

ACADEMIC VERSUS NON-ACADEMIC EMERGING ADULT COLLEGE STUDENT TECHNOLOGY USE

Joan Ann Swanson and Erica Walker
Skidmore College
Saratoga Springs, NY ABSTRACT

ABSTRACT

Emerging adult college students have developmental and educational needs which are unique to their phase of life. The purpose of this study was to examine academic and non-academic technology use by emerging adult college students. Survey results (N=235) provided insights into emerging adult college student technology preferences and frequency of use for academic and non-academic purposes. This study found that emerging adult college students have distinct technology preferences and practices relating to both academic and non-academic use.

KEYWORDS

Technology, Emerging Adult, College.

1. INTRODUCTION

Individuals between 18 and 25 years of age are increasingly considered to be in a unique developmental period called emerging adulthood (Arnett, 2000). This phase of life between adolescence and adulthood is “not merely a transition but a separate period of the life course,” with distinct features and needs (Arnett, 2007, p. 69). “In this developmental phase students need environments that offer relevance, revelation, responsibility, and relationships” (Flowers, 2014, p. 1). Flowers (2014) explains experiences are needed that reach these individuals where they are, yet stretch them personally and academically, making them take responsibility for their future. Key in the learning process are the relationships between educators and students; these social connections are impacted by technology. Many of emerging adult relational connections are conducted via technology. Levine and Dean (2013) point out fundamental changes in today’s emerging adult college students based on their connections to technology. Previous research efforts assess attitudes and uses for technology in instruction generally but do not delineate differences between academic and non-academic technology preferences in emerging adults. Understanding the role technology plays with this emerging adult age group, who are often dubbed “Digital Natives” or the “Net Generation” (Bennett & Maton, 2010; Prensky, 2010; Tapscott, 1998), is also key in understanding the learning process in the emerging adult developmental period. This paper contributes to a deeper understanding of collegiate emerging adult development and learner needs.

2. LITERATURE REVIEW

2.1 The Use of Technology by Emerging Adult College Students

The active and significant role technology plays in most emerging adult lives is easily observed and has been documented (Prensky, 2010). Technology permeates most aspects of the emerging adult’s life; however, certain technology use is sometimes considered a distraction, resulting in debates concerning the appropriate place for technology use (Jackson, 2013). Much current research involving emerging adult college students’ technology use is centralized on isolated populations and specific arenas of the college context. For example, Cassidy, et al. (2011) focused their study of technology use and preference around library services. Other

researchers narrowed their studies to specific technological resources, formats, or applications such as mobile/cellular devices (Baker, et al., 2012; Geng, 2013); social networking sites (Subrahmanyam, Reich, Waechter, & Espinoza, 2008); and online video use (Sherer & Shea, 2011).

Institutions of higher education are increasingly integrating technology into all aspects of academia. Despite increased use of technology in today's collegiate setting, the degree and effectiveness of technology use varies. Most colleges now use some version of a virtual learning environment (VLE) or course management system such as *Blackboard* (Morgan, 2003; Weller, 2007). Pitler, et al., (2007), indicate that the effective use of technology often serves to increase student learning, understanding, motivation and achievement. Baker, et al., (2012), however, investigated whether mobile devices belonged in the classroom despite their commonplace use in emerging adults' everyday life. Educators are increasing turning their attention to technologies and how they can or should be incorporating it into the collegiate learning arena. Determining effective use of technology is actually contextually dependent (Owston, 2006). Understanding student perspectives on technology use will aid in knowing the learner and how to effectively educate them. The purpose of this study was to examine academic and non-academic technology use by the emerging adult college students, which provides perspective upon the emerging adult learners and the role of technology in their educational pursuits.

