was drawn from the available literature and provided in advance of the interview to allow the participant time to read and absorb it. This was important to ensure that all participants understood the underlying definition of “Millennial Generation” used throughout this study as well as during the interviews themselves. The information sheet is in Appendix H.

Interviews were conducted in a semi-structured manner to provide richer context and thick description to answers provided. Each interview was conducted in a private setting which was ideally quiet and without distraction.

Demographic information was collected at the beginning of each interview. The demographic information was used to determine in which generation the participant belongs. Additional information about English language skills was used to determine fluency issues associated with translation and understanding during the interview. Information about the participant’s highest level of education, current occupation and position was collected to ensure that the criterion for sampling is met.

The interviews were semi-structured and deviated from the instrument when a particular idea or thought was rendered that bears further explanation. Upon completion

of the interview, the participant was thanked for their participation and informed as to the transcript summary review process.

Because of the significant length and number of interviews, Dragon Naturally Speaking Home Edition 12 software was used to create the initial copy of the transcript. Because Dragon Naturally Speaking Home Edition 12 is only capable of recognizing one person's voice, each recording had to be repeated in one voice so that the software could transcribe. Once the transcript was created, the audio copy of the interview was re-played while reading the transcript to find potential errors in verbiage. If an error was found, the written transcript was suitably corrected.

Once the transcript was complete, a summary of the key points of the interview was prepared and provided by email to the participants for their review and member-checking. A reasonable period of review, approximately two weeks, was provided to the participant, however, the participants typically responded within two or three business days.

Upon declaration of accuracy, the personally identifying information on the transcript was removed including names and specific position titles so as to protect the identity of each individual. Each transcript was then assigned a pseudonym identification based on the group to which they belong (i.e., Mack from the Military Group, etc.). Although the identifying information was removed from the transcript, the identifying information was tracked within a password protected matrix in case of the need for follow-on questions at a later date.

Professional expert peers were solicited to provide additional insight as themes were identified. These peers came from the environments most concerned with the results of the study, to wit, the Joint Force Trainer Division in Allied Command Transformation.

Data Analysis

The data analysis began with a review of the research purpose and questions to address the specifics. Horizontalization, as described by Moustakas (1994), was used to analyze the data to develop a textural description leading to the development of a structural description. Field note-taking and formation of memos were taken during and after each interview to record areas of interest as well as to capture research thoughts about statements made during the interviews. The interviews were transcribed into verbatim textual documents and content summary sheets as well as document summary forms were developed. A summary record of the interview was member-checked. The researcher added etic codes, both individually and by consensus with other experts to improve reliability. The researcher identified patterns and themes within the coding. Open coding was used to identify large domains (Hays & Singh, 2012) based on key words or phrases that recurred. Axial coding was then applied to examine the relationships between these large domain themes and codes (Hays & Singh, 2012). The interview instruments were adjusted to closely examine the patterns that emerged from the axial coding. Selective coding was applied as patterns emerged (Hays & Singh, 2012) and interview instruments adjusted accordingly.

Trustworthiness

There were six trustworthiness strategies identified as valuable to the research study: field notes/memos, triangulation, member-checking, thick description, peer debriefing and audit trail. These strategies were valuable because, when incorporated into the research design, they addressed nine of the ten criteria for trustworthiness. This established increased rigor and validity in the study and was fairly easily implemented.

In the area of credibility, field notes/memos, triangulation, thick description and use of an audit trail was used to improve trustworthiness. Transferability was improved through the use of triangulation and thick description. Confirmability and authenticity was improved through the use of field notes/memos, member checking, triangulation and thick description. Coherence was improved through the use of thick description and an audit trail. Sampling adequacy was improved through member checking and triangulation. Member checking and peer debriefing was used to improve ethical validation. Field notes/memos, triangulation, thick description and audit trails was used to improve substantive validation. Finally, triangulation and audit trails improved creativity.

Field notes and memos were developed coincident with each of the interviews. Triangulation was conducted after interviewing participants of each group. Member-checking was conducted by sending transcript summaries to each participant for verification of accuracy. Thick description was developed using the interview, description of the setting and field notes. Peer debriefing was conducted approximately every two weeks with co-workers in the Joint Force Trainer Division. A detailed audit

trail was developed during the conduct of the study even though an auditor was not used.

The study author served as the sole coder.

Limitations

The first limitation of this study was that representatives must be used rather than the entire population within the three interview groups. It was simply infeasible to interview all technologists, higher education faculty and military leaders, so the study used a smaller representative sample from each group. This was a threat to external validity and was ameliorated by using expert advice in participant selection. However, to mitigate this limitation, experts in the field were solicited for participation.

The study was limited to certain geographic locations in North America and Europe. It was simply infeasible in time and cost to travel to every geographic region and account for differences in language and culture. This limitation was reduced in its effect by spreading the available travel and contacts as broadly across the 28 nations as possible. In addition, the expert participants provided knowledge based on the locations of their employment, military assignments and travels.

The sample was limited to those who have fluent or near-fluent English-speaking skills. This limited specific participants for each group and careful attention was made to prevent introduction of translation and cultural error. This was a threat both to internal and external validity in that the sample was limited by fluency, which limited external validity and by potential translational errors which threatened internal validity. Fluency issues were minimized by relying on expert advice in selection of participants and by

soliciting fluency during demographic data collection. Translation and cultural errors were reduced by using member-checking of transcript summaries.

Researcher bias was of particular concern in this study as a threat to internal validity. It was critical for the researcher to conduct bracketing to remove bias as much as possible at the outset. As the researcher has been involved in NATO military higher education management for a number of years, there was potential for the researcher to offer opinions and statements based on personal, previous involvement. The researcher also already had relationships with some of the participants which were formed as a part of duties undertaken daily in NATO education. In light of this, the researcher guarded against predisposing the participants to reach certain pre-identified conclusions. This was a threat to internal validity. This threat was reduced by using peer reviews and reviewing interview guidelines prior to interviews.

Method Conclusion

This qualitative study intended to offer insight for decision-making in NATO based on scientific rigor and analysis. The potential decisions to be made based on this study may prove to be profound and long-lasting. However, if decisions are not made, NATO will likely not be ready to best meet Millennial educational needs and NATO educational institutions may find themselves irrelevant.

CHAPTER 4

FINDINGS

Introduction

This study's author sought to develop proposals for NATO's educational readiness for the year 2020 by examining the changing nature of the students at the NATO educational institutions and the changing nature of educational technology. The research questions were formulated and addressed to determine how Millennials change as they mature within a military career in the NATO member nations and then join a NATO staff. Educational technology topics were also addressed to identify trends that are likely to appear and be in use by 2020 in education.

Themes

Following the coding of the interview transcripts, a number of themes were identified and organized based on the conceptual framework. The themes were shared and discussed with peers and experts in NATO and are summarized in Table 4 based on the conceptual framework.

Table 4

Themes Organized by the Conceptual Framework

Conceptual Framework	Theme
The international nature of the Millennial phenomenon	NATO nations with Millennial characteristics
	Other nations with Millennial characteristics
	Millennial behavior as a function of technology
Maturity effects on Millennials	Millennial time management
	Millennials as helicopter parents
	Millennial career expectations
Military service effects on Millennials	Millennial differences in the military
	Millennials as officers or enlisted
	Transition zone
Educational Technology	Mobile educational platforms
	Blended approach
	Education follows technology
	Virtual reality, simulations and serious gaming
	Technology limitations
	Teacher preparation

Pervasiveness of the Themes

So as to understand the pervasiveness and variation of the themes by participant, Tables 5 to 7 present how each participant from each group viewed each theme. The first letter of the pseudonym name of each participant refers to their group, thus all Higher Education group names start with the letter “H”, Military Group participant names start with the letter “M” and Technology Group pseudonyms start with the letter “T”.

Table 5

Pervasiveness of the Themes in the Higher Education Group

Theme	Participant Responses							
NATO nations with Millennial characteristics	X	X	X	X	X	X	X	X
Other nations with Millennial characteristics	X		X	X		X	X	
Millennial behavior as a function of technology				X				
Millennial time management					X			X
Millennials as helicopter parents					X	X	X	
Millennial career expectations					X	X	X	X
Mobile educational platforms	X		X			X	X	X
Blended approach	X				X	X	X	
Education follows technology					X			
Virtual reality, simulations and serious gaming	X		X		X	X	X	
Technology limitations	X							
Teacher preparation	X							
	Hadley	Hadrian	Hailey	Harold	Harry	Harvey	Hattie	Hazel

Table 6

Pervasiveness of the Themes in the Military Group

Theme	Participant Responses																
NATO nations with Millennial characteristics	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Other nations with Millennial characteristics	X	X					X	X	X	X		X			X		
Millennial behavior as a function of technology					X		X	X		X	X	X			X		
Millennial time management	X		X			X	X				X			X			
Millennials as helicopter parents		X	X	X		X	X		X	X	X		X	X	X	X	
Millennial career expectations	X		X			X	X	X	X		X		X	X			
Millennial differences in the military			X			X	X		X	X	X	X	X	X		X	X
Millennials as officers or enlisted	X	X		X	X		X		X	X	X	X	X	X	X	X	X
Transition zone		X		X			X	X		X	X	X	X			X	
Mobile educational platforms	X	X	X	X	X		X		X	X	X	X		X			X
Blended approach	X	X	X	X	X	X	X	X	X	X	X		X		X		X
Education follows technology		X								X		X					
Virtual reality, simulations and serious gaming	X	X		X	X	X				X		X			X	X	X
Technology limitations							X	X								X	
Teacher preparation										X							
	Mable	Mack	Macy	Mattie	Madison	Madonna	Maggie	Magda	Magnus	Mahmut	Maïke	Malak	Malcolm	Malik	Mandy	Manfred	Manuel

Table 7

Pervasiveness of the Themes in the Technology Group

Theme	Participant Responses						
Mobile educational platforms		X	X	X	X	X	
Blended approach					X		
Education follows technology	X		X	X	X		X
Virtual reality, simulations and serious gaming	X		X	X	X	X	X
Technology limitations	X			X	X	X	X
Teacher preparation	X		X	X		X	
	Tad	Tatiana	Taylor	Tamara	Tammy	Tancredo	Tania

There are no discernable patterns among the participants in each group relative to their characteristics and responses, nor are there any pattern linkages between the groups themselves.

