

# Strategy Research Project

## RECRUITING AND RETAINING CYBERWARRIORS

BY

LIEUTENANT COLONEL ROGER H. WESTERMEYER  
United States Air Force

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U.S. Army War College, Carlisle Barracks, PA 17013-5050

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USAWC STRATEGY RESEARCH PROJECT

**RECRUITING AND RETAINING CYBERWARRIORS**

by

Lieutenant Colonel Roger H. Westermeyer  
United States Air Force

Colonel George Woods  
Project Adviser

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U.S. Army War College  
CARLISLE BARRACKS, PENNSYLVANIA 17013



## **ABSTRACT**

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In response to growing national reliance on cyberspace and the increasing vulnerability to it from state and non-state actors the United States Air Force stood up the Cyberspace Command on November 2<sup>nd</sup>, 2006. Establishment of this new command requires a highly-skilled Information Technology (IT) savvy workforce capable of controlling and dominating the cyber domain. Recruiting and retaining this highly skilled workforce is a significant challenge for the Air Force due to the high public and private sector demand for people with IT and related engineering skills and several other demographic and society factors. This recruitment and retention challenge is further exacerbated by a new generation, commonly referred to as Millennials, now coming into the workplace. The Millennials have different views, motivations, career goals, job and workplace expectations, demographics, and skill sets than previous generations. This paper examines these growing recruitment and retention challenges along with the many generational differences of the Millennials in an attempt to provide some insight and recommendations on how best to attract and retain the necessary talent for the new Cyberspace Command.



## RECRUITING AND RETAINING CYBERWARRIORS

In the 2003 National Security Strategy to Secure Cyberspace, President George W. Bush stated, “the way business is transacted, government operates, and national defense is conducted have changed. These activities now rely on an interdependent network of informational technology called cyberspace.”<sup>1</sup> Indeed, our economy and way of life rely greatly on a vast and open array of networks and Informational Technology (IT) systems. Today, 80 percent of the United States’ commerce goes through the internet<sup>2</sup> and our financial, energy, transportation, emergency services, telecommunications, water, and health care sectors are heavily dependent on it as well.<sup>3</sup> Not only is the United States more reliant on cyberspace but there is increased risk of attack on these systems by our adversaries as demonstrated by three highly publicized cyber attacks in 2007. First, the country of Estonia was subject to a crippling attack on its banking, news, and government systems in May 2007.<sup>4</sup> This attack, purportedly by Russia, sounded an alarm throughout the international community that cyberwar was now a reality. Closer to home, the Pentagon was subject to a series of cyber attacks during the summer of 2007 that originated from Chinese servers.<sup>5</sup> More recently, the Central Intelligence Agency said that hackers had attacked computers that control power companies worldwide, causing at least one electrical outage.<sup>6</sup> It is apparent that China, Russia<sup>7</sup> and other state and non-state actors are developing an offensive cyber war capability that could disrupt or even cripple our way of life. General James Cartwright, Vice Chairman of the Joint Chiefs of Staff is credited with saying, “We are currently in a cyber war and the war is going on today.”<sup>8</sup> According to General Cartwright, there were 37,000 reported breaches of government and private systems in



fiscal year 2007 and 80,000 attempted computer network attacks on Defense Department Systems.<sup>9</sup>

In response to the increasing national reliance on cyberspace and the growing threat to it, Secretary of the Air Force, Michael W. Wynne, announced establishment of the Air Force Cyberspace Command on November 2<sup>nd</sup>, 2006.<sup>10</sup> He supported establishment of this command by stating “our own nation’s neural network resides in cyberspace and our military command and control, ISR and precision strike capability all rely on ensured access to the electronic spectrum.”<sup>11</sup>

Establishment of this new command requires a highly-skilled Information Technology (IT) savvy workforce capable of controlling and dominating the cyber domain. Recruiting and retaining this highly skilled workforce is a significant challenge for the Air Force due to the high public and private sector demand for people with IT and related engineering skills, the aging federal workforce, the lack of knowledge about federal service, and the decreasing number of adults who have served in the military. This recruitment and retention challenge is further exacerbated by a new generation now coming into the workplace. This new generation, commonly referred to as Millennials, has different views, motivations, career goals, job and workplace expectations, demographics, and skill sets than previous generations. This paper examines these growing recruitment and retention challenges along with the many generational differences of the Millennials to provide some insight and recommendations on how best to attract and retain the necessary human talent for the newly formed Cyberspace Command.

## Recruitment and Retention Challenges

The first step in building a cyber workforce is recruiting the highly skilled talent needed to perform this vital mission. This talent will be spread across the total force; Active Duty, Guard, Reserve, enlisted, officer and civil service personnel, each of which has its own recruitment and retention challenges. It will also be augmented with contractor personnel as needed, though recruitment and retention of contractor personnel will not be addressed in this paper because it is not within the Air Force's purview. These people must be highly educated and trained and possess a wide range of technical skills and abilities. According to General Ronald Keys, former Air Combat Command commander, "we need electrical engineers, computer engineers, strategic planners and thinkers."<sup>12</sup> Additionally, Major General William Lord, commander of the new Cyberspace Command, stated that his staff will include "software experts, lawyers, electronic war and satellite specialists, and behavioral scientists."<sup>13</sup> In all, the Air Force needs enlisted, officer, and civilian personnel with advanced education in engineering and computer science as well as specific technical skills such as network administration and management, and computer programming and architectures.<sup>14</sup> Unfortunately, these same skills and educational backgrounds are highly sought after by other government agencies and in the private sector as well. According to the Partnership for Public Service, federal agencies report a dramatically increased demand for information technology specialists. In 2007, two out of every three agencies listed IT as a mission-critical occupation and these agencies plan to hire 11,562 IT professionals through 2009.<sup>15</sup> The need for IT talent in the private sector is even more pronounced, with the oldest of the Baby Boomer generation only a few years from retirement eligibility the demand to replace them will grow.<sup>16</sup> This demand was reflected in a 12 percent hiring

increase for IT professionals in 2007<sup>17</sup> and was further supported by a May 2007 report released by the National Association of Computer Consultant Businesses which found that IT employers had more jobs to fill than people to fill them.<sup>18</sup> Kate Kaiser, associate professor of IT at Marquette University states that “students are getting snapped up before they graduate.”<sup>19</sup>

In addition to the specific demand for IT professionals the federal government as a whole is facing a looming human resource crunch as its aging workforce nears retirement. Within the next few years nearly one third of the entire federal workforce will be eligible to retire.<sup>20</sup> Additionally, the average federal employee is 46 years old with almost 60 percent older than 45, compared to just 40 percent in the private sector.<sup>21</sup> The Office of Personnel Management estimates that nearly 550,000 federal employees will leave government in the next five years.<sup>22</sup> These converging trends have resulted in an increasing demand for IT professionals across both private and government sectors that will only continue to grow over the next few years.

Another recruitment challenge for the Air Force and the federal government is a serious lack of knowledge among today’s youth concerning what Federal and military service is about. A survey conducted by the Partnership for Public Service at five major universities revealed that the federal government’s biggest problem attracting college graduates was not lack of interest, but rather a lack of knowledge about federal jobs and how to apply for them.<sup>23</sup> Tim McManus of the Partnership For Public Service says “It’s not that students simply don’t understand where jobs are for people like them, but faculty and career service individuals don’t understand the depth and breadth of opportunities in the federal government either.”<sup>24</sup> This issue is worsened by the fact that

fewer and fewer parents of today's youth have served in the Armed Forces due to the all volunteer force, the shrinking size of the military itself, and the length of time since a major war requiring a large force. Congress recognized this fact in Senate Resolution 357 issued on October 26<sup>th</sup>, 2007, which stated, "the advent of the all-volunteer Armed Forces has resulted in a sharp decline in the number of individuals and families who have any personal connection with the Armed Forces...and has resulted in a marked decrease in the awareness of young people of the nature and importance of the accomplishments of those who have served in the Armed Forces."<sup>25</sup>