2.2 Developmentally Appropriate Instruction for Emerging Adults

Most emerging adults experience some education or training beyond high school, as noted by the Clark Poll where 79% of participants had some college or vocational experience (Arnett & Schwab, 2012). Most institutions of higher education have adapted systems of communication, processing information, retaining records, etc. based upon changes in technology. This transformation to increased technology use is a surge not limited to administrative decisions. The impact of technology has also changed how these institutions provide instruction. Technological resources and tools have transformed how and where content is delivered; however, understanding the needs of the learner is still a key issue. The means for instruction at any level needs to be developmentally appropriate (Gonzalez-DeHass & Willems, 2013, Gorra, et al., 2010).

2.3 Technology and Collegiate Emerging Adults

There is no doubt that collegiate emerging adults today have had a great deal of exposure to technological advances both personally and educationally. Internet and mobile technologies are being used for accessing information and communicating (Dahlstrom, Walker, & Dziuban, 2013; Maton & Bennett, 2010). In many cases, technological devices are used routinely in their personal lives to the extent that these individuals cannot imagine life without the device. As new technologies have emerged, they have changed patterns of student interactions, entertainment, time use, and even the use of their campus spaces and facilities (Levine & Dean, 2013). The higher education instruction can be delivered from virtually anywhere and at any time and either in online or blended formats (Gorra et al., 2010). Some variation in technological access exists as a result of social-economic barriers; however, that gap continues to diminish as the use of mobile devices increases. Technology use among collegiate emerging adults is now expected in college settings (e.g. online admission applications, communicate via college provided email, online course registration). Additionally, most colleges and instructors utilize course management systems such as *Blackboard*. Technology use has transformed education, however, actual technological preferences and patterns of emerging adult students for academic purposes needs to be examined.

2.4 Theoretical Framework

The conceptual and theoretical framework for this study rests upon the constructivist concept of learning by building knowledge, but more specifically, uses Vygotsky's theme which considers sociocultural interaction as key in the learning process (Gonzalez-Dehass & Willems, 2013; Vygotsky, 1978). According to Vygotsky, tools are objects from a person's culture which increase learning through problem solving (Gonzalez-Dehass & Willems, 2013). Technology can be viewed as such a tool for emerging adults in collegiate settings. Sociocultural interaction using technological tools is further grounded by the research-based APA Learner-Centered Psychological Principles, which emphasize the context of learning as an essential factor influencing

learners. “Learning is influenced by environmental factors including culture, technology, and instructional practices” (APA Work Group of the BEA).

Bennett and Maton (2010) suggest emerging adult college students make choices about their technology use for highly contextualized purposes, influenced by life stage and interest. Individuals live within many contexts (i.e. social and familial, educational, vocational) which serve to create a contextual dependency upon specific related technology (Levine & Dean, 2013). The educational context serves to support technology use with certain technological tools and resources specifically for academic purposes. At the same time, technology is undoubtedly being utilized for non-academic purposes. When technology use by emerging adults is viewed through a contextual framework, nuances for practice and preference may emerge, which will impact learning. The following research questions address emerging adult use of technology in the context of the college setting:

- 1) What technological tools and resources do emerging adult college students prefer for academic versus non-academic purposes?
- 2) Do demographic variables impact technology preferences?
- 3) Does the amount of time in a week devoted to academics relate to technology use?

3. METHODS

This study was descriptive comparative in nature and used survey methodology following suggestions of Busha and Harter (1980) in which a representative sample was solicited, questioning was cautiously designed for clarity and avoidance of bias or negativity, and was relevant to the emerging adult developmental state and situation. This survey methodology is useful in describing the emerging adult practices of academic and non-academic uses of technology.

3.1 Survey

Data was collected through an IRB approved, self-report internet survey administered via *Survey Monkey*. Participants anonymously completed the survey within an 8 to 10 minute timeframe and then were invited to email the researcher if interested in being entered into a random drawing for \$25 gift cards. The survey consisted of 19 questions utilizing check-off boxes and ranking for Likert-type scaled responses indicating preferences and frequency. Open-ended response boxes were also provided for additional comment.