Theme Descriptions

To provide a deeper understanding of the themes as well as to present the participants' lived experiences about these themes, Table 8 defines the themes and provides example points made by the participants.

Table 8

Theme Descriptions

Theme	Description	Examples
NATO nations with Millennial characteristics	The majority of the characteristics of Millennials, as described in the read ahead, have been observed in the person's home country or in other NATO countries where the person has lived or worked	"Yes, for sure. I have visited almost all of the NATO countries and seen this." (Manuel) "I have seen these behaviors in Germany, France, Belgium and the Netherlands." (Malak)
Other nations with Millennial characteristics	The majority of the characteristics of Millennials, as described in the read ahead, have been observed in non-NATO countries where the person has lived or worked	"I have seen this in the former Soviet Republics and in Pakistan where I have served." (Mahmut) "I have seen this in the Baltics, Bulgaria, Romania, the Balkans, Ukraine, Moldova, Spain and Italy." (Hailey)
Millennial behavior as a function of technology	Millennial behavior observations in locations where there is mature infrastructure as compared to areas where the infrastructure is immature or non-existent.	"I was recently in Kabul, Afghanistan and I saw this in the city, but not in country. I think the difference was the communications network which exists in the city, but not in the countryside." (Harold) "I believe that the Eastern European nations lag behind the western nations a bit in terms of technology and the behaviors that result from it." (Mandy)
Millennial time management	Amount of change which a Millennial will undergo once the pace of their young lives is matched against the slower pace of society.	"Family is really important to Millennials and I believe that the balance will shift from career to taking care of family." (Mable) "They may have more trouble with time as they have to spend time with their children." (Madison)
Millennials as helicopter parents	Predictions about whether Millennials will be helicopter parents or will avoid it, both based on learned behavior.	"I think they will copy and paste the behaviors that their parents had with them" (Mattie) "I believe that Millennials will raise their children differently from how their parents raised them." (Mahmut)
Millennial career expectations	Predictions about whether Millennials will adjust their career expectations based on societal factors.	"They will enter the real-world and perhaps be disappointed" (Hattie) "Right now, they want to have everything and they want it now,

		but as they mature, I believe they will slow down.” (Magnus)
Millennial differences in the military	Ways that military Millennials differ from their civilian counterparts.	“I think the military environment forces them to overcome their risk aversion.” (Malcolm) “When they join the military, they have to learn how to take risk and be responsible for more than themselves.” (Maïke)
Millennials as officers or enlisted	Millennial characteristics that differ when an officer versus being an enlisted person.	“Officers tend to be better educated.” (Mattie) “The main difference is in the level of education.” (Malcolm)
Transition zone	Beliefs that a zone exists within military vertical command structures where Millennials and Generation Xers meet.	“We have a generation X and a Generation Y and I believe there is something like XYs and YXs where they meet.” (Mack)
Mobile educational platforms	Predictions about the need for education to be able to be delivered on mobile platforms.	“I see increased use of mobile devices in the future in education.” (Tatiana) “I certainly see an increase in the use of mobile device platforms.” (Tamara)
Blended approach	The integration of online content with the face-to-face educational experience	“If there was a way to blend together the game-playing with personal, face-to-face interaction that would be ideal.” (Harry)
Education follows technology	Predictions made about how educational delivery technology will follow technical development in online gaming.	“My first thought is that entertainment drives technology.” (Tamara) “It certainly does. This is about the amount of capital available to invest.” (Taylor)
Virtual reality, simulations and serious gaming	Predictions about the use of virtual reality, simulations and serious gaming in educational applications.	“I think virtual reality will appear by then, but it may be in its infancy due to technology limitations (Taylor) “I believe this will involve increased simulation and virtual reality.” (Hattie)
Technology limitations	The limitations in delivering virtual reality, simulations and serious gaming in educational applications.	“Right now, we are constrained by technology limits in creating 3-D simulations of any type.” (Tad)
Teacher preparation	The degree to which future technologies are easy to use and assist teachers in preparing educational content.	“Institutions involved in higher education will have new tools that allow teachers to quickly create simulations.” (Tad) “Those who develop educational technologies must have an understanding of how teachers need assistance in preparing the learning environment.” (Tamara)

The International Nature of the Millennial Phenomena

A total of 25 participants were provided the condensed literature review read-ahead and were asked about their experiences and observations about Millennial characteristics in nations where they had lived, worked or served.

NATO Nations with Millennial Characteristics

The Millennial behaviors were observed by participants who were originally from 13 of the 28 NATO nations. Malak, a German Army officer with young children and significant experience in deployed operations, noted that “I have seen these behaviors in Germany, France, Belgium and the Netherlands.” In addition, participants had served or worked in other NATO countries beyond their own 13 nationalities and had direct observations to share about an additional six NATO nations including Luxembourg, Denmark, Bulgaria, Romania, Spain and Albania. Manuel mentioned, “Yes, for sure. I have visited almost all of the NATO countries and seen this.” The total number of nations in which Millennial behaviors were observed by the participants was 19 of the 28 NATO nations (68%) and listed in Table 9.

Table 9

NATO Nations Where Millennial Behavior Was Observed by Participants.

Albania	X
Belgium	X
Bulgaria	X
Canada	X
Croatia	
Czech Republic	X
Denmark	X
Estonia	
France	X
Germany	X
Greece	X
Hungary	
Iceland	
Italy	X
Latvia	
Lithuania	
Luxembourg	X
Netherlands	X
Norway	X
Poland	
Portugal	X
Romania	X
Slovakia	
Slovenia	
Spain	X
Turkey	X
United Kingdom	X
United States	X

While the sample does not include every NATO nation, some participants expressed their observations from a North American, Eastern European, Western European, Northern European and Southern European regional perspective and many participants described regional effects when sharing their observations. Magnus, a Dutch Army officer with Millennial children of his own and experience in leading Millennials, remarked “I have seen all of these behaviors in the Netherlands and I would say all of Western Europe”.

When presented with the nine characteristics of Millennials in the read ahead, the military and higher education group participants had observed eight of the nine (89%) of the characteristics in Millennials in their home nations as well as in the NATO nations in which they had worked, served or lived. The only characteristic which was not authenticated to have been observed in every nation was the inability to create meaningful relationships in a face-to-face context rather than through a digital venue. Two participants had not observed this characteristic. Magnus, with Millennial children and experience in leading Millennials, mentioned, “I have not seen the interpersonal relationships issue”. Harvey, a higher education professional with Millennial children, had observed rather the opposite about the characteristic, “I don’t necessarily agree there because my children have a great online life and they have a very good face-to-face one as well.”

Other Nations with Millennial Characteristics

The military and higher education participants shared their observation of the Millennial characteristics in other nations outside of NATO where they had worked.

served or lived. Participants had observed the phenomena in Afghanistan, Russia, the former Soviet Republics, China, the Balkans, Sweden, Pakistan, South Korea, the Ukraine and Moldova. Mahmut, a military Foreign Service specialist, noted, "I have seen this in the former Soviet Republics and in Pakistan where I have served." And Hailey, a well-travelled European higher education professional, observed that, "I have seen this in the Baltics, Bulgaria, Romania, the Balkans, Ukraine, Moldova, Spain and Italy."

In addition, regional descriptive terms were used such as Eastern Europe, Western Europe, Southern Europe and Northern Europe. Harvey, who had travelled and vacationed all over Europe mentioned, "I have observed these behaviors in both northern Europe and southern Europe."

These regions certainly include NATO member nations, but also include many nations that are not members of NATO such as Sweden, Finland, Ireland, the Russian Federation, Switzerland, Austria, Serbia, Montenegro, Bosnia-Herzegovina and Macedonia. Appendix I illustrates the scope of the nationalities mentioned by participants where Millennial behaviors have been observed.

Millennial Behavior as a Function of Technology

As noted in Chapter 2, some of the Millennial behaviors are a function of electronic communications. Four participants noted that there was a difference in the technical infrastructure across NATO. Three military participants and one higher education professional specifically noted North America and Western Europe as having more mature and capable communications systems with Eastern Europe lagging a bit

behind. Mandy, an Army officer from Eastern Europe, noted, "I believe that the Eastern European nations lag behind the western nations a bit in terms of technology and the behaviors that result from it." These four participants noted that, although the Millennial characteristics were present, they were not as evident to the degree noted in the western countries. Two participants, Mandy, a Czech Republic Army officer, and Hailey, a well-travelled higher education professional, both estimated the technological lag time at 5 to 10 years.

