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Evaluating Attitudes and Experience With Emerging Technology in Cadets and Civilian Undergraduates

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Existing research on the characteristics of digital natives, traditionally defined as those born after 1980, has shown subtle differences in how they approach technology compared with other cohorts. However, much of the existing research has focused on a limited set of conventional technologies, mostly related to learning. In addition, prior research has shown differences *within* this cohort in how they respond to autonomous technology (e.g., trust, reliance; Pak, Rovira, McLaughlin, & Baldwin, 2016). The purpose of this short report, representing the first wave of data collection in a larger study examining technology experience and attitude change, is to directly address 2 shortcomings in the literature on digital natives which tends to emphasize: (a) civilian students; and (b) conventional, often learning technologies. We addressed these 2 issues by recruiting 2 subgroups of digital natives (students and military cadets) and assessing attitudes and experience with a wide range of technology spanning from conventional (e.g., mobile) to emerging (e.g., robotics). The results showed that that both groups were surprisingly unfamiliar with emerging consumer technologies. Additionally, contrary to expectations, cadets were significantly, albeit only slightly, *less* experienced with mobile technologies, VR/augmented reality, social media, and entertainment technology as compared to civilian undergraduates.

Keywords: digital native, millennial, emerging technology, automation

The military is and will continue to be an extremely technical and electronically connected environment. Technologies in use by soldiers include autonomous systems for intelligence analysis and targeting, remote sensing technologies that feed geospatial data from the air force to ground troops, and various forms of augmented and virtual reality immersion training systems. Emerging technologies and advancements in robotics, biotechnology, information technology, transportation, and nanotechnology are critical to the way wars are fought and won. General Mark Milley, Chief of Staff of the Army, has said that the Army must look to new emerging technologies that will change the way soldiers fight (Tan, 2016). As a result, a better understanding of soldiers' perceptions and experiences with emerging technologies is needed to assess operational readiness and inform training.

Despite the intense interest in the digital literacy of current and future soldiers (Mobley, 2011) most studies examining student technological experience and competence have fo-

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cused on civilian students (e.g., Thompson, 2013, 2015) with a focus on learning technologies (Margaryan, Littlejohn, & Vojt, 2011). As future leaders in an increasingly technological military, it is crucial to understand how the technological experiences of cadets may influence their attitudes toward and adoption of emerging technologies in both training (e.g., video games; Orvis et al., 2010) and the operational environment. Models of technology adoption (Bagozzi, Davis, & Warshaw, 1992) suggest that factors that derive from experience with technology (its perceived utility and perceived usability) dictate eventual adoption. In addition, prior research led us to believe that cadets' trust in emerging autonomous technologies may differ from that of civilian students (Pak, Rovira, McLaughlin, & Baldwin, 2016).

A popular idea is that, having grown up in a highly technological environment, those born after 1980 are fundamentally different in their experiences and expectations of technology compared to other cohorts (Oblinger & Oblinger, 2005; Prensky, 2001). Thompson (2013) summarized that "digital native" learners might have a craving for speed, desire to multitask, want constant connectivity, and expect ubiquitous technology availability as compared with "digital immigrants."

While having intuitive appeal, pedagogical research carried out in multiple countries has shown that as a group, digital natives might not be dramatically different from prior cohorts in sheer technological experience (Akçayır, Dündar, & Akçayır, 2016; Margaryan, Littlejohn, & Vojt, 2011; Selwyn, 2009; Thinyane, 2010; Thompson, 2013, 2015). Instead, differences are more subtle, more complex, and warrant further review (Jones & Czerniewicz, 2010; Kennedy, Judd, Dalgarno, & Waycott, 2010). For example, when comparing the factors that affect trust of online services, Hoffmann, Lutz, and Meckel (2014) found that, because of their widespread exposure to media, digital natives tended to rely on fewer trust cues (e.g., established brands, perceived size of user base) than other cohorts. The older "digital immigrants" were more cautious and tended to use more trust cues (e.g., privacy implications, risk vs. benefits). While newer research on digital natives might discount the traditional narrative that they have more technology experience than other cohorts, Hoffmann et al.'s (2014) results show that there do seem to be subtler differences *between cohorts* in processes such as trust formation with technology.