Survey questions were designed with input and consensus from a panel of emerging adult students. Further content validity was established using a focused literature review. Some survey questions sought demographic information concerning students' genders, majors and ethnicity. This questioning followed practices by researchers such as D'Angelo and Woosley (2007) who found differences in technology preferences based upon the student's major, and Baker, et al (2012) who noted that gender affected technology perceptions of in-class technology use. Such questioning investigated whether demographic variables impacted collegiate emerging adult technology use for academic versus non-academic purposes.

3.2 Participants

Participants were students at a private liberal arts college in the northeastern United States who were invited to complete a survey about their academic patterns and technology use. Those who chose to complete the survey (N=235) represented approximately a 10% response rate and were spread proportionately across class years. Respondents were 72.8% female and 25.5% male, while 1.8% indicated other for gender or chose not to answer (See Table 1). Respondent ethnicities included Caucasian (77.9%), Asian (10.6%), Hispanic (7.7%), African American (4.7%), and other (4.3%).

Survey respondents (N=235) were mostly self-identified as female (N=171, 72.8%), which is higher than the national and local trend for this demographic. According to the National Center of Education Statistics (US Department of Education, 2012), 57% of college students in the United States in 2010 were female and this particular college reported a 59% female population in 2013. The gender representation of participants, however, was distributed throughout class years with a standard deviation of participants across class year for males 4.47 and females 7.54.

Table 1. Demographics. The numbers in this table represent per cent from the total survey response (N=235). Gender: M-Male, F-Female, O-Other; Cultural Ethnicity: AA-African American, AS-Asian, CA- Caucasian, HI-Hispanic, NA-Native American, OT-Other. PNA: prefer not to answer. Note: Some respondents choose more than one cultural ethnicity.

(Class year, gender, and ethnicity demographics)

Class	Gender				Cultural Ethnicity						
	M	F	O	PNA	AA	AS	CA	HI	NA	OT	PNA
Freshman	13	43	1	1	3	7	48	6	2	2	1
Sophomore	19	37	0	1	4	9	41	4	0	1	0
Junior	17	29	0	1	0	3	37	5	0	3	2
Senior	11	62	1	0	4	6	57	3	0	4	2
Total	60	171	2	3	11	25	183	18	2	10	5

3.3 Data Collection Procedure

Students attending a liberal arts college in northeastern United States were sent an invitation through the college email system encouraging participation in an online, anonymous survey. The incentive for participation was an optional entrance into a random drawing for \$25 gift certificates. One week later, a reminder email was sent inviting any to participate who had not already done so. The first invitation gleaned 177 responses over a four day period and the second resulted in an additional 58 responses over a two day period. Data results were then examined for descriptive and comparative analysis.

4. RESULTS

The results of the study are reported in response to the following research questions: *What technological tools and resources do emerging adult college students prefer for academic versus non-academic purposes? Do demographic variables impact technology preferences?*, and *Does the amount of time in a week devoted to academics relate to technology use?*

4.1 Academic versus Non-Academic Use of Technology

This study investigated technological tools and resources emerging adult college students prefer for academic versus non-academic purposes. The researcher first analyzed the tools which served as access points for technology use by emerging adult college students and how often those specific tools were used (Figure 1). Survey results indicated respondents' personal computers were used most daily for academic purposes (95%) but cell phones were used the most daily for non-academic purposes (97%). Results also indicate that iPads and tablets are being used less frequently as computers for academic purposes; 77% report never using an iPad/tablet for academics and 73% never use them for non-academic as well. It could be theorized that iPads and tablets are less accessible resources while mobile phone devices are becoming increasingly accessible and versatile. Additionally, students report daily use of institution-owned computers which helps address access issues that may arise due to socio-economic status.