Harold, a higher education professional who had recently returned from Afghanistan, shared the surprising observation that Afghan youth were also exhibiting Millennial behavior. "I was recently in Kabul, Afghanistan and I saw this in the city, but not in country. I think the difference was the communications network which exists in the city, but not in the countryside." This implies that there may be a proportional relationship between Millennial behavior and the distance the Millennial is from mature communications infrastructure.

Maturity Effects on Millennials

The research questions associated with how Millennials will change as they mature was asked of 25 higher education and military group participants, including two military Millennials. The participants were almost evenly split in their views. Twelve of the 25 (48%) military and higher education participants thought that Millennials would not change at all as they mature while the remaining 13 (52%), thought there would be change. "I do not think they will change much", was the opinion of Madison, a Turkish Army officer. The twelve that thought there would be change were basing their

prediction on Millennials having families of their own, financial obligations and other life responsibilities “They will become less self-centered and more responsible for their actions”, stated Macy, a Canadian military educator with Millennial children. There was no discernable pattern in the split of the responses.

Millennial Time Management

The 13 participants who predicted change felt that there would be change in the area of time management. Millennials are used to demanding speedy responses and expect career advancement at a rapid pace. All twelve participants who predicted change thought this would change in terms of slowing down as they faced a society that cannot move at the same pace to which they had become accustomed. Madonna, a Dutch Navy officer with Millennial children, noted, “I think that having a family life will slow them down and show them not to be as much competitive.” Since a family requires attention, care and love, all of which require the investment of time, the Millennials would have to sacrifice time from another area to devote to their families and many thought this would come from time spent on career.

Millennials as Helicopter Parents

The perception of the helicopter parent phenomena, wherein Millennials grew up in an overly protective environment was also split in terms of the military and higher education participants’ views about whether Millennials will also exhibit this behavior. Fifteen of the 25 participants (60%) thought that the Millennials would also be helicopter parents themselves, as it was a learned behavior from their own parents and perceived it as the correct way to raise children. Manuel, an Italian Navy officer with Millennial

experience aboard ships, stated that, "I think they will be helicopter parents themselves. This is learned behavior from their parents." On the other hand, the remaining 10 participants (40%) thought that Millennials would resist the urge to be a helicopter parent. Once they realized that their ability to cope with risk was immature, they would want their own children to be better equipped to identify and assume risk. Mahmut, a well-read United States Army officer, added, "I believe the Millennials will raise their children differently from how their parents raised them." There was no discernable pattern in the split of the responses.

Millennial Career Expectations

Ten of the higher education and military participants thought that Millennial career expectations would change as well. Once the Millennials entered the workforce in society, they would not get the rapid advancement that they expected and would therefore have to change their expectations or, perhaps, their careers. "They will enter the real-world and perhaps be disappointed", mentioned Hattie, an English academic while Magnus, a Dutch Army officer, added, "Right now, they want to have everything and they want it now, but as they mature, I believe they will slow down."

One participant, Mack, a senior military professional, shared the idea that Millennial maturity could simply be a delayed effect. Mack cited news reports that suggest that Millennials are living longer with their parents, until age 26 on average, and that, when they left home eventually, they would adjust their societal expectations to be more in line with Generation X. "It's the same as the older generation, it's just delayed a bit," he added. Mack estimated this effect to be delayed approximately 10 years.

Military Service Effects on Millennials

Seventeen participants in the military group were asked about the unique aspects of Millennials in military service. Eleven of the 17 (65%) of the military participants cited two significant distinguishing differences of Millennials in the military versus their civilian counterparts: education about risk acceptance and taking responsibility for others. There was no discernable pattern among those who cited these points.

Millennial Differences in the Military

In preparing for the potential violence of military operations, military Millennials face risk to themselves, others in their unit and to the mission. Military Millennials, whether they are a leader or follower, receive education and training in identifying and mitigating risk not only to avoid casualties, but also to ensure that non-combatants are protected and the mission objectives are achieved. Malcolm, a senior Portuguese Navy officer, noted, "I think we will see them overcome risk aversion and be more proactive in terms of risk acceptance and risk mitigation. I think the military environment forces that behavior."

The second area where military Millennials were observed as differing from their civilian counterparts is in the area of responsibility for others. A leader in the military differs from leaders in the civilian world by assuming responsibility for their subordinates' health, safety, morale, welfare, discipline, families and training. In particular, Maggie, a Millennial Lieutenant and Platoon Leader, related how the responsibility for others forces the Millennial to be far less self-centered than her civilian friends and acquaintances.

Millennials as Officers or Enlisted

When the military group participants were asked about how Millennials differed when they are officers or enlisted, there were a number of thoughts shared. Every participant cited the fact that Millennial officers are more educated than enlisted personnel. Mattie, a Belgian Army officer, observed that “officers tend to be better educated.” This was attributed to NATO nation requirements for a Bachelor degree for officer commissioning which makes these officers better educated than the average enlisted person. This was particularly true for the few NATO nations that still practice conscripted service, since conscripts would largely have only a high school equivalent level of education at time of conscription.

Military Millennial leaders were cited as having better risk identification and mitigation education. As a function of being a leader with responsibility for those in their unit, a leader’s professional military education contains specific education and tutelage about risk identification, risk assessment and risk mitigation. Magnus, a Dutch Army officer, noted that “the military environment is all about assuming risk”.

The relationship between Millennial officers and Millennial enlisted personnel was observed as being less formal than in the past. Malak, a non-Native English speaker from Germany, described the use of language associated with this phenomena. In Malak’s native language, there were two pronouns that could be used when referring to others, “Sie” as the formal form and “du” as the informal form. Malak noted, “I have noticed far less ‘Sie’ and more ‘du’. I worry about this degrading the authority.” In addition, Maggie and Mable, both Millennial officers themselves, also noted the blurring

of the traditional line between officers and enlisted. In particular, both of these participants noticed that the use of social media, particularly Facebook, wherein one becomes *friends* with others to communicate, had caused situations where enlisted personnel began to think of the officers, with whom they communicated on Facebook, as *friends* in real life. These participants had to take specific measures to ensure that the idea of being *friends* on Facebook did not translate into real world friendships. Maggie mentioned, "There were times when soldiers thought of me as a 'friend' because we were friends on Facebook. That is when I had to step in and correct that."

It is important to remember that, at small unit levels, there are Millennial leaders leading Millennial subordinates. As such, some of the challenges found in Generation X leadership of Millennials may be wholly different and many of the unique aspects of these relationships may yet be revealed.

Transition Zone

One participant, Mack, a military professional, described a transition zone. Mack noted that "We have a generation X and a Generation Y and I believe there is something like XYs and YXs where they meet." *Figure 6* pictorially represents this phenomena. On the left side of the figure, unit levels are depicted starting at the lowest unit level, the platoon (a unit of 30 personnel) and increase in size all the way up to the Army/Group level (a unit of 200,000+). On the right side, the generation in command of that unit, based on age and rank, are labeled. It is in this figure that a "transition zone" is detected between the Company and Battalion command levels.

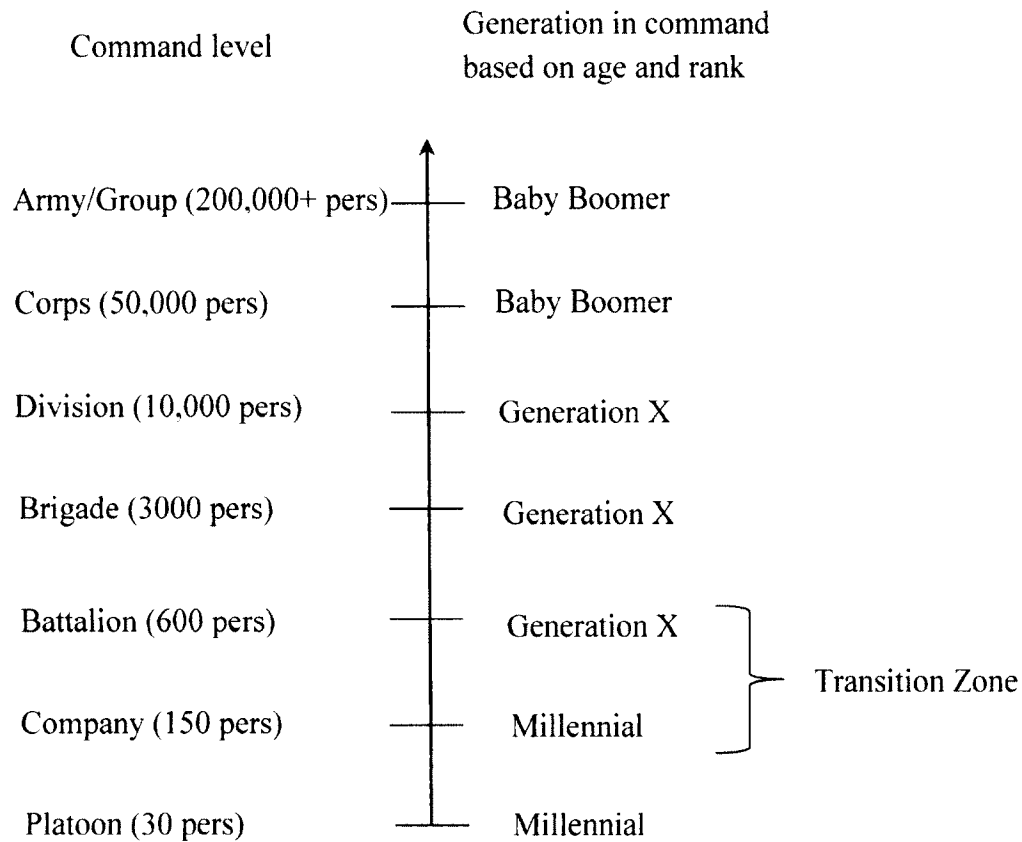


Figure 6. Command of units by size and generation.