Even if the Air Force overcomes these and other recruiting challenges it must then contend with serious retention issues for a highly sought after IT savvy cyber workforce. A technology auditor at the General Accountability Office (GAO) reported that "the Homeland Security Department has yet to develop a comprehensive plan for how companies would recover from cyber attacks disrupting the internet, in part because the department has not been able to find and keep highly trained cyber security experts."<sup>26</sup> At an October 2007 hearing of the House Oversight and Government Reform Subcommittee on Information Policy, Gregory Wilshusen, director of Information Technology at the GAO stated, "The agency continues to be hampered by an inability to retain key cyber security officials."<sup>27</sup> The challenge with retaining people with IT skills is further demonstrated by the Air Force's latest selective re-enlistment bonuses for enlisted personnel. Communication Signal Intelligence, Network Intelligence Analysis, and Electronic Signals Intelligence Exploitation are among those career fields offering bonuses for reenlistment because of low retention rates.<sup>28</sup>

In addition to these retention challenges the Air Force must also contend with the job mobility that appears to be the norm for the Millennial generation. Unlike many of their parents, Millennials do not foresee a career with one employer. According to a survey conducted by the Pew Research Center only 21 percent of Millennials say they plan to stay with their present employer the rest of their life.<sup>29</sup> A survey of 320 graduates by Experience Inc. indicated Millennials average only 1.6 years at their first full-time job and of those more than 36 percent stayed less than one year.<sup>30</sup> The Director of the Center for Effective Organizations and coauthor of the book, *The New American Workplace*, Edward Lawler says, “to them, the word ‘career’ is plural.”<sup>31</sup> This trait is reinforced by a growing trend for Millennials to move back home if they don’t like their job. “If we don’t like a job we quit,” says Jason Dorsey, author of the book, *My Reality Check Bounced*, “because the worse thing that can happen is we move back home.”<sup>32</sup> This combination of high demand for IT workers, aging federal workforce, lack of knowledge about federal service, and increased job mobility provide significant recruitment and retention challenges to building the cyber workforce.

#### Understanding the Labor Pool (Millennials)

To fully address these serious recruiting and retention challenges it is necessary to gain a better understanding of the Millennials that are now entering the workforce. These Millennials, also referred to as Generation Y, the Echo Boomers, or the Internet Generation (Igen), were generally born between 1980 and 2000,<sup>33</sup> with the first of them graduating from high school around the turn of the century. It is important to note that each generation varies from those that preceded it and this is especially true today made even more pronounced by the rapid pace of change and the significant influence

of technology on every day life. The Millennials now entering the workforce are the most IT savvy generation ever. It is estimated that by the time the average 21 year old enters the workforce they have played 5,000 hours of video games, exchanged 250,000 e-mails, instant messages, and phone text messages, and have logged 10,000 hours of cell phone use and 3,500 hours on-line.<sup>34</sup> Additionally, 97 percent own a computer, and 94 percent a cell phone. Furthermore, 76 percent of them use Instant Messaging and 75 percent have a social networking account such as Myspace.<sup>35</sup> Similarly, 76 percent use the internet to get news or information about current events.<sup>36</sup> They are the most well-informed and connected generation ever. Furthermore, studies at the Pew Internet & American Life project indicate that nearly all college students play video, computer, or internet games that teach them rapid decision making skills and an ability to continually learn and adapt.<sup>37</sup> Their nimbleness with a multitude of IT tools and games have made them exceptional multi-taskers capable of confidently working several processes at once. These IT, decision-making, learning, and multi-tasking skills are readily transferable to the cyber workforce the Air Force seeks to build and the abundance of Millennials with these skills increases the pool of cyber ready talent to recruit from.

Though technology is at the forefront of Millennials' existence and drives their daily habits and behaviors, the biggest influences on their decisions are parents, teachers, coaches and other elders. Most Millennials were raised by Baby boomers who are actively involved in every aspect of their development. From education, to participation in sports, to social activities, the parents of Millennials are fully engaged. It's been said that the parents of the Millennials view the child as the center of the family.<sup>38</sup> This active engagement has led to an extremely close relationship with their parents quite different

than the rebellious attitudes of the Generation Xers and Baby boomers. In the Generation 2001 survey, when asked who they most admired, Millennials most common response was Mom and Dad.<sup>39</sup> This close relationship continues as they enter young adulthood where 73 percent of Millennials say they see their parents at least once a week and fully half see their parents daily.<sup>40</sup> Not only do they keep in close contact with their parents they rely on them heavily for advice and assistance. When asked who they turned to for advice, 64 percent answered their parents. This is significantly higher than previous generations.<sup>41</sup> This high level of parental influence when combined with a June 2006 survey that indicated only 23 percent of the adults surveyed said they were likely to recommend military service to young adults does not bode well for military recruitment.<sup>42</sup>

This close relationship with their parents and the trend of parents not recommending a career in the Armed Forces is not lost on recruiters. Says Lieutenant Colonel Jeff Sterling, "If you want to get a soldier, you have to go through mom, and moms want to know what kind of future their children will have."<sup>43</sup> When commenting on the newly established Army Advantage Fund, Lieutenant General Michael Rochelle, the Army's deputy chief of staff for personnel said, "We're going after the influencers."<sup>44</sup> This sentiment is echoed by the recruiters in the field, Sergeant Carlos Alvarez, a recruiting station commander in Florida wisely reports, "If you don't have a good relationship with the parents, you're not going anywhere, the kid might want to do it, but it's all about mom and dad."<sup>45</sup>

Another indication of the parental influence on today's youth is their desire for advanced education. Since they were toddlers their parents have preached to

Millennials the importance of obtaining a college degree. Today, 64 percent of women and 60 percent of men go to college after graduating from high school, and of those, 85 percent attend full-time.<sup>46</sup> In a 2000 survey conducted by the National Center for Public Policy and Higher Education of 1,400 randomly selected adults, nine out of ten stated that a college education has become as important as a high school diploma once was, and more than six in ten say a college degree is “absolutely essential” for their children to succeed.<sup>47</sup> This survey is supported by data from the U.S. Census Bureau which shows the percentage of youth attaining a college degree is now at 28.4 percent, compared to 23.2 in 1990.<sup>48</sup> Sgt Terry Wright, an Army recruiter in Tampa said, “I go to high schools every day and for the most part it strikes me how many of them are serious about going to college.”<sup>49</sup>

This desire for higher education is tempered by the rising costs of obtaining a college degree. In 2007, the annual cost to attend a public four-year in-state college rose 5.9 percent from the previous year to \$13,589. Out-of-state public college costs rose 5.4 percent to \$24,044 and private college costs rose 5.9 percent to \$32,307.<sup>50</sup> Further, over the past decade total costs have risen on average of nearly 6 percent annually—twice the rate of inflation.<sup>51</sup> This steady increase in the cost of obtaining a college degree has led to an average educational debt of \$19,000 for college graduates obtaining a Bachelors degree and rises to \$33,000 for those graduating with a Masters degree.<sup>52</sup> In a 2002 Partnership for Public Service survey of graduating law students, two-thirds stated that their debt, which required on average payments of \$1,000 a month, prevented them from even considering a government job.<sup>53</sup> Though this data point is narrowly focused on law students, it does underscore the fact that college



graduates are entering the workforce with more debt and this makes them sensitive to salary considerations when considering job opportunities.

Another aspect of recruiting Millennials is their growing diversity and the changing demographics of the United States' labor pool. The White and Black populations in the United States show modest growth while Hispanic, Asian, and Native populations have risen dramatically. According to the U.S. Census Bureau, the projected population increase from 2000 to 2010 for Asian, Hispanic and Native America, Native Hawaiian, and Pacific Islander Americans averages over 30 percent, while at the same time White and Black American populations only increase 7 and 13 percent respectively.<sup>54</sup> Further, from 1995 to 2020 the percentage of Whites in the United States labor pool will fall from 76 to 68 percent, while the combined Asian and Hispanic percentage of the labor force will rise from 13 to 20 percent.<sup>55</sup> In addition to these changing demographics, there has been a 38 percent decrease in the number of Blacks joining the military since the wars in Iraq and Afghanistan began.<sup>56</sup> The dramatic increase in the Hispanic, Asian, and Native populations and the decrease in blacks entering military service means the Air Force must be sensitive to these demographic changes as it recruits in a highly competitive labor market. Ad campaigns and promotions targeting this growing audience may be necessary to expand the pool of available recruits to the Air Force and the Cyber command.