There is also evidence that there are similar trust process differences within cohorts. Prior research comparing different subgroups within digital native populations (e.g., cadets vs. civilian students; Pak, Rovira, McLaughlin, & Baldwin, 2016) showed that cadets' trust in automation was affected by different factors than students'. The source of these within-group differences were thought to be technology experiential differences between students and cadets but that study did not assess those technology experiential differences. Experience is a crucial component of trust (Muir & Moray, 1996) and is reflected in many models of trust and automated technology. For example, in Lee and See's (2005) influential model of trust in automation, user experience with automation directly feeds into their attitudes and beliefs about the automation. Attitudes about automation (e.g., trust) will then guide the formation of *intentions* and *behaviors* toward automation (use or disuse). Low trust might lead to rejection of automation technologies that could be beneficial. Similarly, high trust, engendered by frequent experience, could lead to overreliance on automation (e.g., Dzindolet et al., 2001) also known as complacency (Parasuraman & Manzey, 2010).

Overview of the Study

The purpose of this short report, part of a larger study, is to directly address two shortcomings in the literature on digital natives which tends to emphasize: (a) civilian students; and (b) conventional, often learning technologies. We addressed these two issues by comparing two subgroups of digital natives (students and cadets) and assessing attitudes and experience with a wider range of technology spanning from conventional (e.g., mobile) to emerging (e.g., robotics). The purpose of the larger study is to assess the change in attitudes toward and experience with new technologies in first year cadets compared with their age-matched civilian undergraduate counterparts over the course of the next few years. This project compliments similar efforts by other researchers documenting unique cohort perceptions and characteristics of digital natives (Ender, Rohall, & Matthews, 2013; Orvis et al., 2010).

Method

Participants

Approximately half of the participants (n = 239, 152 female) were civilian undergraduate students attending a large, public university in the southeast while the other half (n = 238, 52 female) were undergraduate cadets attending a military academy in the northeast. The mean age of the student group was 19.0 (SD = 1.3) while the mean age of the cadet group was 18.9 (SD = 1.2). There was no significant difference in ages between the groups. Both groups received extra course credit in exchange for their participation. The research was approved by the institutional review board of the relevant universities.

Survey Instrument

The survey collected two components of attitude toward technology using two standardized measures: complacency potential rating scale (Singh, Molloy, & Parasuraman, 1993) and negative attitudes toward robots (Nomura, Suzuki, Kanda, & Kato, 2006). Technology experience was measured with a custom inventory designed to assess newer technologies than previous measures.

Complacency potential. The complacency potential rating scale (CPRS; Singh et al., 1993) is a 16-item scale designed to measure complacency toward common types of automation (e.g., automated teller machines). Participants responded to the extent they agreed with statements about automation on a Likert scale of 1 to 5. The CPRS score was a sum of these responses and ranged from 16 to 80 (low to high complacency potential). The scale shows good internal consistency and reliability (r = .87 and r = .90, respectively; Singh et al., 1993).

Negative attitudes toward robots. The negative attitudes toward robots scale (NATR; Nomura et al., 2006) is a 14-item questionnaire that measures levels of anxiety with robots. Participants provided the extent they agreed with statements on a Likert scale of 1 to 5. The scale contained three subscales which assessed: (a) interacting with robots in everyday situations, (b) the possible social influence of robots on others and society, and (c) the emotions evoked within themselves by interacting with the robot. Each of the three subscales showed good internal consistency and reliability with an English-speaking population (Syrdal, Dautenhahn, Koay, & Walters, 2009).

Technology experience. The survey included questions regarding experience with computers, mobile phones, the Internet, and general technology. All questions were on a 5-point Likert scale (*strongly disagree* to *strongly agree*). There were eight general technology questions (e.g., I fix technology issues on my own), eight desktop questions (e.g., I often use keyboard shortcuts within computer programs), 10 Internet questions (e.g., I get my news from the web), and seven mobile technology questions (e.g., I often send text messages with my cell phone). The scoring system for the technology expertise survey is the sum of user ratings for each of the four subscales: general, desktop, Internet, and mobile technology. The sum of scores from the categories could range from 0 to 165 with higher scores indicating greater expertise.