The commanders at each level make decisions which impact on the level above and the level below. Since the Battalion Commander makes decisions which affect the units below him (company and downward), this commander must understand how decisions made will be accepted and implemented. Thus, the Battalion Commander, although an X, must know how the Ys in the Millennial Generation, think and respond. This commander could be described as an X,Y. Likewise, since the Company Commander must understand the Battalion Commander's way of thinking, the Company Commander could be called a Y,X. *Figure 7* depicts an extracted view of this transition zone.

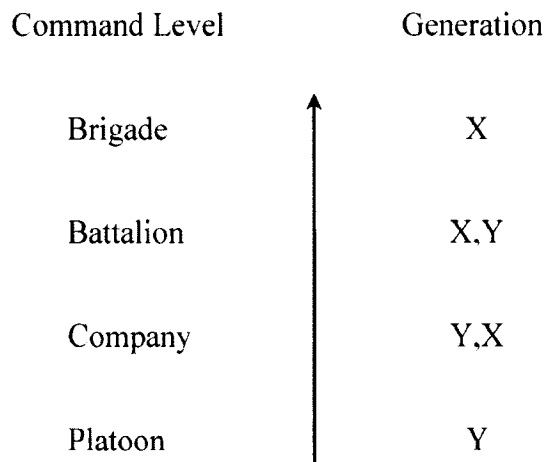


Figure 7. Extracted view of transition zone.

This transition zone is not permanent in its location. Over time, as the population ages and increases in rank, the transition zone will change. By 2020, the zone will have moved upwards and Millennials will be entering command at the Battalion level and the transition zone is expected to be between the Brigade and Battalion level. Of note, although not within the scope of this study, there is also a transition zone between the Baby Boomer Generation and the Generation Xers detected as well.

This idea was added to the Military Group interview instrument and a total of nine participants were asked for their view on the subject and all nine agreed with the premise.

Technology in Higher Education

The technology questions were asked of all 32 participants from the Higher Education, Military and Technology Groups. This was to solicit a broad view of educational technology predictions as well as gather more specific inputs about military education technology and, in particular, NATO instructional systems. The participants from all three groups were unanimous in agreeing with the point that Millennials were

bored with traditional instructional techniques and it was further noted that this also applied to Gen Xers as well. Macy, a Canadian military educator mentioned that, “There will be far less reliance on formal, structured learning and more focus on giving the tools needed.” Traditional lectures delivered in PowerPoint were simply no longer acceptable to Millennials. Malik, a Greek Navy officer, stated bluntly, “They do not want lectures in Power Point.” Mahmut, a senior United States Army officer further noted, “I do not want that either”. The application of more advanced technological educational systems could engage Millennials better and thus may achieve better results.

Mobile Educational Platforms

Twenty-one of participants predicted an increased use of mobile devices for educational delivery in 2020. Tamara, an educational consultant at a technology company, noted that “I certainly see an increase in the use of mobile device platforms.” Tatiana, an employee at a medium-sized technology company, mentioned, “I see increased use of mobile devices in the future in education.” Because of the popularity and widespread possession of smart phones, tablets and laptops, these devices could provide a learning environment at any time of day and in any location. This can certainly be important in the military, particularly for continuing civilian education, reinforcement training in deployed theaters of operations or as reinforcement of military educational topics. However, because of the specific implications of classified material and its ability to be collected through cyber warfare, special consideration must be paid to content classification and delivery.

Blended Approach

Nine of the participants noted that more of a blended approach needed to be taken at NATO institutions. Blended approaches, where residential and online learning environments are used in concert, could be used to deliver information prior to the execution of a course so that the course residential period could convert information into knowledge through interaction and application. Harry, a higher education professional with some knowledge about NATO education, noted, "If there was a way to blend together the game-playing with personal, face-to-face interaction, that would be ideal." This potentially could not only improve the educational experience, but could also shorten the period of time spent at the course. As such, per diem savings resulting from shortened courses would be of financial advantage to the NATO nations. There was one suggestion by Manuel, an Italian Navy officer, that, "The nine month residential course currently taught at the NATO Defence College could be significantly shortened to approximately eight weeks using this approach" and could thereby reduce nations' per diem costs dramatically.

Participants did not envision technology replacing the face-to-face experience that occurs in the NATO School courses. Because there is significant cultural exchange, trust-building and confidence development in face-to-face venues, participants felt that this aspect would still be needed to enhance relationships among Allied personnel. Malcolm, a senior Portuguese Navy officer, mentioned that "Communicating face-to-face, war-gaming and brainstorming are all areas where we will have to help the Millennials learn these skills." Although a blended learning approach could shorten the

courses and thereby save nations' money, participants felt there would still be a need for meeting in person for military cultural exchange.

Education Follows Industry

Participants felt that development of technology in education would follow development in the entertainment industry. Tamara, an educational consultant in technology, stated, "My first thought is that entertainment drives technology." Because of the relatively small amount of investment and research capital available to higher education, it was felt that entertainment industries focused on gaming, simulations and virtual reality would be the developmental engines driving technological change since they have access to more monetary resources. Taylor, whose employer specializes in educational technology, suggested, "This is about the amount of capital available to invest." The market forces which bear on the success of the use of entertainment technologies would drive forward those technologies that are the most interesting and productive. Education would then be able to exploit these technologies for educational delivery benefits without having to do the baseline research and development.

Virtual Reality, Simulations and Serious Gaming

Participants from the three groups felt that the future held breakthroughs in the areas of virtual reality, simulations and serious gaming. "I think virtual reality will appear by then, but it may be in its infancy due to technology limitations", mentioned Taylor while Hattie, a higher educational professional, noted that "I believe this will involve increased simulation and virtual reality." These technologies have tremendous potential in military training applications such as safely training on bomb disposal but

also have potential application in military education as well. Taylor described a potential higher education scenario delivered in virtual reality wherein a “geology professor could take the students on a virtual walk to see the very rock formations they were currently studying”. Although this may be impractical in real life for cost reasons, it could be done in a virtual, simulated or gaming-based environment. The military education applications are similar in that military students could take a walk across the battlefield of Waterloo and listen as Napoleon gave orders. Military students could be taught military strategy in a way that potentially enhances their learning and retention.

Technology Limitations

There were concerns, however, from eight participants about the ability to mature these technologies for world-wide delivery by the year 2020. To be useful in an international context as well as in deployed theaters of operations, delivery via the Internet was cited as a crucial aspect. Although computing capabilities were viewed as doubling every two years and would likely be able to deliver these kinds of technologies by 2020, the infrastructure and software limitations of the Internet were in doubt. Tad, a technology researcher, noted, “Right now, we are constrained by technology limits in creating 3-D simulations of any type.” The data pipeline whereby these technologies are enabled, would simply not be large enough for advanced virtual reality and simulation realization and that only basic forms would be available in 2020. Tad even revealed that, based on some current ongoing experimentation, “...the Internet as it exists today is simply unable to ever achieve the requisite data flow required.” Tad was engaged in advanced work on this issue in terms of a fundamental change in the software of the Internet and predicted that, in late 2016, “...significant changes to the Internet would be

introduced that would allow for the advancement of virtual reality.” This implies that significant use of virtual reality or advanced simulations will likely be constrained to internal or local area networks.

Teacher Preparation

A final area of concern about technology in education, both military and civilian, was expressed as a potential lack of teacher preparation to successfully use these emerging technologies. Participant Hadley, a higher education professional, related how I-Pads and other devices had been introduced for use in education, but “...teachers were unable to leverage the advantages of those systems because they were simply overwhelmed...” with trying to learn how to encode or how to use the devices effectively. Tad and Tatiana, both from the Technology Group, mentioned that this was a serious concern among developers and that there could be a role for advance Artificial Intelligence (AI) to assist teachers in preparing educational experiences. By simply telling an AI engine what was needed, the virtual reality or simulation could be generated and remove the burden of learning coding. Since instructors at NATO institutions are largely drawn from the NATO Command Structure and also do not have time or desire to learn coding, the use of AI in preparing virtual learning environments could be of huge advantage.

With the findings collected and analyzed, some conclusions can be draw which can lead to recommendations for NATO educational readiness for the Millennials in 2020.