As the demographics of the emerging generation change and strategies are developed to recruit and retain them, it is insightful to understand what motivates them. Most notably is their sense of purpose and desire to help others. Neil Howe and William Strauss, noted authors on generational studies and the book *Millennials Rising*, refer to

this generation as “the next great generation” for this very reason.<sup>57</sup> The importance of helping others and civic-mindedness was taught to them at a very young age. Membership in Boy Scouts and Girl Scouts is up 50 percent and 20 percent respectively. The percentage of high schools offering community service programs from 1984 to 1999 increased from 27 to 83 percent.<sup>58</sup> Further, five out of every six Millennials believe their generation has the greatest duty to improve the environment.<sup>59</sup> In the Generation 2001 survey of new college graduates, 90 percent of the respondents said that helping others is more important than helping oneself and 65 percent said that doing work which gives them the opportunity to help others was very important to them.<sup>60</sup> The data is further supported by a Partnership for Public Service Survey conducted at five major universities which reported that “when recruiting the most elite students, emphasizing ways to “Do Good” and making a difference in the lives of others is the government’s trump card.”<sup>61</sup> This recommendation was based on survey responses which indicated that 70 to 90 percent of the graduates would consider working for the government because of the “ability to help people.”<sup>62</sup> One interesting twist to this new found sense of civic duty is the increasing frequency of young professionals to choose careers in the growing non-profit arena.<sup>63</sup> In a report published by the Nonprofit Roundtable of Greater Washington, the number of jobs in the non-profit (or not-for-profit) sector in the Washington D.C. area increased by 33 percent from 1995 to 2003. The younger generation thrives on the independence and flexibility in non-profit work and the opportunity to help others outside the bounds of the government bureaucracy appeals to them. Many that previously would have worked in the federal government are flocking to non-profits for employment.

Though the opportunity to help others is a leading motivator of Millennials, they are also very attentive to pay. According to a 2006 Society for Human Resource survey, employees under the age of 35 considered pay the number one factor in their job satisfaction.<sup>64</sup> Similarly, in a survey of 204 students at Clark Atlanta University, 91 percent indicated “good pay” as a reason to work for the federal government.<sup>65</sup> Coupled with this high interest in pay is their ability to use internet sources to find out what people with similar skills and education are making. A quick search under Monster.com’s salary center reveals a salary range for every job imaginable, by skill and experience level, and by geographic region. This can be troubling if there is a big disparity between pay in the private sector and pay in the Air Force. For instance, the median starting salary for a Computer Programmer I<sup>66</sup> with 0-2 years experience in the St. Louis metro area is \$48,000 and the median salary for Computer Programmer IV<sup>67</sup> with 6-8 years experience is \$86,000.<sup>68</sup> Compare this to the starting salary of a new 2<sup>nd</sup> Lieutenant stationed at Scott Air Force of \$43,000 or \$73,000 for a Captain with 8 years experience. The gap in pay is modest at the entry level but grows significantly with experience. On the enlisted side, a non-degreed network administrator with 6-8 years of experience makes on average \$76,000 in the private sector while a Staff Sergeant with 8 years experience makes \$43,000. These huge pay gaps between military and private pay for experienced IT personnel could hinder retention.

Compounding the problem is the fact that salaries in the private sector for IT personnel continue to rise above the norm. In 2007, IT salaries in general rose on average 2.8 percent and salaries for software developers rose 5.1 percent.<sup>69</sup> Furthermore, a study by the National Association of Colleges and Employers indicates

that computer related degrees commanded 2 out of the top 5 highest salaries for college graduates, with Computer Engineering degree holders garnering \$56,201 and Computer Science degree holders, \$53,396.<sup>70</sup> This is well above the \$43,000 earned on average by a 2<sup>nd</sup> Lieutenant in the Air Force.

A third, and often overlooked motivating factor that ranks high among Millennials, is recognition and feedback. Since birth, Millennials have been praised and encouraged by their parents and teachers and as they enter the workforce they continue to need frequent feedback. Otherwise their job satisfaction and morale will suffer and retention will decline. According to a 2006 Hudson multi-generational survey, one quarter of Millennials said they want feedback from their bosses at least once a week, if not every day.<sup>71</sup> Furthermore, a new survey conducted by Leadership IQ found that praise for their accomplishments is the biggest statistical driver of workplace satisfaction for Millennials. In the survey, six out of ten surveyed said they are losing their motivation in the workplace because their boss won't give them what they care about, "praise."<sup>72</sup>

Additionally, the quality of the feedback is important as well. Simple, one-way communication is not the right approach. Rather, a two way dialogue allowing input from the employee is essential. An analysis of 131 studies on feedback effectiveness found that the biggest source of failure in the feedback effort was when employees' volunteered input was ignored in the process.<sup>73</sup> Therefore, feedback must not only be frequent but it must also be two-way. According to the Gallup Organization, 70 percent of employees "quit their manager, not their company."<sup>74</sup> Therefore, Millennials need engaged supervisors who can provide the mentorship and support that they previously received from their parents and teachers. Says Jason Dorsey, author of *My Reality*

*Check Bounced,*” The loyalty of twentysomethings is really based on the relationship they have with those directly above them.”<sup>75</sup>

Millennials are not only motivated differently than previous generations, they have different expectations of the workplace environment and culture as well. Their dislike of bureaucracies and their desire for empowerment is a common theme. The Partnership for Public Service states that “fear of working in a bureaucratic environment is one of the biggest deterrents for young people considering federal service.”<sup>76</sup> Similarly, Edward Lawler states, “they do not relish jobs in hierarchical bureaucracies.”<sup>77</sup> When asked about the popularity of working for non-profits among the younger generations, Elisa Ortiz, of the National Council of Nonprofit Associations, says, “I think it’s probably the larger variety of options available in non-profits, the flexibility available, and just the perception of the ability to do more with people instead of with paperwork.”<sup>78</sup> This coupled with the need for autonomy and sense of achievement and it’s easy to see the appeal of non-profit work. “I wanted to save the world and it’s really hard to save the world from a desk in Washington, D.C,” said Brendan Kelly, who began his career with the Labor Department but later joined a non-profit.”<sup>79</sup>

This disdain for bureaucracy is coupled with a greater desire for work-life balance and flexibility in work schedules. Millennials are very task focused and would rather be judged on the basis of work completed than other measures of work such as hours on the job.<sup>80</sup> According to the Employee Benefits Research Institute, to motivate these generations employers should focus more on the benefits they value most - flexibility to balance work and life.<sup>81</sup> In a CareerBuilder survey, 61 percent of Millennials expect to have flexible work schedules<sup>82</sup> and the Partnership For Public Service reported that

work/life balance drew the most positive response when college students were asked the best reason to work for the federal government.<sup>83</sup> Further, Mercer Human Resources Consulting found that 83 percent were motivated by flexibility.<sup>84</sup> Last year, PricewaterhouseCoopers, a major investment firm, launched a campaign supporting a balance between work and outside interests. The company stresses job flexibility and says “there are no standard hours because work isn’t the same day to day.”<sup>85</sup> Likewise, IBM has recognized that flexible schedules and spaces are attractive to Millennials.<sup>86</sup> At Abbott Laboratories in Chicago, recruiters are reaching out to College students by offering flexible work schedules, telecommuting, full tuition reimbursement and an on-line mentoring tool.<sup>87</sup>

One final characteristic of the Millennials is a desire for a less formal and more collaborative work environment. They prefer casual dress and thrive on networking and sharing information with their counterparts. Being stuck inside an impersonal cubicle is an immediate turn-off for them. Katie Connolly, an attorney, took a pay cut at her second job primarily because she got an office with windows and she could dress casually when not in court.<sup>88</sup> Angie Ping, a 23 year old employed at the International Facility Management Association, says, “some companies’ policies relating to appropriate office attire seem completely outdated to me.”<sup>89</sup> Though anecdotal in nature, these comments reflect a common dissatisfaction that Millennials hold concerning overly structured and restrictive personnel policies and work environments.