A separate section focused on current usage of specific devices and services such as experience with robots (e.g., Roomba), virtual/augmented reality (i.e., VR/AR; e.g., Oculus Rift), fitness technology (e.g., Fitbit), social media apps (e.g., Facebook), entertainment technology (e.g., video game consoles), and learning technologies (e.g., online courses). For each technology example, participants responded to the query "Please indicate how much you use . . ." on a Likert scale ranging from *never* (1) to *daily* (5). The scores were the mean reported usage values for each major category.

Procedure

After signing up, participants were e-mailed a link to the study. The survey was created in and distributed using the Qualtrics web-based survey platform. Measures (e.g., NATR, CPRS) were presented in a random order for each participant. Data were collected between November 2015 and January 2016.

Results

Analyses were performed using IBM SPSS version 22. There was a large gender disparity between the groups with the student group tending toward females while the cadet group tended toward males. Thus, Table 1 shows means and standard deviations for each of the measures by group and gender.

Attitudes Toward Technology

Complacency Potential Rating Scale. The CPRS data was subjected to an analysis of variance (ANOVA) with means presented in Table 1. Males had a slightly higher tendency for complacency than females. Though this main effect of gender was statistically significant, $F(1, 450) = 3.95$, $p < .05$, the effect size was extremely low, $\eta_p^2 = 0.009$. There were no significant group differences.

Negative attitudes toward robots. A multivariate ANOVA (MANOVA) was used to analyze the three subscales of the NATR scale. The multivariate main effect of gender was significant, Wilks' $\Lambda = 0.95$, $F(3, 448) = 8.04$, $p < .05$. For each of the three subscales, males had significantly less negative attitudes than females (see Table 1).

Technology Experience

General. The four subscales of general technology experience (general, desktop, Internet, mobile) were analyzed with a MANOVA and means are presented in Table 1. The multivariate main effect of group was significant, Wilks' $\Lambda = 0.97$, $F(4, 445) = 3.92$, $p < .05$. Follow-up pairwise comparisons, Sidak-adjusted, showed that cadets had significantly higher desktop technology experience than students, $F(1, 448) = 5.55$, $\eta_p^2 = 0.01$. However, students had significantly higher mobile technology experience than cadets, $F(1, 448) = 4.16$, $\eta_p^2 = 0.01$. The multivariate main effect of gender was also significant, Wilks' $\Lambda = 0.87$, $F(4, 445) = 16.59$, $p < .05$, Follow-up pairwise comparisons, adjusted for multiple comparisons, showed that males had more general, $F(1, 448) = 31.18$, $p < .05$, $\eta_p^2 = 0.07$, Internet, $F(1, 448) = 7.70$, $p < .05$, $\eta_p^2 = 0.02$, and mobile experience, $F(1, 448) = 6.67$, $p < .05$, $\eta_p^2 = 0.02$, than females (see Table 1).

Specific. Experience levels with specific technologies were categorized into six groups:

Table 1
Descriptive Statistics by Group and Gender

	Cadets (n = 225)		Students (n = 227)		Males (n = 262)		Females (n = 190)	
	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*
Age	18.9	1.2	19.0	1.3	19.0	1.3	18.9	1.1
Complacency potential[a]	58.4	7.3	57.9	5.9	58.7	7.0	57.3	6.0
Negative attitudes toward robots[b]								
Interactions with robots	15.6	4.1	17.1	4.0	15.4	4.0	17.7	3.9
Social Influence of robots	16.4	3.6	17.0	3.1	16.2	3.3	17.3	3.3
Emotions in interaction with robots	9.3	2.4	10.1	2.4	9.3	2.4	10.3	2.4
General technology experience[c]								
General tech (0–40)	25.3	4.9	24.2	5.1	26.0	4.9	23.1	4.7
Desktop tech (0–40)	27.5	4.3	26.2	4.0	27.3	4.5	26.3	3.8
Internet tech (0–50)	39.0	5.9	39.3	5.4	38.5	5.7	40.1	5.4
Mobile tech (0–35)	26.4	4.4	27.8	3.7	26.5	4.4	27.9	3.6
Mean specific technology experience[d]								
Robots	1.0	.3	1.0	.1	1.0	.3	1.0	.1
VR/augmented reality	1.0	.1	1.1	.2	1.1	.2	1.1	.2
Health wearables	1.1	.4	1.1	.3	1.1	.3	1.2	.4
Social media	2.1	.6	2.6	.6	2.1	.6	2.6	.6
Learning tech	2.7	.8	2.8	.6	2.8	.8	2.7	.6
Entertainment	3.0	.6	3.6	.6	3.2	.8	3.3	.5