CHAPTER 5

CONCLUSIONS

Introduction

With the findings identified, conclusions can be drawn to address proposals for change required to be ready to best meet NATO military Millennial educational needs in 2020. Before presenting the proposals, the major findings and implications for each research question bear further examination.

Purpose and Research Questions

The purpose of this study was to make proposals for changes required to be ready to best meet NATO military Millennial educational needs in 2020 by confirming whether Millennial Generation characteristics are international in nature across the 28 nations of NATO, determining how military service and maturation will affect Millennials by 2020, and determining the state of educational technology in 2020. The research questions included:

1. Are the defining characteristics of the Millennial Generation international in nature to the extent that they apply to persons from the 28 NATO member nations?
2. How will maturation affect the Millennial Generation characteristics in 2020?
3. How will military service affect the Millennial Generation in 2020?
4. What will be the state of educational technology in 2020?

With the answers to 1-4, the following question can be addressed:

5. What changes will be required to best meet the Millennial Generation's educational needs in 2020?

A conceptual framework was used to guide the study:

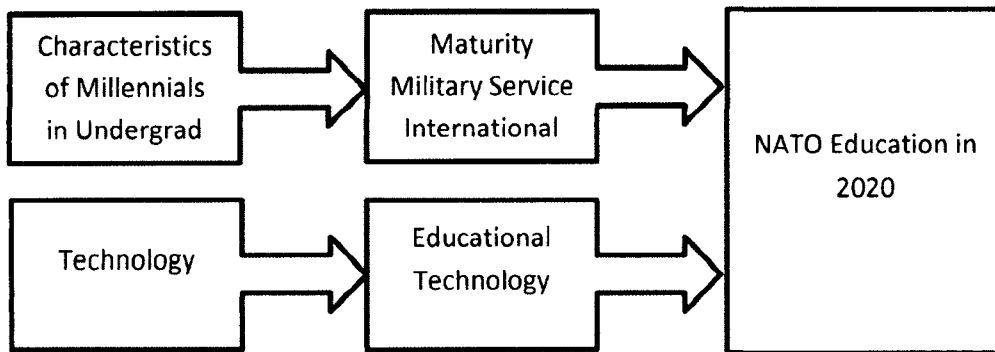


Figure 8. Graphical Conceptual Framework

Review of the Methodology

Qualitative data were drawn from interviews with three groups: NATO military leaders, college and university faculty/administrators, and technology experts. These were organized into three groups: Higher Education Group, Military Group and Technology Group.

A total of 30 individual interviews were conducted. Politically important sampling, criterion and theoretical sampling was used during the interviews. The politically important sampling method was used since the results of this study are meant to draw political attention to the phenomenon (Hays and Singh, 2012). The theoretical sampling technique was used to allow the sampling to be adjusted based on evolving theories developed during the data collection process (Hays and Singh, 2012). Criterion

sampling was used to ensure that the participants met important criteria ((Hays and Singh, 2012).

Eight participants in the Higher Education Group were interviewed until the saturation point was reached. The participants were selected from a variety of colleges and universities in the NATO member nations to achieve a multinational perspective. Three research questions were examined using this group, the first research question, the international aspects of the phenomena, the second research question, maturation effects and the fourth research question, the state of educational technology in 2020.

Seventeen participants in the Military Group were interviewed until the saturation point was reached. The participants were selected from a variety of national military services in the US, Canada and Europe. All research questions were asked of this group.

The final group, the Technology Group, included those most concerned with technology and its applications in 2020. Seven participants were interviewed about their views of educational technology in 2020 and saturation was reached.

Repetitive and frequent ideas were identified. Horizontalization, as described by Moustakas (1994), was used to analyze the data to develop a textural description leading to the development of a structural description.

Research Question 1

The first research question examined whether the defining characteristics of the Millennial Generation can be used to describe Millennials from the 28 NATO member nations. Twenty-five participants from 13 NATO member nations were interviewed and

the defining characteristics were identified in 19 nations in which the participants had worked, served or lived. In addition, the participants further identified regions of Europe where the behaviors were observed and these regions included those NATO nationalities not sampled. The Millennial characteristics were confirmed as being present in the NATO nations. The only characteristic at question was the inability to form meaningful relationships in face-to-face fashion. Some participants had observed entirely the opposite.

These observations suggest that the Millennial phenomena or phenomenon are generalizable across the 28 NATO nations. Additional observations were provided about non-NATO nations including its European partner countries and other nations around the world. This suggests that the Millennial phenomena is not simply pan-NATO, but may be much larger in scope as Appendix I suggests.

Research Question 2

The second research question focused on how Millennials change as they mature. Twenty-five participants from 13 NATO member nations were interviewed on this question. The participants were almost evenly split in their views about whether Millennials would change or not. There were some cases where there were multiple participants

For those who felt they would change, the area in which they would change was in the area of the management of expectations about career advancement and speedy responses from others since society, in general, does not move at the same speedy pace. The Millennials could be expected to change their pace of life once their career

aspirations competed for the time that a family requires. The participants who thought Millennials would change remarked that, as the family was formed, the demands for the Millennials' time would force the Millennial to decrease the amount of time spent on career and other external issues.

These observations suggest that Millennials should be introduced to the ideas of management of their expectations in preparation to enter the workforce. High schools, colleges, military institutions, universities and trade schools could all introduce instruction in their curricula, both at the beginning of the program as well as near the completion of their programs, to provide Millennials with information on typical career path timelines so as to ameliorate the effects when their career expectations are not met in the rapid fashion expected.

Research Question 3

The third research question focused on how military service affects Millennials. This question was asked of 17 participants representing 13 NATO national military services, including two Millennial officers. The key differences identified between military Millennials and their civilian counterparts were the education that military Millennials receive about identifying, assessing and mitigating risk and in the area of responsibility for others as required in military service. There was little evidence to suggest that Millennials differed greatly in terms of Millennial officers and Millennial enlisted personnel other than in the area of educational level and in the enhanced risk education that officers receive and this was authenticated by both of the Millennial military participants.

It was suggested by numerous participants that the line between officers and enlisted seemed to become more blurred and that less formality was observed in military relationships between officers and enlisted. Two participants, both Millennial officers, related how they had dealt with relationship problem in the workplace because of the use of social media.

These findings suggest that military Millennials are better equipped to deal with risk and the decisions that must be made in risky situations. Military Millennials also differ from their civilian counterparts based on the responsibility for others that military life entails thereby negating some of the self-centered Millennial behaviors. Finally, the findings suggest that there is a transition zone between the Millennials and Generations X in terms of the chain of command. This transition zone is important in that it implies the need for the generational members on either side of the transition zone to be able to understand the other generations' way of thinking so as to better understand the impact of decisions made. This gives rise to the idea of providing information about generational ways of thinking, and how they differ, to the audiences on both sides of the transition zone. Since this idea is not NATO-specific, but rather better couched within national structures, nations are encouraged to add this to their professional military educational activities.

Research Question 4

The fourth research question focused on the projected educational technologies that should be in use by 2020. All 32 participants were asked about their views on this question. The first major point was the observation that Millennials are indeed bored with traditional lecture-based learning and want to see more technology used in the

learning environment. Since the NATO School teaches institute courses in the traditional lecture manner, this suggests that the NATO School needs to change its teaching methods because they may not be as effective for Millennials.

The second major point was nearly full agreement on the need to enable learning on mobile devices such as smartphones, laptops and tablets. Because this has the added advantage of providing a learning platform in deployed operational theaters, it suggests that many NATO courses could be brought on to mobile device platforms.

Along with mobile devices, a significant number of participants thought that a blended learning approach, whereby the information is delivered online and then converted into knowledge through application at resident courses, was needed. Some participants even cited monetary savings as a result of being able to shorten the resident portion of courses by using the blended approach. This suggests that the NATO School could enable more of a technology-driven environment and simultaneously achieve monetary savings for the NATO nations.

The idea that educational technology development simply follows the entertainment industry was expressed repeatedly. With the significant capital outlay required for research and development of advanced simulations, serious games and virtual reality applications, this suggests that higher education and the NATO School cannot fund this effort. The antecedent that market forces will drive further innovation in the entertainment industry also suggests that entertainment will lead the way in the advancement of these applications.

All participants felt that advancements in serious gaming, simulations and virtual reality were just on the horizon and that education, both military and civilian, would

benefit tremendously from these applications. However, there was concern about whether the software and hardware environments would be truly capable and ready by 2020. There was expression of a coming significant update in late 2016 about the nature of the Internet and that this update could enable the data flow required for these advanced applications. There was suggestion that, even if the Internet were incapable of running these types of applications, internal networks could be used initially.

The final observation shared by a number of participants was the idea that due diligence for teacher and instructor preparation had to be included as part of development. Teachers simply do not have the time nor inclination to learn coding and there was suggestion that Artificial Intelligence perhaps could be useful in providing the interface for the development of educational content. This suggests that, after many failures thus far, the technology world is now sensitive to helping the teacher prepare content.

Findings Related to the Literature

In terms of the study's relation to the literature, the study confirms a number of aspects found in the literature and adds to the body of knowledge.

The study confirms the literature about the general characteristics of Millennials and does so in a 28 nation international context. The findings confirm that Millennials have indeed grown up in the information age and routinely done so using electronic means (Levine & Dean, 2012). Moreover, the study was able to confirm this as observable behavior across the 28 NATO nations. In addition, a number of other nations

were identified where the behavior exists as well. This suggests that the phenomenon may be larger in scope than previously thought.

