Faculty Perceptions of Student Computer Skills at a 2-year Agricultural School[1]

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Abstract

Incorporation of digital technology into the classroom has risen sharply in the past two decades. Instructors assume this generation of students has computer skills due to the fact that they came of age with computers and technology in their daily lives. In our previous research, students self-reported their computer skills to be above average. This study aimed to determine if faculty also perceive student computer skills to be above average due to their being part of the "Millennial Generation". A Likert-type survey was given to faculty at a two-year agricultural school; results show that faculty perceive student skills to be above average in some areas (sending email, word processing), but below average in other areas (spreadsheets). There is a gap between student self-perceptions and faculty perceptions that could cause friction in the classroom.

Introduction

The term "Digital Native" was introduced by Mark Prensky in 2001 in reference to students who had never known a time without a multitude of digital devices: MP3 players, digital cameras, cell phones, Internet access, video games, and computers. Individual members of the Digital Generation have spent more than 10,000 hours playing video games, 20,000 hours watching fast paced TV, and at the most have spent 5,000 hours reading (Prensky, 2001). This generation, also called the Net Generation, Generation Y, and the Millennial Generation (Oblinger, 2003), is perceived to have a low tolerance for lectures and other passive forms of learning in favor of technology and more interactive learning activities (Barnes et al., 2007).

The term "Digital Native" as applied to college students has translated to professors assuming students are highly computer literate (Jenson, 2004). Students, themselves, also feel their basic computer skills are at the very least at the intermediate level (Hostetler and Deeter, 2012), and for some tasks, notably, email and internet searches, they feel their skills are more advanced (Hostetler and Deeter, 2012). This has led to large scale calls for changes in the way education is presented to this generation, and yet empirical evidence of computer skills are few and far between. Bennett et al. (2008) suggests this generation utilizes technology to communicate, find homework help, and for social networking only, and not for content generation or to engage with their personal educational process.

Since 1994, incorporation of technology into the classroom has risen sharply (Myers et al., 2004). With mobile technologies becoming increasingly common in the past decade, the shift from desktop-based technology to mobile technology has increased. Davison and Lazaros (2015) reported that students strongly agree that mobile technology is important to their learning outcomes. The trend within all educational environments is to increase the usage of technology, add distance educational opportunities, and increasingly utilize apps in the classroom (Mansureh, 2010). Current research shows students prefer accessing materials both via their laptop and via a mobile device (Davison and Lazaros, 2015). Due to these trends, the assumption is that faculty perceive students' computer skills are well above average. Indeed, Edgar et al. state that even though other researchers have shown that students do not have the computer skills needed for the workforce, faculty still believe students are proficient in information and communication technology skills. The objective of this research is to determine if there are varying generational perspectives regarding the computer skills of students in the Millennial Generation at an agricultural school. The authors hypothesize that since current college students have grown up with cell phones and social media, some faculty may perceive the students of having high computer skills. However, this type of technology usage may not correlate to having appropriate computer skills for success in college. This research hopes to determine if faculty perceptions of student computer skills correspond with the "digital natives" self-perception.

Faculty Perceptions of Student

Methods

A Likert-type survey was developed to discover faculty perceptions of student computer skills. The survey consisted of a total of eleven questions, two of which were used to gain demographic information about the faculty member completing the survey. Three questions asked the faculty member to indicate how he/she thought students would respond when asked to rate their own overall computer skills and specific skill level in internet research, word processing, spreadsheets, email, and editing digital photos as well as the faculty perception of student attitudes toward the need for computer skills. The remaining six questions asked the faculty members to evaluate the students' computer skills and usage from their perception as well as the individual faculty member's thoughts on the importance of students gaining computer skills while in college. The faculty members were also given the opportunity to provide comments to elaborate on their answers, and to provide their thoughts on the necessity of computer skills in agricultural and related fields. A portion of the survey is included in Figure 1.

Sixty-two surveys were distributed via campus mail to regular, associated, and visiting faculty members at Ohio State ATI, which is a two-year agricultural school granting Associate of Science and Associate of Applied Science degrees. The usage of campus mail ensured that associated faculty, who often do not regularly utilize university email systems, were able to participate in the survey. Participation was voluntary. Thirty-one completed surveys were returned for a response rate of 50%.

Results and Discussion

Faculty at Ohio State ATI rated the students' overall computer skills as either beginning (48%) or intermediate (42%); faculty also rated students in specific computer skills as shown in Table 1. When asked about those specific skills approximately one-third of the faculty surveyed believed that the students were advanced in their ability to check and send email. Ninety-three percent of the faculty believed the students have at least beginning skills in word processing and more than half believed the students' word processing skills were at an intermediate level. The majority (71%) of faculty rated the students as having beginning skills in internet research. The area that faculty believed the students lacked skills in the most was with using a spreadsheet. Approximately 42% of those surveyed believed the students had beginning skills while 35% thought that students had no skills in that area.

When faculty were asked if students would gain additional computer skills while in college 84% said

Figure 1. Partial survey presented to the faculty of Ohio State ATI, a two-year Associate degree granting institution, to test faculty perceptions of computer skills.

How do you think **ATI students** rate their overall computer skill level?

	No skills
	Beginning skills
	Intermediate skills
	Advanced skills

How would **you** rate ATI students' overall computer skills?

	No skills
	Beginning skills
	Intermediate skills
	Advanced skills

How do you think **ATI students** rate their skills in the following areas?