[a] The CPRS score was a sum of responses and ranged from 16 to 80 (low to high complacency potential). [b] Higher scores indicated greater negative attitudes. [c] Total scores could range from 0 to 165 with higher scores indicating greater expertise with that particular category of technology; individual range is specified. [d] Scores could range from *never* (1) to *daily* (5).

robots, VR/augmented reality, health technology, social media, learning technologies, and entertainment, and subjected to a MANOVA. The multivariate main effect of group was significant, Wilks' $\Lambda = 0.79$, $F(6, 443) = 19.76$, $p < .05$. Follow-up comparisons showed that cadets were slightly but significantly less experienced with VR/augmented reality, $F(1, 448) = 17.31$, $p < .05$, $\eta_p^2 = 0.04$; social media, $F(1, 448) = 24.38$, $p < .05$, $\eta_p^2 = 0.06$; and entertainment technologies, $F(1, 448) = 97.90$, $p < .05$, $\eta_p^2 = 0.18$, compared with students (see Table 1).

The multivariate main effect of gender was significant, Wilks' $\Lambda = 0.86$, $F(6, 443) = 11.91$, $p < .05$. Follow-up comparisons showed that compared to females, males were slightly more experienced with VR/augmented reality, $F(1, 448) = 5.17$, $p < .05$, $\eta_p^2 = 0.01$; less experienced with health wearables, $F(1, 448) = 13.50$, $p < .05$, $\eta_p^2 = 0.03$; less experienced with social media, $F(1, 448) = 29.91$, $p < .05$, $\eta_p^2 = 0.06$; and more experienced with entertainment technologies, $F(1, 448) = 6.50$, $p < .05$, $\eta_p^2 = 0.01$. Table 2 displays the mean experience levels for each exemplar technology within each category.

Discussion

The purpose of the current descriptive analysis was to report a snapshot of the technological breadth and attitudes among two distinct groups of digital natives. The data in the current report represents the first wave of data collection in what is a continuing project to examine how experience with and attitudes about technology change over time in a young sample of civilian students and cadets. First, perhaps the most dramatic finding was the sharp difference in experience levels (for both groups) between existing technologies (mobile, social media) and emerging technologies (VR, robotics). The whole sample's experience with newer technologies (robots, VR/augmented reality, and wearables) was extremely low. This finding is curious because technology adoption is known to be related to age; with younger adults being more open to embrace new technology than other age groups (e.g., Czaja et al., 2006). However, it is not surprising because these newer technologies are often expensive and thus may be out of reach of college students. In addition, although we did not assess reasons for nonusage, the Technology Acceptance Model suggests that this cohort may not perceive emerging technology as useful or easy to use, affecting acceptance of the technology even when it is available (Bagozzi, Davis, & Warshaw, 1992).

The second notable finding was that despite the low usage of the emerging technologies among our sample of digital natives, there were small and counterintuitive experiential differences between cadets and students with newer technologies such as virtual and augmented reality, with students having *greater* exposure and experience than cadets. Although there is no literature with respect to the cadet/student difference with emerging technologies, based on known differences in trust toward automated technologies (Pak, Rovira, McLaughlin, & Baldwin, 2016) it was hypothesized that cadets, with distinctive access and exposure to defense-related technology, might have reported more experience with emerging technologies, especially robotics and virtual reality. However, these were first-year students and this could change by the time cadets graduate the Academy. Alternatively, it could be that the highly structured lifestyle of cadets may lead to less free time to engage with technology in general, as seen based on experience differences in social media and entertainment technology usage. Therefore, it is important for the military, with its increasing technological sophistication of its systems, ensure its future leaders and soldiers are well equipped with the appropriate experience to use emerging technologies.