The study confirms the observation that Millennials are bored with traditional lecture-based instruction (Newkirk, 2012). The study also found that this aspect is not limited to Millennials and many Gen Xers are also feeling this way. Both generations want to see more technology introduced into their learning environments. In particular, blended approaches, use of mobile devices, virtual reality, simulations and serious games were all cited or predicted as specific areas in which technology should be integrated into the NATO learning systems in the coming years. This is in agreement with the ideas to making learning interesting through the use of gaming and other tools (McGlynn, 2008) as well as taking advantage of online content delivery (Evans & Forbes, 2012). In addition, it has the added advantage for military personnel of being mobile for use in deployed circumstances.

The findings support the idea that Millennials, because they have communicated so much in the digital world, struggle with face-to-face relationships (Levine & Dean, 2012). However, this finding was not fully supported by all participants and the opposite was observed in some cases. This suggests that this characteristic may not be fully generalizable across Millennials, but rather should be expressed using the term *majority* of Millennials.

The participants confirmed that Millennials desired instant gratification in communications as well as in their classroom experiences (Evans & Forbes, 2012). This suggests that the preceding generations (Xers and Baby Boomers) must make conscious

decisions as to whether they will alter their own communications and teaching behaviors, or not.

The study confirms the existence of the perception of the Helicopter Parent phenomena wherein the parents of Millennials have overly protected them (Ferri-Reed, 2012). Because their parents were always present to rescue them before they fail (Perna, 2012), Millennials have not developed good risk identification and mitigation skills. This suggests that education about risk skills is necessary and much more so for military professionals. In addition, the literature for these ideas were entirely drawn from US sources and these findings suggest that the Helicopter Parent phenomena and the associated weaknesses that Millennials have for risk identification is much larger than just in the US and is certainly identified as a pan-NATO phenomena.

The study confirmed the idea that Millennials see their education as a service (Singleton-Jackson, Jackson & Reinhardt, 2011) and does so in a 28 nation context rather than just as a US phenomenon. This suggests that higher educational institutions across the NATO nations are perhaps also making philosophical adjustments based on competition to keep enrollments high (Bok, 2006).

The study confirms the literature that Millennials want rapid advancement, have high career expectations and want to have a work-life balance (Ng, Schweitzer & Lyons, 2010). The study findings, however, suggest that these desires will change as the Millennials enter the workforce, either civilian or military, and find that promotion and pay increases do not meet their expectations. The study suggests providing Millennials with coping tools when they are disappointed by their chosen career paths in terms of

rapid advancement. In terms of work-life balance, the findings suggest that, as Millennials mature and have families of their own, there will be changes in time dedicated to work and leisure. In particular, a family will demand time that would otherwise be spent on work or leisure and Millennials may be forced to make adjustments to their time management mechanisms.

The study confirms that the Millennial generation is the most diverse in history with increased global awareness (Levine & Dean, 2012). With increases in international student enrollment, diversity of thought and opinion is increased in the learning environment with the introduction of cultural consideration that international students bring (Glass, Buus & Braskamp, 2013). The finding suggest that this point is reinforced in NATO wherein the cultural exchange across 28 nationalities as well as 76 military services is an inherent benefit of NATO service. The findings suggest that this is such an important point in NATO that movement to completely online education and training is not advantageous and some face-to-face educational experiences must be retained for the military cultural exchange processes to occur.

The study confirms what the literature reflected in terms of military Millennials and adds to the body of knowledge through findings described by Millennial military leaders. Generation X military leaders confirmed the effect that Millennials are having on military use of social media and technology as well as the challenges inherent in leading Millennials (Majorman, 2009). The finding suggest that, just as in higher education, a challenge exists in keeping military Millennials from being bored in a classroom using traditional lecture-based teaching styles (Prindle, 2011). This further

suggests that military educational institutions, including NATO institutions, must adjust to integrate technologies that are both relevant and effective for enhanced learning.

The study confirms that most nations have a similar policy in place about the use of the internet and social media in deployed theaters of operations (Majorman, 2009) and have had many of the same problems faced by the US military in deployed operational theaters.

The study confirms the literature on the coming technology advancements in educational delivery (Mihalca & Miclea, 2007) and adds to the body of knowledge about increased use of mobile devices and blended learning as means to deliver military education and training in an international context as well as in deployed theaters of operation with potential financial savings in decreased per diem costs. The study advances the idea that educators must remain attuned to the entertainment industry to see where the technology is headed so as to accurately predict the infrastructure investments to be made as well as potential educational application. Finally, the study confirms that the same industries that are developing technological advancements for learning are also conscious that they must provide tools for teacher preparation.

Proposals

With the findings addressed, there are implications for the practice and these lead to proposals to best prepare NATO to be ready to best meet NATO military Millennial educational needs in 2020:

Proposal 1 – Sharing Millennial Best Educational Practices

Because the phenomena is generalizable across the 28 nations, it makes sense that successful tactics, techniques and procedures developed to specifically deal with the unique Millennial educational needs should be successful in all 28 nations. Thus, best practice sharing can help all 28 nations improve their educational delivery and improve learning outcomes. NATO can be the vehicle to enable this best practice sharing and should take the lead in developing venues to empower this sharing as is already done at NATO's Conference of Commandants and Department Head forums, but on a larger scale to be inclusive of other institutions.

Proposal 2 – Management of Expectations, Risk Education and the Transition Zone

Because military Millennials are learning that their expectations are being forced to adjust to structured promotion and pay systems, the demands of time for family matters and a general slowing of pace, the NATO nations should, wherever appropriate, provide instruction and counselling services to help Millennials cope with potential frustrations. In addition, military Millennials are coping better with risk analysis and this education should be sustained. Finally, with the observation of a transition zone, education of leaders on each side of the transition zone about the generational differences would enable better understanding and more effective decision-making and this is proposed as a topic in leadership development instruction. As these aspects are not NATO responsibilities, this proposal is best left to the national military educational systems.

Proposal 3 - Mobile Devices

Because the Millennials of the 28 nations want to see increased technology and in a mobile fashion, the NATO School in Oberammergau and other NATO-affiliated educational institutions need to bring as much content delivery as possible onto mobile platforms. This also support the idea of the use of a more blended learning environment and potential per diem savings. This requires NATO to develop the capability to author and deliver applications, or apps as they are called, that provide content on mobile devices.

Proposal 4 – Embrace Synchronous Educational Delivery

NATO currently uses almost no synchronous learning environments. Because this would bring in the aspects of increased use of technology as well as savings in per diem and travel costs, NATO should commence procurement of synchronous learning technologies which they can host on their own systems. In addition, synchronous learning would provide an increased capability for senior leaders, who may not have the time to travel to the NATO educational institutions, to participate in the learning process either as students or as guest instructors.

Proposal 5 – Follow the Gaming Industry

Because it is likely that educational delivery will follow the research and development activities of the entertainment industry, more specifically, the gaming industry, the NATO School and all NATO-affiliated educational institutions should follow trends and observe technology as it changes in the delivery of entertainment, particularly online gaming. In addition, the NATO School and other institutions should,

wherever possible engage with appropriate gaming industry to begin the dialogue about teacher preparation development.

Recommendations for Further Research

There were a number of areas identified for further research. The first area is in the exploration of Millennial characteristics as a global phenomenon. Although this study confirms it in the 28 nations of NATO, it provided insight about other countries and regions worldwide. As such, research into countries beyond NATO is needed to address the global nature of the Millennial phenomenon.

One participant related how their disability did not have any effect in the virtual reality environment in which they were experimenting. They mentioned that issues of gender, race, and ethnicity did not matter since a person's avatar could be presented without regard to these factors. As such, research into overcoming biases through use of virtual environments could be conducted.

One participant mentioned that Millennial behavior was present in the capital city of Kabul, Afghanistan, where there is a capable communications infrastructure, but was not present in the countryside where there was no infrastructure. This suggests that some of the Millennial behaviors may be directly proportional to the distance from mature communications infrastructure and this aspect should be researched.

Conclusion

This study examined a number of Millennial generation issues that previously had not been studied across the 28 nations of NATO and suggests that the phenomena may be

global. The study also confirmed the unique aspects of Millennial military service and how national services deal with Millennials. The study was indeterminate on Millennial changes as they mature, other than adjustments required to assist Millennials in coping with the management of expectations. Finally, the study found several technological improvements that can be made by 2020 for NATO and its member nations. At this point, it is now up to NATO and the NATO nations to take action to keep NATO staffs and forces educated, trained and ready.

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Appendix A

Human Subjects Review Committee Letter


OLD DOMINION UNIVERSITY

DARDEN COLLEGE OF EDUCATION
Human Subject Committee
Norfolk, Virginia 23529-0156
Phone: (757) 683-6699
Fax: (757) 683-5756

September 15, 2014

Approved Application Number: 201501013

Dr. Dennis Gregory
Department of Educational Foundations and Leadership

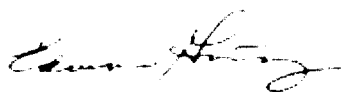
Dear Dr. Gregory:

Your Application for Exempt Research with John Kelley entitled "NATO Readiness for Millennials in 2020" has been found to be EXEMPT under Category 6.1 and 6.2 from IRB review by the Human Subjects Review Committee of the Darden College of Education.