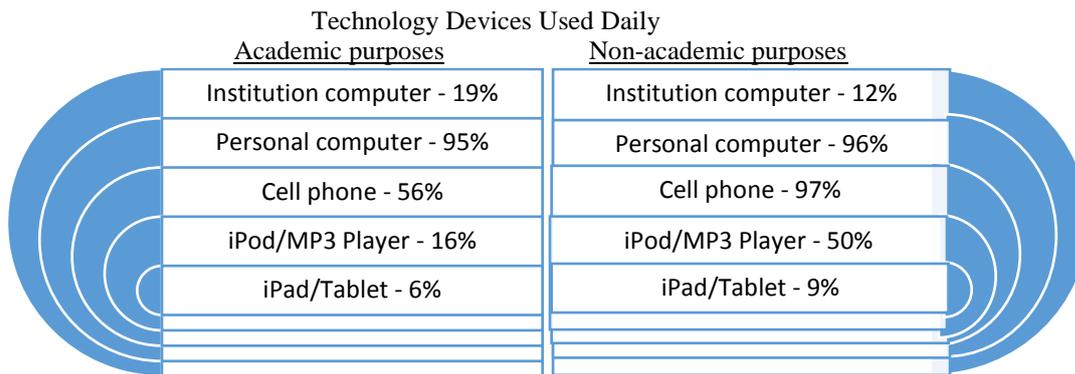


Figure 1. Academic and non-academic daily use of technology devices

The results of the survey indicate that technological applications and resources used are contextually dependent. Participants in this study rarely used online resources for academic purposes. As displayed in Table 2, distinct differences are evident when comparing technology applications and resources based upon use for academic or non-academic purposes.

Table 2. Academic and non-academic frequency of use for technological applications and resources.

Frequencies of use for academic and non-academic technology purposes

Online Resources	Academic				Non-academic			
	Never	Monthly	Weekly	Daily	Never	Monthly	Weekly	Daily
Online T.V.	138	68	19	6	11	36	87	100
Online Music	151	31	23	27	28	25	59	122
Online Storage/ Sharing	76	78	45	34	98	68	37	32
Online Presentation Tools	40	99	60	33	144	48	33	9
Online Photo Sharing Sites	201	23	6	3	163	44	18	10
Online News	59	75	65	33	50	52	62	71
Online Applications								
Email	0	0	18	216	4	14	49	167
Skype / Face Time	179	36	17	0	44	97	68	25
Facebook / Google +	87	46	60	40	19	3	11	199
Linked-In	161	47	17	8	137	49	34	13
Twitter	206	12	11	4	154	16	26	39
SnapChat / Instagram	201	7	7	17	67	14	35	118
Tumblr / Pinterest / Reddit	196	18	13	5	108	37	31	58
Blogs / Wiki spaces	170	34	22	7	145	37	34	19
YouTube	76	89	50	18	8	22	107	98
TED talks	99	103	21	9	72	108	41	12
Google Maps/Earth, GIS, etc.	138	70	14	9	78	90	54	12
Simulations/Games	195	24	8	4	115	49	40	30

Of the emerging adult college students who responded to this survey (N=235), many noted that they never use certain resources for academic purposes, such as online T.V. (N=138, 59%), online music (N=151, 64%), and photo sharing (N=201, 86%); yet, for non-academic purposes these same items are often used daily. This same population reports frequent non-academic use of online TV (43% daily) and online music (52% daily). The most heavily used weekly online academic resources were online news, presentation tools, and storage/sharing, conversely, these were rarely used for non-academic purposes, with the exception of news.

Social media applications such as Facebook, Google+, SnapChat, and Instagram were heavily used for only non-academic purposes. This indicates a preference for keeping social and academic technology use separate. Even YouTube which carries the possibility for instructive purposes was favored as non-academic.

Email is the only application/resource that seems to transcend contextual use boundaries with 92% of students using it daily for academic purposes and 71% for non-academic purposes. It could be argued that contextual boundaries are less evident in this resource because of the prevalence of colleges requiring communication via email, and additionally the rise of mobile devices upon which email can be received.

The results suggest many technological items used are compartmentalized for specific contexts and students struggle to see the usefulness and applications of these resources outside of the assumed parameters in which they are used. Possibly, educators have not broadened students' perspectives by modeling technological usefulness for many resources and application.