Given the specific populations sampled in this study, there are some limitations that warrant mention. First, the gender balance between the two groups was extremely different with females dominating the civilian sample and males dominating the cadet sample. This natural confound of group membership and gender tempers any conclusion about the role of group membership (cadet or student) on experience and attitudes. For example, the finding of students being more experienced with health wearables than cadets may be a consequence of females dominating the student group. We deliberately chose not to oversample the groups to equate gender for fear that it might distort the conclusions we could draw about group membership (cadet or student); but we may revisit this strategy in future waves.

Table 2
Specific Technology Experience by Category

	Cadets		Students		Male		Female	
	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*
Robots								
Roomba	1.04	.34	1.05	.33	1.03	.31	1.07	.37
Droplet	1.02	.27	1.00	.07	1.02	.25	1.01	.07
AIMe	1.03	.30	1.00	.07	1.02	.27	1.01	.07
Quadcopter drone	1.04	.34	1.03	.19	1.05	.35	1.01	.10
Makerbot	1.02	.27	1.01	.11	1.02	.26	1.01	.10
Other	1.22	.85	1.00	.00	1.20	.82	1.00	.00
Virtual reality								
Nintendo Wii	1.18	.47	1.39	.78	1.31	.72	1.26	.55
Playstation VR	1.05	.24	1.11	.51	1.09	.46	1.06	.29
Google glass	1.00	.07	1.04	.36	1.02	.19	1.03	.32
Microsoft holoLens	1.00	.00	1.02	.27	1.00	.00	1.02	.29
Oculus rift	1.01	.09	1.00	.00	1.01	.09	1.00	.00
Other	1.24	.79	1.85	1.48	1.47	1.17	1.54	1.17
Health wearable								
Fitbit	1.17	.75	1.48	1.24	1.09	.54	1.65	1.40
Apple watch	1.12	.65	1.03	.28	1.11	.61	1.03	.30
Nike fuelband	1.04	.35	1.00	.07	1.02	.20	1.03	.31
Garmin forerunner	1.27	.91	1.05	.39	1.17	.73	1.14	.68
Wii fit	1.04	.35	1.06	.26	1.03	.23	1.08	.39
Other	1.47	1.12	2.34	1.78	1.55	1.23	2.32	1.75
Social media								
Instagram	3.53	1.81	4.39	1.29	3.52	1.80	4.57	1.11
Twitter	2.57	1.74	3.44	1.76	2.94	1.78	3.10	1.83
Tumblr	1.26	.84	1.52	1.11	1.19	.71	1.66	1.24
Facebook	4.12	1.41	4.32	1.21	4.05	1.42	4.46	1.12
Pinterest	1.46	1.06	2.29	1.49	1.20	.71	2.80	1.49
LinkedIn	1.09	.44	1.35	.86	1.20	.72	1.24	.67
Reddit	1.49	1.21	1.40	1.06	1.64	1.32	1.18	.75
Google+	1.37	1.01	1.74	1.42	1.36	.99	1.83	1.49
Other	2.50	1.89	3.72	1.73	3.00	1.90	3.13	1.94
Learning								
YouTube	3.62	1.33	3.16	1.29	3.65	1.35	3.03	1.21
Khan academy	1.97	1.13	1.83	1.09	1.94	1.18	1.84	1.01
Wikipedia	3.03	1.32	2.76	1.30	3.02	1.36	2.72	1.24
Chegg	1.11	.56	1.40	.86	1.18	.68	1.36	.81
Blackboard	3.75	1.35	4.74	.66	4.03	1.29	4.56	.89
Other	2.04	1.69	2.47	1.66	2.10	1.68	2.34	1.70
Entertainment								
Television	2.04	1.20	3.68	1.36	2.63	1.55	3.18	1.43
Game console	1.75	1.11	2.18	1.48	2.42	1.46	1.35	.77
Netflix	3.38	1.40	3.90	1.27	3.47	1.44	3.87	1.22
Computer	4.67	.92	4.84	.64	4.70	.87	4.82	.67
Cell phone	4.70	.94	4.94	.46	4.69	.96	4.99	.07
Streaming device	1.29	.75	1.81	1.29	1.44	.91	1.70	1.28
Other	1.67	1.46	1.65	1.33	1.74	1.48	1.52	1.26

Note. Scores could range from *never* (1) to *daily* (5).