The determination that this study is EXEMPT from IRB review is for an indefinite period of time provided no significant changes are made to your study. If any significant changes occur, notify me or the chair of this committee at that time and provide complete information regarding such changes. In the future, if this research project is funded externally, you must submit an application to the University IRB for approval to continue the study.

Best wishes in completing your study.

Sincerely,



Edwin Gómez, Ph.D., CPRP
Chair, Human Subjects Review, DCOE
Associate Professor and Coordinator of PRTS Program
Human Movement Sciences Department
Darden College of Education
Old Dominion University egomez@odu.edu

Appendix B

Informed Consent

PROJECT TITLE: NATO Readiness for Millennials in 2020

INTRODUCTION

The purpose of this form is to give you information that may affect your decision whether to say YES or NO to participation in this research, and to record the consent of those who say YES.

RESEARCHER

Responsible Project Investigator and Chair of Committee: Dr. Dennis Gregory, Darden College of Education, Old Dominion University, 120 Education Building, Norfolk, VA 23529, +1 757 683 3702, dgregory@odu.edu

Investigator: Mr. John Kelley, PhD Candidate, Education and Training Coordinator, Joint Force Trainer Division, Supreme Allied Command Transformation, +1 757 747 3741, jkell062@odu.edu

Human Subjects Review Committee Chair: Dr. Edwin Gomez, 5115 Hampton Blvd, Norfolk, VA, 23520, +1 757 683 6309, egomez@odu.edu

DESCRIPTION OF RESEARCH STUDY

There are no studies available about NATO's readiness to receive Millennial Generation students as they arrive in 2020. This study seeks to determine the effect of maturation and military service on Millennial Generation group characteristics, determine if the Millennial Generation phenomena is international in nature and to determine the state of educational technology in 2020. If you decide to participate, then you will join a study involving research of some of these areas of interest. If you say YES, then your participation will last for approximately 1 hour at a location of your convenience. Approximately 35 others will be participating in this study.

EXCLUSIONARY CRITERIA

To the best of your knowledge, you should not have any conflicting appointments that would keep you from participating in this study.

RISKS AND BENEFITS

RISKS: If you decide to participate in this study, then there is a risk of the release of confidential information. However, this risk is mitigated through careful

handling of information, removal of identity and direct data controls. And, as with any research, there is some possibility that you may be subject to risks that have not yet been identified.

BENEFITS: There are no direct benefits other than contributing to knowledge.

COSTS AND PAYMENTS

The researchers are unable to give you any payment for participating in this study and there should be no costs involved.

NEW INFORMATION

If the researchers find new information during this study that would reasonably change your decision about participating, then they will give it to you.

CONFIDENTIALITY

The researcher will take reasonable measures to keep private information, such as the interview and focus group transcripts confidential. The researcher will remove identifiers from the information prior to any release of results. The results of this study may be used in reports, presentations, and publications; but the researcher will not identify you. Of course, your records may be subpoenaed by court order or inspected by government bodies with oversight authority.

WITHDRAWAL PRIVILEGE

It is OK for you to say NO. Even if you say YES now, you are free to say NO later, and walk away or withdraw from the study -- at any time. Your decision will not affect your relationship with NATO, or otherwise cause a loss of benefits to which you might otherwise be entitled. The researchers reserve the right to withdraw your participation in this study, at any time, if they observe potential problems with your continued participation.

COMPENSATION FOR ILLNESS AND INJURY

If you say YES, then your consent in this document does not waive any of your legal rights. However, in the event of harm arising from this study, neither NATO nor the researcher are able to give you any money, insurance coverage, free medical care, or any other compensation for such injury. In the event that you suffer injury as a result of participation in any research project, you may contact the Legal Advisors Office in the Supreme Allied Command Transformation who will be glad to review the matter with you.

VOLUNTARY CONSENT

By signing this form, you are saying several things. You are saying that you have read this form or have had it read to you, that you are satisfied that you understand this form, the research study, and its risks and benefits. The researchers should have answered any questions you may have had about the research. If you have any questions later on, then the researchers should be able to answer them:

Mr. John Kelley, +1 757 747 3741

Dr. Dennis Gregory, +1 757 683-3702

Human Subject Review Chair: Dr. Edwin Gomez, +1 757 683 6309

And importantly, by signing below, you are telling the researcher YES, that you agree to participate in this study. The researcher should give you a copy of this form for your records.

Subject's Printed Name & Signature	Date

INVESTIGATOR'S STATEMENT

I certify that I have explained to this subject the nature and purpose of this research, including benefits, risks, costs, and any experimental procedures. I have described the rights and protections afforded to human subjects and have done nothing to pressure, coerce, or falsely entice this subject into participating. I am aware of my obligations under state and federal laws, and promise compliance. I have answered the subject's questions and have encouraged him/her to ask additional questions at any time during the course of this study. I have witnessed the above signature(s) on this consent form.

Investigator's Printed Name & Signature	Date

Appendix C

Demographic Sheet

Age:

Gender:

English Language Skill (reading, writing, comprehending, speaking with scale 1-4 for each):

Highest degree completed:

Highest degree field of study:

Current educational status:

Current occupation:

Current position:

Children born between 1982 and 2002?

Years spent supervising personnel that were born between 1982 and 2002?

Appendix D

Observation Protocol

The key to this observation protocol is to conduct the observation within a naturalistic setting without major disturbance so as to focus on framing experience-based responses without interruptions. To guide this observational activity, the following guidelines apply:

1. The interviewer will be as unobtrusive as possible.
2. The interviewer will observe naturally occurring behaviors.
3. The interviewer will observe under-explored or unexplored behavior.
4. The interviewer will provide thick descriptions.

There are specific cautions to be emphasized:

1. Because of researcher expertise in NATO and in higher education management, there will be questions directed back to the researcher. In answering these questions, the researcher should try to minimize personal influence as much as possible.
2. To better observe the process, the researcher can provide simple suggestions as to how to proceed on a given topic or question.
3. To gain a thick description, the researcher must make maximum use of field notes.

Appendix E

Blueprint and Interview Instrument for Higher Education Group Interviews

	TQ 1: How does maturity affect Millennials?	IQ 1.1: Does having a family affect Millennials?	IQ 1.2: Does getting older with changing responsibilities affect Millennials?	IQ 1.3: Does living on your own affect Millennials?	TQ 2: Are the Millennial characteristics international in terms of NATO footprint?
1. How does having a family change Millennial characteristics?		X	X		
2. How will getting older, with different responsibilities change Millennials?			X		
3. How does living on one's own change Millennial characteristics?				X	
4. Are Millennial characteristics the same in Canada as in the US?					X
5. Are Millennial characteristics the same in Europe as in the US?					X
6. Are Millennial characteristics different in					X

differing parts of Europe?					
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Interview Protocol for Higher Education Group

Thank you for agreeing to participate in this study. This study is completely voluntary and you are free to terminate it at any time. If you feel uncomfortable with a particular question, please let me know. This session is being audio recorded for transcription purposes and the recording will be destroyed once the transcripts are completed in written form and provided to you for accuracy review. The transcript will not identify you and only the research team will have access to the full transcript. This interview will remain confidential. Do you have any questions before we begin?

First, I would like to collect some demographic information for the purposes of this research.

A separate paper was provided to you that describes the current research into the Millennial Generation students. In considering the following questions, the research findings in that paper are the basis for defining Millennial Generation characteristics. I would like to focus on your experiences and thoughts about the Millennial Generation in higher education and the international aspects of the millennial Generation.

Now to turn to the questions provided. This interview is considered a semi-structured interview. This means that, during the course of this interview, there is no requirement to adhere strictly to the question if you have related thoughts. Also, it means that additional questions may be asked for clarity purposes or for probing further into your responses.

These questions are to explore two areas: how will maturity affect the millennial Generation in the year 2020 and is the Millennial Generation phenomena and characteristics international in nature.

1. How will getting older, with new and different responsibilities, change Millennials characteristics?
2. How will having a family change Millennial Generation characteristics?
3. How does living on one's own change Millennial Generation characteristics?
4. In summary, how does maturation affect Millennial Generation characteristics?
5. How do Millennial Generation characteristics compare in Canada as in the US?
6. How do Millennial Generation characteristics compare in Europe as in the US?
7. How are Millennial Generation characteristics different in differing parts of Europe?
8. In summary, are Millennial Generation characteristics international?
9. Is there anything else you would like to add?

Appendix F

Blueprint and Interview Instrument for Military Group Interviews

	TQ 3: How does military service affect Millennials ?	IQ3.1: Does the military chain of command affect Millennials ?	IQ3.2: Do military deployments affect Millennials ?	IQ3.3: Does international military assignments affect Millennials ?	IQ3.4: Is being an officer vs enlisted affect Millennials ?
1. How does military service affect Millennial characteristics ?	X				
2. How does the military chain of command affect Millennial characteristics ?	X	X			
3. How do military deployments affect Millennial characteristics ?	X		X		
4. How does international military assignments affect Millennial characteristics ?	X			X	
5. How is being an officer as opposed to enlisted affect	X				X

Millennial characteristics ?					
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Interview Protocol for Military Group

Thank you for agreeing to participate in this study. This study is completely voluntary and you are free to terminate it at any time. If you feel uncomfortable with a particular question, please let me know. This session is being audio recorded for transcription purposes and the recording will be destroyed once the transcripts are completed in written form and provided to you for accuracy review. The transcript will not identify you and only the research team will have access to the full transcript. This interview will remain confidential. Do you have any questions before we begin?