#### Considerations for Recruiting and Retaining Millennials for the Cyber Workforce

So what lessons can be drawn from the traits, demographics, motivations and culture of the Millennials to improve the Air Force’s efforts to recruit and retain the cyber

workforce? First, to counter the lack of knowledge about federal service among today's youth the Air Force must begin a robust outreach campaign to educate them about the opportunities in the Cyberspace Command. According to the Partnership For Public Service, cost-effective federal recruiting efforts can make a difference on college campuses. Outreach efforts at Clark Atlanta and LSU raised awareness 22 and 18 percent respectively.<sup>90</sup> More importantly, 60 percent of the students surveyed at the schools said information about federal opportunities made them more interested in pursuing federal service.<sup>91</sup> The Department of Defense's "Why We Serve" campaign is an example of one such outreach effort. This program sends recently returned veterans across the country to share their decision to join the military and their experiences abroad. It started with presentations to small community groups but has branched to college campuses.<sup>92</sup>

Similarly, the Eisenhower Series College Program is an academic outreach program established by the Army to encourage discussion about national security between students of the U.S. Army War College and the public. In this program, War College students visit universities across the United States and engage with students and faculty.<sup>93</sup> Additionally, the U.S. Army War College established an administrative requirement that all U.S. students speak to an outside civilian agency prior to graduation.<sup>94</sup> The Air Force and the new Cyberspace Command would be well-served in establishing similar programs and outreach efforts. It is doubtful that many high school or college students are aware of the unique Air Force opportunities in cyberspace and an effective outreach campaign would expand the pool of potential recruits and boost recruitment efforts in this highly competitive IT labor market.

Secondly, the Air Force should continue to modernize its recruitment efforts and expand its internet and IT recruiting capabilities. Millennials use a multitude of IT tools and information sources to gather information and the Air Force has not fully exploited this medium. The Air Force recruiting website does have a broad range of information and it recently added IM capability that has been very successful. Using this capability the Air Force logs between 15,000 and 20,000 sessions a month and is now using new software to filter the chats to provide recruiters excellent pre-approach information.<sup>95</sup> But it should also offer podcasts and other types of media that can be downloaded onto a media player such as an iPod so that prospective recruits can view information at their convenience. "What podcasting is great for is providing a multi-media experience for a generation that expects that," says Steven Rothberg, president of Collegerecruiter.com.<sup>96</sup> Use of podcasts in recruiting is catching on with European employers and starting to gain traction in the United States as well.<sup>97</sup> The Army already offers a variety of podcasts and RSS feeds, discussion boards, wallpapers and screensavers, web players and audio files, and tailorable desktop tools on its Go Army website in an attempt to push information out through multiple means.<sup>98</sup> Similarly, recruiters at Ernst and Young hand out flash drives loaded with company information instead of brochures and they send text messages to schedule meetings with potential recruits.<sup>99</sup>

The Air Force should also consider building a presence on social networking and information sharing websites popular with Millennials. Ernst and Young launched a page on Facebook, the popular social networking site. The page contains corporate information, a message board for questions and answers, weekly career tips, videos of



new recruits discussing their experiences, as well as links to the 7,497 members' own pages.<sup>100</sup> The Labor Department's Job Corps program kicked off a YouTube recruiting campaign in December 2007 to target the internet savvy generation. YouTube has 55 million unique users each month and according to Nielsen ratings it has the 8th largest audience on the Internet.<sup>101</sup> This broad appeal and high usage is not lost on private sector recruiters who are now using YouTube as a means to reach Millennials. There are also a multitude of other information-sharing and job-posting sites such as Craigslist and Monster.com that are popular sources of employment information for Millennials that can be populated with Air Force and Cyberspace Command career opportunities. Another potential avenue to attract Millennials is to offer some type of on-line video gaming related to the Air Force or cyberwar. At J.P. Morgan, the corporation allows candidates to play "Fantasy Futures", an on-line trading game that's reminiscent of fantasy football.<sup>102</sup> Likewise, the Army offers six games on its website, from target practice to basic rifle marksmanship to operating a Patriot missile site.<sup>103</sup> The Army has even gone as far as sponsoring Xbox 360 and PC versions of a game called "America's Army: True Soldiers." They teamed with the software developer into making the game release a recruiting event.<sup>104</sup> Events like this appeal to the tech savvy young adults the Cyberspace Command needs to attract.

In addition to these IT related enhancements much work needs to be done to improve the on-line application for civil service. Civil servants provide much needed depth and continuity to the total force and the Air Force and Cyber Command need to attract the best and brightest. Unfortunately, the tools to do this are not up to standards. USAJobs is not particularly user friendly and the job listings offer little useful information

as to what the applicant would be doing, or how much they would be paid. Recalling Millennials' sense of purpose and desire to help others, civil service recruitment and job application sites need to sell the jobs they are advertising. A simple list of job openings with generic descriptions does not relay the importance of what those positions do for the nation. Additionally, the lack of specific job information coupled with the archaic and painstakingly slow federal civilian hiring process tends to shy prospective recruits away from applying for government service. According to the Partnership for Public Service, when applicants were informed the process would take a few months, 56 percent said they were less interested in working for the federal government and only 4 percent said they plan to enter government service.<sup>105</sup> Says Tara Yglesias of the Harry S. Truman Scholarship Foundation, "we have students who come to us very interested in government experience, but the length of time that it takes for them to find a position is often discouraging to them."<sup>106</sup> An easier to use, more informative, and quicker on-line application and hiring process is needed to recruit top young talent.

Establishing an outreach program and updating technology and methods of recruitment are good first steps but the real key to success in recruiting Millennials is winning the hearts and minds of their parents. As stated previously, parents are the primary influencers of Millennials and their approval is essential for a recruit to join the service. The Air Force must make a concerted effort to convince parents that a career in the Air Force and the Cyber Command is the right thing for their son or daughter. The Marine Corps already reached this conclusion and has begun targeting parents. According to Marine Commandant James T. Conway, Marine recruiters "used to spend 4 hours with the recruit and four hours with their influencers, now they spend four hours

with the recruits and 14 hours with influencers.”<sup>107</sup> To facilitate this communication the Marines as well as the Army offer a parent’s guide on their recruitment website. Likewise, in the private sector, Merrill Lynch holds a parent’s day for families to tour the trading floor.<sup>108</sup> Recruitment advertisements should also be placed in adult-oriented TV shows and print media to influence and educate the adult audience. Just recently the Marine Corps rolled out a new ad campaign focused on these influencers. Their ad will be featured on Fox’s hit show “American Idol,” which has a broad audience.<sup>109</sup> Similar efforts could be done on adult oriented shows like the “CSI” or “Law and Order” series, or on news broadcasts and websites like CNN or Fox News. The aforementioned public outreach efforts should also be conducted at forums attended by the parents, grandparents, and teachers of today’s young adults such as high school and college job fairs, community events, fairs and festivals, and town meetings.

In addition to focusing on the method of communication and the audience the Air Force should also be attentive on what to communicate. Specifically, the Air Force should appeal to the Millennials’ sense of purpose and desire to help others in its advertising campaigns. In other words, ***sell the mission***. Service to the Air Force and the nation and working in the groundbreaking Cyberspace Command is a strong selling point over working in the corporate world or in low paying service industry jobs. Air Force advertisements and recruitment information should also emphasize humanitarian operations and nation-building efforts along with the traditional combat roles. Additionally, marketing efforts could focus on the new Cyberspace Command and its role in protecting America and its critical cyberspace infrastructure. The Millennials’

sense of purpose and love of IT and gaming have significant potential for a very popular cyber warrior marketing campaign.

Another strong selling point for joining the Air Force is the numerous educational benefits. The fact that a college degree is commonly accepted as the route to success in America coupled with the rising costs of attending college make a perfect storm of people who want to attend college but can't afford it. Promoting the many educational and training benefits the Air Force and the Cyber Command offers would have very strong appeal among Millennials and should continue to be emphasized in its recruiting material. It is also be a strong selling point with their parents.