Second, the fast-paced nature of technology development means that the emerging technologies sampled in this survey will soon become commonplace (e.g., robotics, augmented reality) in the coming years. A striking example is that between the time of initial data collection (early 2016) and the submission of this article (mid 2016), the augmented reality mobile phone game Pokémon Go's explosive popularity in mid 2016 (Wingfield & Isaac, 2016) exposed a large audience to a practical application of augmented reality. This unanticipated event will clearly influence attitudes and experience with certain forms of technology that were formerly called "emerging" but was not reflected in this data collection wave. As formerly emerging technology reaches mainstream awareness, our subsequent data collection waves will incorporate newer examples of emerging technologies as they appear, such as nano-technology, cognitive/brain enhancement technologies, or wearable robotics (e.g., exoskeletons).

The results of this first wave of data is that, in contrast to conventional wisdom that young "digital natives" are very technologically savvy, students and cadets were relatively inexperienced with many categories of emerging technology. This inexperience has practical implications not only for students, who may encounter such technologies in their future occupations, but especially cadets, who will undoubtedly interact with advanced technology in their military career. As models of technology suggest (Bagozzi, Davis, & Warshaw, 1992) eventual adoption of technology depends on factors (e.g., attitudes such as trust, perceptions of utility) that are dependent on levels of exposure to the technology and are likely to change with increased exposure. Thus, it may be useful to enhance training to expose students and cadets to technology; perhaps by incorporating them into learning curriculum.

References

Akçayır, M., Dündar, H., & Akçayır, G. (2016). What makes you a digital native? Is it enough to be born after 1980? *Computers in Human Behavior, 60,* 435–440. http://dx.doi.org/10.1016/j.chb.2016.02.089

Bagozzi, R. P., Davis, F. D., & Warshaw, P. R. (1992). Development and test of a theory of technological learning and usage. *Human Relations, 45,* 659–686. http://dx.doi.org/10.1177/001872679204500702

Czaja, S. J., Charness, N., Fisk, A. D., Hertzog, C., Nair, S. N., Rogers, W. A., & Sharit, J. (2006). Factors predicting the use of technology: Findings from the center for research and education on aging and technology enhancement (create). *Psychology and Aging, 21,* 333–352. http://dx.doi.org/10.1037/0882-7974.21.2.333

Dzindolet, M., Pierce, L. G., Beck, H. P., Dawe, L. A., & Anderson, B. W. (2001). Predicting misuse and disuse of combat identification systems. *Military Psychology, 13,* 147–164. http://dx.doi.org/10.1207/S15327876MP13032

Ender, M. G., Rohall, D. E., & Matthews, M. D. (2013). *The millennial generation and national defense: Attitudes of future military and civilian leaders*. London, UK: Palgrave Macmillan.

Hoffmann, C. P., Lutz, C., & Meckel, M. (2014). Digital natives or digital immigrants? The impact of user characteristics on online trust. *Journal of Management, 31,* 138–171.

Jones, C., & Czerniewicz, L. (2010). Describing or debunking? The net generation and digital natives. *Journal of Computer Assisted Learning, 26,* 317–320. http://dx.doi.org/10.1111/j.1365-2729.2010.00379.x

Kennedy, G., Judd, T., Dalgarno, B., & Waycott, J. (2010). Beyond natives and immigrants: Exploring types of net generation students. *Journal of Computer Assisted Learning, 26,* 332–343. http://dx.doi.org/10.1111/j.1365-2729.2010.00371.x

Lee, J. D., & See, K. A. (2005). Trust in automation: Designing for appropriate reliance. *Human Factors, 46,* 50–80.