	None	Beginning	Intermediate	Advanced
Internet Research				
Use a Word Processor				
Use a Spreadsheet				
Check and Send Email				
Edit Digital Photos				

How would **you** rate ATI students' skills in the following areas?

	None	Beginning	Intermediate	Advanced
Internet Research				
Use a Word Processor				
Use a Spreadsheet				
Check and Send Email				
Edit Digital Photos				

When ATI students are asked about their computer skills level, do you think the students

	accurately describes their actual skill level
	underestimates their actual skill level
	overestimates their actual skill level

Table 1. Faculty Perceptions of Students' Computer Skills at Ohio State ATI[z]

Skill		None	Beginning	Intermediate	Advanced
Overall Computer Skills	#	0	15	13	1
	%	0%	48%	42%	3%
Internet Research	#	2	22	5	0
	%	5%	71%	16%	0%
Use a Word Processor	#	0	14	15	0
	%	0%	45%	48%	0%
Use a Spreadsheet	#	11	13	4	0
	%	35%	42%	13%	0%
Check and Send Email	#	2	9	8	10
	%	6%	29%	26%	32%
Edit Digital Photos	#	4	13	9	2
	%	13%	42%	29%	6%

[z] Percentages rounded to nearest whole number. Some chose not to respond to a survey question.

they would. The explanations for this were grouped into three general categories: computer skills required for employment, computer skills required for school, and computer skills required for daily life. However, a few faculty members responded that the students would not gain additional skills. Again, responses were grouped into the following categories: students were only enhancing current skills, students not necessarily being required to take a computer/software course, and students are satisfied with their current skill-set and are unwilling to learn new skills.

Largely, faculty thought students were at an overall beginning to intermediate level in computer skills. However, when asked how they thought the students would self-rank their computer skills, the faculty thought the students would rank themselves higher than an intermediate level. This can be seen by the faculty responses as to how they believed the student would rate their skills overall and in specific areas in Table 2. When asked about how the faculty member believed the students would rate their own computer skills and if the student was accurately describing those skills, 84% of the faculty believed the students would overestimate their skills while 13% thought the students would underestimate their skills, and only 3% thought the students would accurately described their skill level.

The results from this research were then compared to the authors' previous research to see how faculty perception compared to student self-perceptions. Table 3 shows the students' self-perception of overall and specific computer skills from the previous research (Hostetler and Deeter, 2012). It was observed that the faculty were fairly accurate on how they thought students would rate their skills. But how did the students' perceptions of their skills compare to the faculty perception of their skills?

The results were interesting when comparing the faculty's perception of student computer skills as seen in Table 2 compared to the students' self-perception as shown in Table 3.

In the authors' opinion, the difference in perceptions may cause problems and frustration by both faculty and students. Faculty may feel the need to take time away from class material to teach the necessary computer skills while students may ignore the instructions because they feel they already have the skills to do the required computer related task. Conversely, if the faculty assume the students already possess the necessary technology skills, they may be disappointed in the student output if the students do not have the technology skills needed. Hence, the student may be disappointed in the grade received and complain that instruction was not provided on how to complete the assignment. Therefore, it is important for faculty to know that this gap exists in both directions and take measures to reduce the negative implications it could cause.

Summary

The faculty at Ohio State ATI did not perceive students as having advanced computer skills even though the students are part of a generation that is termed "digital natives." Generally, the faculty perceived the student skills at a lower level than the students perceived their own skill level creating a difference in how students perceive their skills and how faculty perceive student skills. This study only examined the perceptions of each group so no conclusion can be made if these perceptions are accurate.

Table 2. Faculty Perceptions of How Students Would Self-Rate Their Computer Skills at Ohio State ATI[z]

Skill		None	Beginning	Intermediate	Advanced
Overall Computer Skills	#	0	4	23	3
	%	0%	13%	74%	10%
Internet Research	#	0	7	19	4
	%	0%	23%	61%	13%
Use a Word Processor	#	0	1	22	7
	%	0%	3%	71%	23%
Use a Spreadsheet	#	3	17	9	0
	%	10%	55%	29%	0%
Check and Send Email	#	0	0	9	21
	%	0%	0%	29%	68%
Edit Digital Photos	#	1	7	17	5
	%	3%	23%	55%	16%

[z] Percentages rounded to nearest whole number. Some chose not to respond to a survey question.

Table 3. Self-Perceived Computer Skill Level for Incoming Freshman Enrolled in Orientation Class at The Ohio State University Agricultural Technical Institute, Autumn 2010[z]

Skill		None	Beginning	Intermediate	Advanced
Overall Computer Skills	#	4	45	139	27
	%	2%	21%	65%	13%
Internet Research	#	0	28	141	46
	%	0%	13%	66%	21%
Use a Word Processor	#	3	33	123	56
	%	1%	15%	57%	26%
Use a Spreadsheet	#	23	84	82	26
	%	11%	39%	38%	12%
Check and Send Email	#	5	24	88	98
	%	2%	11%	41%	46%
Edit Digital Photos	#	51	63	66	35
	%	24%	29%	31%	16%

[z] Percentages rounded to nearest whole number.

Thus, future research will be conducted to test student skills at the various tasks mentioned above to show if perceptions match reality. In addition, students in two-year technical programs are possibly involved in content generation and not simply absorption of previously created content; research into the volume, quality, and public perception of this content will be investigated. Finally, as the use of mobile technology and educational apps continues to proliferate, research into the effectiveness, perceptions of, and impact on educational outcomes of two-year agricultural students, will be completed.

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