Another education related benefit that the Air Force should actively promote for officer and civil service recruits is the federal student loan repayment program. As stated previously, student debt is at an all time high with about two thirds of students graduating with debt from education loans.<sup>110</sup> A 2001 Partnership for Public Service survey indicated that 80 percent of students describe loan repayment programs as an effective recruitment tool.<sup>111</sup> Participants in the underutilized federal program can receive up to \$10,000 per year for a total of \$60,000 in exchange for at least three years of government service. A 2005 Office of Personnel Management (OPM) study found that more then three quarters of the agencies using the program reported it had a positive impact.<sup>112</sup> The Air Force should maximize use of this program to attract recent college graduates.

The final point in recruiting relates to who does the communicating. The Air Force needs expand its pool of potential recruits by targeting the increasing Hispanic, Asian, and Native American populations. To do this, the Air Force should ensure its

recruitment force is diverse and reflective of the general population. Additionally, the Air Force should consider connecting potential recruits with active duty members of the same ethnicity, age, IT skills, and background so they can relate better. This approach, commonly called “recruiting with near peers”<sup>113</sup> can be facilitated with online network profiles, texting, IMing, message boards, and other communication means frequently used by Millennials.

The Air Force should also look at adjusting personnel and pay policies to adapt to the new Millennial generation and the labor marketplace. In today’s dynamic and rapidly changing world the Air Force must become more adaptive and flexible in how it manages its workforce. Personnel policies written for Babyboomers do not necessarily work for Millennials. The Air Force must learn to walk the tightrope of being responsive to the new generation, while preserving its culture. First, it is important to consider pay incentives for personnel with IT related skills and education on both recruitment and retention. Earlier analysis indicates that pay is probably a modest challenge in recruitment but a significant challenge in retention since the IT pay gap widens significantly with experience. For enlisted personnel the approach is rather straightforward. The Air Force and Cyberspace Command should keep a close eye on retention rates for enlisted personnel in the new cyber and similar computer related career fields and adjust Selective Re-enlistment Bonuses as needed.

For civilians the challenge is a little bit different because of the requirement to hire personnel who for the most part already possess computer related education or experience. The new National Security Personnel System (NSPS) does offer much more flexibility than the previous General Service (GS) system but it still has some

limitations. Interim NSPS pay setting policy limits pay for initial hires to federal service to no more than Step 1 of the former GS-grade equivalent plus 30 percent.<sup>114</sup> For a typical entry level position previously classified as a GS-07 the potential pay range is approximately \$29,000 to \$47,000, with the norm being somewhere in the mid to upper 30s.<sup>115</sup> Considering that starting salaries for college graduates with Computer Engineering and Computer Science degrees are \$56,201 and \$53,396<sup>116</sup> respectively the Air Force and Cyberspace Command face a stiff challenge in hiring graduates with these highly sought after degrees and being equitable to other Airmen doing similar work. Though DoD is developing final pay setting policy that takes into account market factors and conditions, the Air Force should seek a waiver to the initial pay setting limitations for the high demand computer related career fields until the DoD policy becomes final.

Pay for officers' presents a similar dilemma. The initial officer pay of approximately \$43,000 is significantly lower than the \$50,000+ that college graduates with computer related degrees receive. The gap widens considerably with experience. The Air Force should consider some type of bonus similar to the Aviation Career Incentive Pay, Aviation Continuation Pay, or Judge Advocate Continuation pay programs. Or the Air Force could simply provide higher salaries like it does for some healthcare professionals. Though pay is not the only factor in recruitment and retention, the continued use and success of the rated officer aviation incentive programs indicate that it is a viable option to retain personnel with high demand skills and educational backgrounds such as those in computer related fields.

It should be noted that granting certain specialties higher pay and adjusting personnel policies for Millennials has the potential to create functional seams in the Air Force culture and erode its professional identity, especially among the officer corps. Samuel Huntington noted in his famous treatise, *The Soldier and the State*, “society should offer sufficient pay to its officers; however financial remuneration cannot be the primary incentive of the military profession. The desire to serve and devotion to skill should be his primary motivation.”<sup>117</sup> An occupational model focused on supply and demand of human capital with market-based salaries and personnel practices may lead to recruitment of military personnel whose self-interest takes priority over communal interests.<sup>118</sup> Such specialization may also lead to development of fractions or subcultures whose members care more about their specialty than the shared Air Force culture and mission. Moreover, an Air Force comprised of occupationally motivated service members and civilian contractors may not perform effectively during high-risk wartime operations with long deployments.

This is not a new issue for the Air Force since it has always been a technology-driven service with pay bonuses for high-demand career fields. Over the past few years Air Force senior leaders recognized the need to break down the functional stovepipes and strengthen its professional culture and warrior ethos and they implemented several programs to counter this trend. Project Warrior, Developing Aerospace Leaders, Wingman program, Chief of Staff’s Professional Reading list, continued emphasis on core values, the new Airman’s Creed, and extension of basic training to include more combat related skills are just a few examples of the senior leadership emphasis on Air Force warrior culture and professionalism.<sup>119</sup> As the Air Force stands up the Cyber

Command and considers methods, including pay incentives and personnel policy changes, to recruit and retain personnel with high demand IT skills it should be wary of creating a functionally focused occupational-based force instead of a professional warrior force. Positive early signs such as referring to its personnel as cyber warriors indicate that the command gets it. After all, members of the new cyber command are first and foremost warriors and Airmen, irregardless of pay and technical expertise.

In addition to these pay considerations, the Air Force needs take a close look at its feedback and mentoring programs to better retain its junior personnel. As noted earlier, Millennials have been mentored and reassured from birth by their parents, teachers, and coaches and they need constant praise, feedback, and support to be satisfied at work. The current feedback program for Air Force military personnel must be updated to be more frequent and interactive. Under current Air Force policy, feedback is to be conducted initially, and midway between the date supervision began and the projected close-out date of the next performance report. Generally speaking, this means about once every six months.<sup>120</sup> Additionally, paragraph 2.1 of the Air Force regulation governing feedback states that the purpose of feedback is “To **tell** a ratee what is expected regarding duty performance and how well the ratee is meeting those expectations.”<sup>121</sup> Nowhere in the process does the ratee provide their input. For civilians, the new performance appraisal process under NSPS does include input from the employee but, much like the military system, it only requires one midway interim review. Though informal feedback can be and is given at anytime, the Air Force should formalize an interactive feedback process for all personnel and promote more frequent



feedback. Moreover, all personnel should be trained on effective feedback mechanisms and techniques and they should be held accountable for actually doing it.

Along with more frequent and interactive feedback, the Air Force should take steps to strengthen its mentoring program. Millennials need a parental/teacher type person to encourage and guide them. At KPMG, a large consultant firm, every junior employee is assigned a mentor and they have a website and social activities to bolster their program.<sup>122</sup> General Electric matched 1,000 managers with 1,000 young employees not only to benefit the younger employees, but to keep managers in touch with the technology and trends of the new generation.<sup>123</sup> The Air Force has recognized the importance of mentorship for a long time; however, it has not been consistently implemented across the service. AFI 36-3401, *Air Force Mentoring*, assigns overall responsibility of the mentorship program to commanders and designates the immediate supervisor or rater as the primary mentor. The AFI applies not only officers but to enlisted and civilian personnel as well. But it needs to be strengthened from an ad hoc, intermittent, personality-dependent event, to something more formal and frequent. Otherwise, junior personnel from the Millennial generation who need this support and don't get it may become dissatisfied and leave the service.