First, I would like to collect some demographic information for the purposes of this research.

A separate paper was provided to you that describes the current research into the Millennial Generation students. In considering the following questions, the research findings in that paper are the basis for defining Millennial Generation characteristics.

Now to turn to the questions provided. This interview is considered a semi-structured interview. This means that, during the course of this interview, there is no requirement to adhere strictly to the question if you have related thoughts. Also, it means that additional questions may be asked for clarity purposes or for probing further into your responses.

1. How do you think having a military chain of command affects Millennial characteristics?
2. What are your thoughts about Millennials becoming helicopter parents themselves?

3. How do you think military deployments affect Millennial characteristics?
4. How do you think international military assignments affect Millennial characteristics?
5. How do you think being an officer as opposed to being enlisted affects Millennial characteristics?
6. What are your thoughts about the existence of a transition zone between the Millennials and Gen Xers that may exist between the company and battalion levels?
7. In summary, how does military service affect Millennial characteristics?
8. Is there anything else you would like to add?

Appendix G

Blueprint and Interview Instrument for Technology Group Interviews

	TQ 4: What infrastructure should be invested in for HIED to enable 2020?	IQ 4.1: How will technology affect HIED in 2020?	IQ 4.2: What is the state of technology in 2020?
1. What do you predict will be the state of educational technology in 2020?		X	X
2. What infrastructure would be needed to support educational technology in 2020?	X		
3. What is the lead time to develop educational technology infrastructure?	X		

Interview Protocol for Technology Group

Thank you for agreeing to participate in this study. This study is completely voluntary and you are free to terminate it at any time. If you feel uncomfortable with a particular question, please let me know. This session is being audio recorded for transcription purposes and the recording will be destroyed once the transcripts are completed in written form and provided to you for accuracy review. The transcript will not identify you and only the research team will have access to the full transcript. This interview will remain confidential. Do you have any questions before we begin?

First, I would like to collect some demographic information for the purposes of this research.

Now to turn to the questions provided. This interview is considered a semi-structured interview. This means that, during the course of this interview, there is no requirement to adhere strictly to the question if you have related thoughts. Also, it means that additional questions may be asked for clarity purposes or for probing further into your responses.

There are a great variety of ideas about the rate of technological change. In particular, this interview is focused on the year 2020.

1. What do you predict will be the state of educational technology in 2020?
2. What infrastructure would be needed to support educational technology in 2020?
3. What is the lead time to develop educational technology infrastructure?

4. How would investment best be placed to develop educational technology infrastructure to be ready for 2020?
5. Is there anything else you would like to add?

Appendix H

Condensed Literature Review for HIED and MIL Groups

The Millennial Generation

The Millennial Generation began arriving in higher education in the year 2000. Since that time, they have increased their presence and formed the largest population in cohorts at the undergraduate level. By 2020, NATO's higher education courses and programs will begin to be filled by this population at the Major (OF3) and Lieutenant Colonel (OF4) level and thus, a keen understanding of who they are, can help to best to structure NATO educational delivery for maximum learning.

Millennial Generation Description

With the preceding generation labelled as Generation X, the Millennials are often referred to as Generation Y, a quite logical term given the order of letters in the alphabet and the sequential aspect of the generation following Generation X. The name "Digital Natives" has been applied with the idea that this generation *grew up* in the digital age whereas their predecessors, Generation X, *grew into* the digital age.

For purposes of this study, the inclusive years 1982 to 2002 will be used when considering and defining the Millennial Generation.

Millennial Generation Characteristics and Higher Education

According to the literature, the Millennials have a number of distinct characteristics that set them apart from the preceding generations:

- 1) Millennials have grown *up* in the information age and are the first generation to have done so and rapidly become bored with traditional, non-technological means of instruction.
- 2) Because Millennials have spent a large portion of their lives interacting in the digital world in the form of surfing the web, playing games and texting, they are used to interacting through text, emails and chats and often struggle with developing relationships with a live person with which they must directly interact. Ironically, although they communicate much more so with each other in the digital world and are therefore more connected, they are more isolated in terms of direct, personal relationships.
- 3) Perhaps due to the lack of the ability to have more direct relationships, Millennials seek and enjoy group work in their educational experiences. The traditional style of lectures should only be used to set the conditions for group activities which focus on active learning situations.
- 4) The nature of their digital communications has led to a desire for instant gratification. Texts and emails must be answered quickly, otherwise, the Millennials get frustrated and angry. Although this is evidenced in their personal relationships, it also translates to their classroom experiences. They expect quick responses from digitally connected faculty and mentors.
- 5) Throughout their young lives, their parents, Generation Xers known as “Helicopter Parents”, solved their problems and never allowed their children to take significant risks. Millennials have therefore grown up in an environment that was overly protective. In their higher educational

- experiences, they seek self-sufficiency as the parents are no longer present on a daily basis. Because they have never faced significant risk of failure in their lives, they do not see the need to work hard in higher education, probably because they know their parents will rescue them should they face trouble.
- 6) The Millennials have given rise to the idea that higher education is a “service” and that they are “customers” of that service. Likely linked to the role of their “Helicopter Parents” and the need for gratification, Millennials see their education from a payment for services rendered perspective. Therefore they demand a measure of quality and responsiveness in the delivery of the educational product.
 - 7) Millennials want good pay and benefits, rapid advancement, a balance between life and work, work that is interesting and to contribute to society. This may not sound surprising as it fairly well matches the generations before them. However, this generation “wants it all and they want it now” suggesting that they have a measure of impatience in attaining these goals that was not previously experienced in other generations.
 - 8) The Millennials are the most diverse group in educational history. Racial, gender, ethnicity, sexual orientation, age, socio-economic class and all other selective characteristics of diversity are more representative of the general population on college campuses today.
 - 9) Millennials have access to information and news from around the world, beamed to them in an instant on their smart phones, laptops, tablets and Google glasses. This leads to the notion that Millennials are more global in

their perspectives because they are able to access information in a more global way.

Millennial Generation Characteristics Internationally

In examining the effects of the recent recession in Belgium, several authors defined them along the same lines as Millennials in the US and Canada. Likewise, a study in the United Kingdom focused on similar lines and drew a parallel conclusion. Information technology research on Millennials in France, Germany, Italy and the Netherlands indicate comparable findings. A recent PricewaterhouseCoopers (PwC) study conducted in collaboration with the University of Southern California and the London Business School examined Millennial issues globally. They took a regional approach and two regions of interest were Western Europe and Central and Eastern Europe. Their findings indicate similar characteristics amongst Millennials in Europe. In Turkey, the Millennials are referred to as “Generation Gezi”, and, although there are some differences in perspective, these differences are not foci of this study. In terms of the characteristics described herein, Turkish Millennials are on par with Millennials elsewhere. It appears that the Millennial Generation and its characteristics are similar across the 28 nations of NATO.

Military Millennials

Millennials arrived in military forces beginning around the year 2000 as they turned 18. By the year 2020, they will be moving into the upper ranks of senior officers at the Major (OF3) and Lieutenant Colonel (OF4) rank levels.

The characteristics of Millennials are found to carry over into their military service. A global perspective, diversity, use of technology and even the involvement of their parents in decision-making are all found in military Millennials. Senior leaders in military services have indicated that leading Millennials is, in many ways, more challenging than preceding generations and require a more servant style of leadership. The Millennial phenomenon has even led to changes in recruiting and retention.

The military Millennials have affected the planning and prosecution of war and operations. Largely cited as a need for operational security, the reality was that leaders from Generation X simply did not understand the Millennials need for technology and communication. As late as 2009, social media was continuing to be blocked in Iraq. However, slowly, planners have realized that military Millennial use of social media is necessary on the battlefield, particularly from a morale standpoint. Training efforts in operational security and information security were launched and the use of social media is now planned for, and integrated into, operations.

Appendix I

NATO and NON-NATO Nations Where Millennial Behavior has been Observed by
Participants



VITA

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Educational Background:

Bachelor of Science Degree with a Concentration in Mechanical Engineering,
United States Military Academy at West Point, 1986

Master of Arts Degree in Higher Education and Student Personnel, University of
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Professional Experience:

1986 to 2009 - Commissioned Officer in the United States Army

2009 to 2015 - Education and Training Consultant to the Supreme Allied

Command Transformation in the North Atlantic Treaty Organization

Awards and Honors:

2014 – Chi Sigma Alpha Honor Society

2011 – Golden Key Honor Society

2009 – Defense Meritorious Service Medal

2008 - NATO Meritorious Service Medal

2007 - Supreme Allied Commander's Letter of Commendation

2005 - Joint Force Command Brunssum Commander's Commendation for
Excellence

2005 – Defense Meritorious Service Medal

2003 - NATO Medal for ISAF/ Afghanistan

1999 – Phi Kappa Phi Honor Society