Margaryan, A., Littlejohn, A., & Vojt, G. (2011). Are digital natives a myth or reality? University students' use of digital technologies. *Computers & Education, 56,* 429–440. http://dx.doi.org/10.1016/j.compedu.2010.09.004

Mobley, J. (2011). *Study to establish levels of digital literacy for soldiers and leaders in the U.S. Army*. Prepared for U.S. Army TRADOC. Retrieved from https://info.publicintelligence.net/USArmy-DigitalLiteracy.pdf

Muir, B. M., & Moray, N. (1996). Trust in automation. Part II. Experimental studies of trust and human intervention in a process control simulation. *Ergonomics, 39,* 429–460. http://dx.doi.org/10.1080/00140139608964474

Nomura, T., Suzuki, T., Kanda, T., & Kato, K. (2006). Measurement of negative attitudes toward robots. *Interaction Studies: Social Behaviour and Communication in Biological and Artificial Systems, 7,* 437–454. http://dx.doi.org/10.1075/is.7.3.14nom

Oblinger, D., & Oblinger, J. (2005). Is it age or IT: First steps towards understanding the net generation. In D. Oblinger & J. Oblinger (Eds), *Educating the net generation* (pp. 2.1.20437–2). Boulder, CO: EDUCAUSE. Retrieved from http://www.educause.edu/educatingthenetgen

Orvis, K. A., Moore, J. C., Belanich, J., Murphy, J. S., & Horn, D. B. (2010). Are soldiers gamers? Videogame usage among soldiers and implications for the effective use of serious videogames for military training. *Military Psychology, 22,* 143–157. http://dx.doi.org/10.1080/08995600903417225

Pak, R., Rovira, E., McLaughlin, A., & Baldwin, N. (2016). Does the domain of technology impact user trust? Investigating trust in automation across different consumer-oriented domains in young adults, military, and older adults. *Theoretical Issues in Ergonomics Science, 18,* 199–220. http://dx.doi.org/10.1080/1463922x.2016.1175523

Parasuraman, R., & Manzey, D. H. (2010). Complacency and bias in human use of automation: An attentional integration. *Human Factors, 52,* 381–410. http://dx.doi.org/10.1177/0018720810376055

Prensky, M. (2001). Digital natives, digital immigrants. Pt. 2: Do they really think differently? *On the Horizon, 9,* 1–6. http://dx.doi.org/10.1108/10748120110424843

Selwyn, N. (2009). The digital native-myth and reality. *Aslib Proceedings, 61,* 364–379. http://dx.doi.org/10.1108/00012530910973776

Singh, I. L., Molloy, R., & Parasuraman, R. (1993). Automation-induced "complacency": Development of the complacency-potential rating scale. *The International Journal of Aviation Psychology, 3,* 111–122. http://dx.doi.org/10.1207/s15327108ijap0302_2

Syrdal, D. S., Dautenhahn, K., Koay, K. L., & Walters, M. L. (2009). The negative attitudes towards robots scale and reactions to robot behavior in a live human-robot interaction study. In N. K. Taylor (Ed.), *Adaptive and emergent behaviour and complex systems: Proceedings of the 23rd Convention of the Society for the Study of Artificial Intelligence and Simulation of Behaviour* (pp. 109–115). Edinburgh, UK: AISB.

Tan, M. (2016, January 21). Top Army general outlines plans for new brigades, new technologies. *Army Times*. Retrieved from http://www.armytimes.com

Thinyane, H. (2010). Are digital natives a world-wide phenomenon? An investigation into South African first year students' use and experience with technology. *Computers & Education, 55,* 406–414. http://dx.doi.org/10.1016/j.compedu.2010.02.005

Thompson, P. (2013). The digital natives as learners: Technology use patterns and approaches to learning. *Computers & Education, 65,* 12–33. http://dx.doi.org/10.1016/j.compedu.2012.12.022

Thompson, P. (2015). How digital native learners describe themselves. *Education and Information Technologies, 20,* 467–484. http://dx.doi.org/10.1007/s10639-013-9295-3

Wingfield, N., & Isaac, M. (2016, July 11). Pokémon Go brings augmented reality to a mass audience. *The New York Times*. Retrieved from http://www.nytimes.com

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