In addition to this engaged supervision and leadership, the Air Force and Cyberspace Command need to take into consideration the work/life balance and workplace environment desired by this new generation. Realistically, running and protecting a network and accomplishing the myriad of other cyberspace related tasks requires a 24/7 operation, but some thought should be given on how to train, schedule and task Millennials. Not every duty of a cyber warrior must be accomplished between

the hours of 0730 to 1630 in the confines of a cubicle or classroom. Moreover, the cubicles themselves should be more conducive to teamwork and interactive problem solving. Recently, USSTRATCOM opened its Global Innovation Strategy Center (GISC) whose mission is to “produce knowledge discovery and shared understanding of strategic, operational and tactical perspectives to provide solutions to USSTRATCOM's toughest problems.”<sup>124</sup> Not only does the GISC utilize collaborate software to solve problems, but it purposefully designed its office space to be a collaborate environment. The workspace is open and inviting, meeting/collaboration space is abundant, and large flat screen TVs broadcasting the latest news adorn the walls.

One last consideration for recruiting and retaining a cyber workforce is utilization of the Guard and Reserve. Tapping into the considerable pool of talent available from the private sector to be citizen-cyber warriors is a great way to access highly-skilled and educated IT personnel current on the latest technology. The Air Force has already made great progress in this regard with units like the 262<sup>nd</sup> Information Warfare Aggressor Squadron in Washington and similar units in Kansas and Vermont.<sup>125</sup> These units employ experts from the likes of Microsoft, Cisco Systems, Adobe Systems and other companies who operate at the cutting edge of technology. This manning approach taps into the considerable talent available in the private sector and appeals to Millennials' civic-minded sense of purpose and desires for schedule flexibility and work-life balance. Lastly, as the Air Force adapts its leadership practices and recruiting techniques to support recruiting and retaining the cyber workforce from the Millennial generation it should establish monitoring programs to assess the effectiveness of these

efforts. Recruiting and retention are dynamic functions and their effectiveness oscillate with the economy and the job market, and generational changes,

In summary, the Air Force has responded to a clear and present danger to the United States and its critical cyberspace infrastructure by standing up the Cyberspace Command with the responsibility of dominating the cyber domain. In establishing the Cyberspace Command the Air Force must recruit and retain a highly educated and skilled IT workforce in a very competitive labor market. To compete in this tight labor market the Air Force and Cyberspace Command must gain a better understanding of the new Millennial generation now coming into the workforce. To be successful in this challenging endeavor the Air Force must begin a comprehensive outreach program and modernize its recruiting and job application tools and processes. Further, it should strongly promote its vital mission and the many educational and training opportunities available through the Air Force. It should also focus on winning the hearts and minds of the parents of the recruits and use their peers to recruit them.

The Air Force should also look at adjusting some personnel and pay policies to adapt to the new Millennial generation and the tight labor marketplace. Pay is one of the biggest recruiting and retention challenges for people with IT skills and the Air Force should consider addressing the significant pay gaps with some type of bonus program. To further improve its retention efforts the Air Force should also strengthen its feedback and mentoring programs to provide Millennials the support they need. Furthermore, it should be cognizant of the work/life balance and workplace environment desired by this new generation. Lastly, it should maximize use of Guard and Reserve forces to provide talent that otherwise would not be available in the active duty component. In closing, it is

imperative that the Air Force recognize the cultural differences of the new Millennial generation and make recruiting and personnel policy adjustments to compete in this tight labor market. Making these adjustments while maintaining the professional nature of the Air Force is a delicate balance, but doing so will support recruitment and retention of the world class cyber warrior needed for the new Cyberspace Command.

## Endnotes

<sup>1</sup> George W. Bush, *The National Security Strategy to Secure Cyberspace* (Washington, D.C.: The White House, February 2003), iv.

<sup>2</sup> Clay Wilson, *Information Operations, Electronic Warfare, and Cyberwar: Capabilities and Related Policy News*, (Washington, D.C.: Congressional Research Service, 20 March 2007), 10.

<sup>3</sup> George W. Bush, Executive Order 13231, *Critical Infrastructure Protection in the Information Age* (Washington D.C.: The White House, 16 October 2001), 1.

<sup>4</sup> Ian Traynor, "Russia Accused of Unleashing Cyberwar to Disable Estonia," *The Guardian*, 17 May 2007; available from <http://www.guardian.co.uk/russia/article/0,,2081438,00.html>, Internet; accessed 6 October 2007.

<sup>5</sup> Robert Marquand and Ben Arndy, "China Emerges as Leader in Cyberwarfare," *The Christian Science Monitor*, 14 September 2007, available from <http://www.csmonitor.com/2007/0914/p01s01-woap.html> , accessed 6 October 2007

<sup>6</sup> Jill R. Aitoro, "CIA Official: North American Power Company Systems Hacked," *Government Executive*, 18 January 2008, available from [http://www.govexec.com/story\\_page\\_pf.cfm?articleid=39081](http://www.govexec.com/story_page_pf.cfm?articleid=39081), accessed 19 January 2008.

<sup>7</sup> Steven A. Hildreth, *Cyberwarfare*, (Washington, D.C.: Congressional Research Service, 19 June 2001), 10.

<sup>8</sup> Michael Posner, "America Already is in a Cyber War, Analyst Says", *Government Executive*, 27 November 2007; available from [http://www.govexec.com/story\\_page.cfm?filepath=/dailyfed/1107/112707tdpm2.htm](http://www.govexec.com/story_page.cfm?filepath=/dailyfed/1107/112707tdpm2.htm), accessed 27 November 2007.

<sup>9</sup> Ibid.

<sup>10</sup> "8<sup>th</sup> Air Force Named As Cyberspace Command," *Air Force Print News*, 2 November 2006; available from [http://www.af.mil/pressreleases/story\\_print.asp?id=123030488](http://www.af.mil/pressreleases/story_print.asp?id=123030488), accessed 25 November 2007.

<sup>11</sup> Technical Sergeant A.J. Bosker, "SECAF: Dominance in Cyberspace is Not Optional," *Air Force Print News*, 1 June 2007; available from [http://www.af.mil/news/story\\_print.asp?id=123055625](http://www.af.mil/news/story_print.asp?id=123055625), accessed 25 November 2007.

<sup>12</sup> Staff Sergeant Julie Weckerlein, "Cyberspace Warfare Remains Serious Business," *Air Force Print News*, 2 March 2007; available from [http://www.af.mil/news/story\\_print.asp?id=123043232](http://www.af.mil/news/story_print.asp?id=123043232), accessed 26 November 2007.

<sup>13</sup> Neil Munro, "Cyber Warriors," *National Journal*, 29 October 2007; available from <http://www.govexec.com/dailyfed/1007/102907ol.htm>, accessed 26 November 2007.

<sup>14</sup> Timothy P. Franz, *OI Foundations To Cyberspace Operations: Analysis, Implementation Concept, and Way-Ahead For Network Warfare Forces*, Thesis (Wright-Patterson Air Force Base: Air Force Institute of Technology, March 2007), 60.

<sup>15</sup> "Where the Jobs Are: Mission Critical Opportunities For America," *Partnership For Public Service*, 3 July 2007, available from <http://ourpublicservice.org/OPS/publications/viewcontentdetails.php?id=118>, accessed on 22 November 2007.

<sup>16</sup> Kathleen Melymuka, "Workforce Crisis: Preparing For the Coming IT Crunch," *Computerworld*, 3 July 2006, available from <http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=112240>, accessed on 9 November 2007.

<sup>17</sup> Deborah Perelman, "Competing For IT Talent," *eWeek*, 23 July 2007, available from Wilson Web; accessed 12 December 2007

<sup>18</sup> Ibid.

<sup>19</sup> Mary Brandel, "12 IT Skills That Employers Can't Say No To," *Computerworld*, 11 July 2007, available from <http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=9026623&pageNumber=1>, accessed 26 October 2007

<sup>20</sup> Gregg Sangillo, "Younger Generation Redefines Public Service," *National Journal*, 21 November 2007; available from [http://www.govexec.com/story\\_page.cfm?filepath=/dailyfed/1107/112107nj2.htm](http://www.govexec.com/story_page.cfm?filepath=/dailyfed/1107/112107nj2.htm), accessed 22 November 2007.

<sup>21</sup> *Partnership For Public Service*, 4.

<sup>22</sup> Ibid.

<sup>23</sup> "Making The Difference," *Partnership For Public Service*, 6 October 2007, available from <http://ourpublicservice.org/OPS/publications/viewcontentdetails.php?id=121>, accessed on 12 November 2007

<sup>24</sup> Sangillo, 41.

<sup>25</sup> "National Veterans Awareness Week," 110<sup>th</sup> Congress, 1<sup>st</sup> Session, Senate Resolution 357, 26 October 2007, 1.

<sup>26</sup> Gautham Nagesh, "Workforce Issues Complicate Planning For Cyberattacks," *Government Executive*, 25 October 2007; available from [http://www.govexec.com/story\\_page.cfm?filepath=/dailyfed/1007/102507n1.htm](http://www.govexec.com/story_page.cfm?filepath=/dailyfed/1007/102507n1.htm), accessed 25 October 2007.

<sup>27</sup> Ibid.

<sup>28</sup> "New Selective Re-enlistment Bonus Chart," *Military Times*, 19 November 2007; available from <http://www.militarytimes.com/careers/airforce/afsr/b>, accessed 19 November 2007.

<sup>29</sup> *A Portrait of Generation Next*, Pew Research Center, (Washington D.C.: The Pew Research Center For The People & The Press, 9 January 2007), 2.

<sup>30</sup> Sharon Jayson, "Companies Slow To Adjust To Work-life Balance Concerns of Gen Y," *USA Today*, 8 December 2006; available from [http://www.usatoday.com/news/nation/2006-12-06-gen-next-life-work-balance\\_x.htm](http://www.usatoday.com/news/nation/2006-12-06-gen-next-life-work-balance_x.htm), accessed 10 November 2007.

<sup>31</sup> Lew Rainie, "Digital Natives Invade the Workplace", Pew Internet & American Life Project, (Washington D.C.: The Pew Research Center For The People & The Press, 27 September 2006 , 2.

<sup>32</sup> Nadira A. Hira, "You Raised Them, Now Manage Them," *Fortune*, 28 May 2007 available from Proquest, accessed 31 October 2007.

<sup>33</sup> Neil Howe and William Strauss, *Millennials Rising: The Next Great Generation*, (New York: Vintage Books, 2000), 4.

<sup>34</sup> Rainie, 1.

<sup>35</sup> Amanda Lenhart, Mary Madden, and Paul Hitlin, *Teens and Technology Pew Research Center*, (Washington D.C.: Pew Internet & American Life Project, 9 January 2007), 2.

<sup>36</sup> Ibid, iv.

<sup>37</sup> Rainie, 2.

<sup>38</sup> NAS Insights, *Generation Y: The Millennials*, NAS Recruitment Communications, available from [www.nasrecruitment.com/TalentTips/NASinsights/GenerationY.pdf](http://www.nasrecruitment.com/TalentTips/NASinsights/GenerationY.pdf) accessed 22 October, 2007.

<sup>39</sup> Claire Raines, "Managing the Millennials," 2002, available at <http://www.generationsatwork.com/articles/millennials.htm>, accessed on 10 November 2007.

<sup>40</sup> "A Portrait of Generation Next," 18.

<sup>41</sup> Ibid, 19.

<sup>42</sup> Yochi J. Dreazen, "Uncle Sam Wants You, But Ads Target Mom, Dad," *Wall Street Journal*, 29 November 2007; available from <http://ebird.afis.mil/ebfiles/e20071129564196.html>, accessed on 29 November 2007.

<sup>43</sup> Ibid.

<sup>44</sup> Ibid.

<sup>45</sup> Lolita C. Baldor, "Decline for Military in Black Recruits," *Associated Press*, 24 June 2007; available from <http://abcnews.go.com/Politics/wireStory?id=3310423>, accessed on 27 November 2007.

<sup>46</sup> NAS Insights, *Generation Y*, 5.

<sup>47</sup> Richard Morin, "College Degree: Key to the American Dream", *Washington Post*, 8 May 2000; available from <http://www.washingtonpost.com/wp-srv/politics/polls/wat/archive/wat050800.htm>, accessed on 22 November 2007.

<sup>48</sup> U.S Census Bureau, *Educational Attainment In The United States*, U.S. Census Bureau, Population Division, Education & Social Stratification Branch, 7 September 2006; available from <http://www.census.gov/population/www/socdemo/education/cps2006.html>, accessed on 12 November 2007.

<sup>49</sup> Baldor, 2.

<sup>50</sup> Sandy Baum and Jennifer Ma, *Trends in College Pricing*, The College Board, 2007; available from <http://professionals.collegeboard.com/data-reports-research/trends/college-pricing-2006>, accessed 26 November 2007.

<sup>51</sup> Ibid.

<sup>52</sup> Nadira A. Hira, "Attracting the Twentysomething Worker," *Fortune*, 15 May 2007, available from [http://money.cnn.com/magazines/fortune/fortune\\_archive/2007/05/28/100033934/](http://money.cnn.com/magazines/fortune/fortune_archive/2007/05/28/100033934/), accessed on 26 November 2007.

<sup>53</sup> Student Loan Repayment, Issue Brief PPS-05-07, *Partnership For Public Service*, 11 August, 2005, available from <http://ourpublicservice.org/OPS/publications/viewcontentdetails.php?id=42>, accessed on 22 November 2007.

<sup>54</sup> U.S Census Bureau, "U.S. Interim Population Projections by Age, Sex, Race, and Hispanic Origin," 18 March 2004; available from <http://www.census.gov/ipc/www/usinterimproj/>, accessed on 22 November 2007.

<sup>55</sup> Richard Judy and Carol D'Amico, *Workforce 2020: Work and Workers in the 21st Century*, (Washington, DC: Hudson Institute, 1997), 1.

<sup>56</sup> Baldor, 1.

<sup>57</sup> Howe and Strauss, 3.

<sup>58</sup> Ibid, 216.

<sup>59</sup> Ibid, 215.

<sup>60</sup> Amy Cottreau and David Krane, *Generation 2001: A Survey of the First College Graduating Class of the New Millennium*, (New York: Louis Harris and Associates, February 1998), 34.

<sup>61</sup> "Making The Difference", 8.

<sup>62</sup> Ibid, 12.

<sup>63</sup> Sangillo, 1.

<sup>64</sup> "Recruiting and Managing the Generations," NAS Insights, NAS Recruitment Communications, available from [www.nasrecruitment.com/TalentTips/NASinsights/RecruitingManagingTheGenerationsWhitePaper.pdf](http://www.nasrecruitment.com/TalentTips/NASinsights/RecruitingManagingTheGenerationsWhitePaper.pdf), accessed 25 October, 2007.

<sup>65</sup> "Making The Difference",12.

<sup>66</sup> Computer Programmer I is defined on Monster.com salary center as "Reviews, analyzes, and modifies programming systems including encoding, testing, debugging and documenting programs. May require an associate's degree in a related area and 0-3 years of experience in the field or in a related area. Has knowledge of commonly-used concepts, practices, and procedures within a particular field. Relies on instructions and pre-established guidelines to perform the functions of the job. Works under immediate supervision. Primary job functions do not typically require exercising independent judgment. Typically reports to a project leader or manager." Monster.com Salary Center, available from <http://salary.monster.com>, accessed on 12 January 2008.

<sup>67</sup> Computer Programmer IV is defined on Monster.com as "Reviews, analyzes, and modifies programming systems including encoding, testing, debugging and documenting programs. May require a bachelor's degree. Requires 5-8 years of experience in the field or in a related area. Familiar with a variety of the field's concepts, practices, and procedures. Relies on experience and judgment to plan and accomplish goals. Performs a variety of complicated tasks. May lead and direct the work of others. May report directly to a project lead or manager. A wide degree of creativity and latitude is expected." Monster.com Salary Center, available from <http://salary.monster.com>, accessed on 12 January 2008.

<sup>68</sup> Monster.com Salary Center, available from <http://salary.monster.com>, accessed on 29 November 2007.

<sup>69</sup> Antone Gonsalves, "IT Salaries Are on the Way UP," *TechWeb News*, available from <http://informationweek.com/stroy/showArticle.jhtml?articleID=193401900>, accessed on 29 November 2007.

<sup>70</sup> Rob Kelly, "Most Lucrative College Degrees," *CNN Money*, 12 July 2007, available from [http://money.cnn.com/2007/07/11/pf/college/starting\\_salaries/index.htm](http://money.cnn.com/2007/07/11/pf/college/starting_salaries/index.htm), accessed on 29 November 2007.

<sup>71</sup> "Recruiting and Managing the Generations," NAS Insights, 6.



<sup>72</sup> Kathy Gurchiek, "Praise Goes FAR To Motivate Gen Y," *Society for Human Resource Management*, available from [http://www.shrm.org/hrnews\\_published/articles/CMS\\_023835.asp#P-8\\_0](http://www.shrm.org/hrnews_published/articles/CMS_023835.asp#P-8_0), accessed on 9 December 2007.

<sup>73</sup> John Thackray, "Feedback for Real," *The Gallup Management Journal*, 15 March 2001, available from <http://gmj.gallup.com/content/811/Feedback-Real.aspx?version=print>, accessed on 30 October 2007.

<sup>74</sup> John Gering, "A Strategic Approach to Employee Retention and Recruitment," *The Center for Health Workforce Development in Tennessee*, available from [http://www.healthworkforce.org/guide/toolkit\\_sec4\\_1.htm](http://www.healthworkforce.org/guide/toolkit_sec4_1.htm), accessed on 30 October 2007.22p3

<sup>75</sup> Hira, 5.

<sup>76</sup> "Making the Difference, 6.

<sup>77</sup> Rainie, 2.

<sup>78</sup> Sangillo, 1.

<sup>79</sup> Sangillo, 3.

<sup>80</sup> Rainie, 2.

<sup>81</sup> "Recruiting and Managing the Generations," NAS Insights, 12.

<sup>82</sup> Jennifer Sullivan, "New CareerBuilder.com Study Reveals Significant Gap Between Generation Y Workers and Co-workers," *CareerBuilder.com*, available from [http://www.careerbuilder.com/share/aboutus/pressreleasesdetail.aspx?id=pr403&sd=10%2F24%2F2007&ed=12%2F31%2F2007&cbRecursionCnt=1&cbsid=cebe8324f78948f98350986b62c69652-251310333-VO-4&ns\\_siteid=ns\\_us\\_g\\_New\\_careerBuilder.com\\_](http://www.careerbuilder.com/share/aboutus/pressreleasesdetail.aspx?id=pr403&sd=10%2F24%2F2007&ed=12%2F31%2F2007&cbRecursionCnt=1&cbsid=cebe8324f78948f98350986b62c69652-251310333-VO-4&ns_siteid=ns_us_g_New_careerBuilder.com_), accessed pm 4 December 2007.

<sup>83</sup> "Making The Difference," *Partnership For Public Service*, 8.

<sup>84</sup> "Recruiting and Managing the Generations," NAS Insights, 12.

<sup>85</sup> Jayson, 1.

<sup>86</sup> Alison Willie, "Wooing Gen Y: Recruiting/Retaining Recent Grads Isn't Child's Play," *PR News*, 21 May 2007, available from ProQuest; accessed 31 October 2007.31p2

<sup>87</sup> Stephanie Armour, "Generation y: They've Arrived AT Work With a New Attitude," *USA Today*, 6 November 2006, available from [http://www.usatoday.com/money/workplace/2005-11-06-gen-y\\_x.htm](http://www.usatoday.com/money/workplace/2005-11-06-gen-y_x.htm), accessed on 3 December 2007.

<sup>88</sup> Hira, 3.

<sup>89</sup> Armour, 3.

<sup>90</sup> "Making The Difference," *Partnership For Public Service*, 1.

<sup>91</sup> "Making The Difference," *Partnership For Public Service*, 2.

<sup>92</sup> Heather Collura, "Veterans Explain on Campuses Why they Serve," *USA Today*, 6 December 2007, available from <http://ebird.afis.mil/ebfiles/e20071206565614.html>, accessed on 6 December 2007.

<sup>93</sup> CBDNet, Department of National Security and Strategy, Eisenhower Series College Program, available from <https://cbnet.carlisle.army.mil/orgs/dnss/eisenhower/eisenhower.htm>, accessed 9 December 2007.

<sup>94</sup> U.S. Department of the Army, *USAWC Resident Program Public Speaking Requirement*, Communicative Arts Directive, (Carlisle Barracks, PA: United States Army War College, 2007), 9.

<sup>95</sup> John Rendleman, "Want To Enlist? Let's Chat; Air Force Uses Online Service to Get to Know Potential Recruits," *Government Computer News*, 23 October 2007, available from <http://aimpoints.hq.af.mil/display.cfm?id=21982>, accessed pm 23 October 2007.

<sup>96</sup> Rita Zeidner, "Now Hear This," *HR Magazine*, January 2007, available from Wilson Web, accessed on 12 December 2007.

<sup>97</sup> *Ibid.*

<sup>98</sup> Go Army Home Page, Games and Download, available from <http://www.goarmy.com/downloads/index.jsp>, accessed 3 December 2007.

<sup>99</sup> Hira, 6.

<sup>100</sup> Willie, 2.

<sup>101</sup> YouTube Advertising Opportunities, available from , <http://www.youtube.com/advertise>, accessed on 16 December 2007.

<sup>102</sup> Willie, 2.

<sup>103</sup> Army Home Page, Games and Downloads, available from <http://www.goarmy.com/downloads/games.jsp>, accessed 3 December 2007.

<sup>104</sup> Edric Thompson, "America's Army Goes Xbox, Now PC," *Army News Service*, 4 December 2007, available from <http://www.army.mil/-news/2007/12/04/6434-americas-army-goes-xbox-now-pc/>, accessed on 18 December 2007.

<sup>105</sup> "Making The Difference," *Partnership For Public Service*, 8.

<sup>106</sup> Sangillo, 2.

<sup>107</sup> Balder, 2.

<sup>108</sup> Hira, 4.

<sup>109</sup> “Marines’ Ad Campaign Targets Wider Audience,” Wall Street Journal, 16 January 2008, available from <http://ebird.afis.mil/ebfiles/e20080116573692.html>, accessed on 16 January 2008.

<sup>110</sup> Student Loan Repayment, Issue Brief PPS-05-07, *Partnership For Public Service*, 1.

<sup>111</sup> Ibid.

<sup>112</sup> Ibid.

<sup>113</sup> “Making The Difference,” *Partnership For Public Service*, 10.

<sup>114</sup> National Security Personnel System, *Manager’s Interim Guidance for Establishing Pay For Employees in NSPS*, May 2006, 5.

<sup>115</sup> Ibid, 14.

<sup>116</sup> Kelly, 1.

<sup>117</sup> Samuel P. Huntington, *The Soldier and the State* (Cambridge, Massachusetts: Belknap Press, 1957), 11.

<sup>118</sup> Don M. Snider, *An Uninformed Debate on Military Culture*. Available at <http://www.fpri.org/americanvulnerable/08.UninformedDebateonMilitaryCulture.Snider.pdf>, accessed on 25 January 2008, 128.

<sup>119</sup> Edward K. Boyd, *Professionalism in the USAF: A Comparative Analysis of Commissioned Officers with Non-Commissioned Officers* (Wright Patterson Air Force Base; Air Force Institute of Technology, March 2007), 49.

<sup>120</sup> U.S. Department of the Air Force, *Officer and Enlisted Evaluation Systems*, AFI 36-2406 (Washington DC. U.S. Department of the Army, 15 April 2005), 15.

<sup>121</sup> Ibid, 11.

<sup>122</sup> Willie, 1.

<sup>123</sup> Raines, 7.

<sup>124</sup> United States Strategic Command Home Page, available from <http://www.stratcom.mil/organization.html>, accessed on 9 December 2007.

<sup>125</sup> John Lasker, “Air Force Recruits Techies From Area,” Tacoma News Tribune, 15 October 2007, available from <http://aimpoints.hq.af.mil/display.cfm?id=21824>, accessed on 16 October 2007.