4.2 Demographic Variables and Technology Use

The demographics examined for this study were class year, gender, cultural ethnicity and major as noted previously in Table 1. Class year and gender had normal distributions as compared to most liberal arts college campus in northeastern United States. Cultural ethnicity consisted of 78% Caucasian, thus, there was not enough variance to provide significance between participant responses.

Gender impacted the amount of time spent outside of class on academic purposes. Female students spent 14% more hours outside of class weekly on academics than males, with an average of 43.5% of that time using technology. Both males (76%) and females (89%) preferred their actual course texts and non-academic reading to be in print rather than digital format.

Males and females equally ranked in-person communication as their first preference (50% each) for academic communication; however, more females (85%) than males (65%) prefer non-academic communication to be face-to-face. Both males and females ranked email as their next preferred manner to communicate about academics, but for non-academic communication only 2% of males indicated preferring email. Females indicated texting (63%) as their preferred type of non-academic communication.

4.3 Time Spent on Academics as Related to Technology Use

Emerging adults have many activities competing for their time each week. The survey revealed that 59% of students spend between 6 to 15 hours weekly on academics outside of class time (Figure 2).

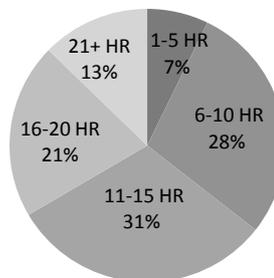


Figure 2. Hours per week spent on academics outside the classroom.

Those same individuals note 50% or more of their academic time involves using technology (Table 3). Another 34% of these emerging adult college students spent 16 or more hours a week devoted to academics outside of classes, and also use technology approximately 50% during those hours. Increases in time devoted to academic purposes are directly associated with technology use.

Table 3. Percentage of Academic Time Involving Technology. Emerging adult students were grouped by the amount of time they recorded spending on academics outside of class. Hours were tallied for how much of that time spent on academics involved the use of technology.

(Academic time outside of class spent using technology)

Per Cent of Academic Time Involving Technology	Group 1 1-15 acad. hrs. (N=73)		Group 2 16-20 acad. hrs. (N=49)		Group 3 21+ acad. hrs. (N=30)	
	%		%		%	
0-25	0	0	0	0	0	0
26-50	16	22	8	16	4	13
51-75	33	46	24	49	15	50
76-100	23	32	17	35	11	37

Many participants spent less than 15 hours a week on academics outside of class (N=73, 31%), however, 78% of that time involved using technology. Those who spent more than 20 hours a week on academics reported using technology 87% of that time. Increased academic time revealed increased technology use.

5. CONCLUSION

One limitation in considering the study results is that these emerging adult college students are centralized on one campus, in one region of the United States, and thus the results are generalized to this specific population or similar sub-populations. Further research is needed with a more diverse group of emerging adults both ethnically as well as from differing regions of the United States and internationally. Such comparison would provide more understanding of developmental appropriateness and technology use with emerging adults.

Frequency patterns for technology use indicate emerging adult students have daily technological connections and that technology plays a role in both academic and non-academic contexts. Some slight differences exist between genders and are less noticeable in regard to class year or major demographics.

This study revealed an important implication for educators of emerging adult college students, survey participants use institution-owned technology devices, specifically college-owned computers or laptops, on a weekly or at least minimally, monthly basis. This serves a social justice purpose. Continuing to offer opportunities for all students to have access to technology enables those who may not otherwise have the resources to utilize technology for learning purposes.

In conclusion, this study revealed the phenomenon that emerging adult technology use is contextualized. These individuals struggle developmentally to transfer their technological abilities from one context to another, and thus, may struggle to conceptualize the academic potential of certain technological resources and applications for academic purposes. The researcher challenges educators of emerging adult college students to discuss technology application with students, and incorporate varied technology into collegiate pedagogical practices.

REFERENCES

- APA Work Group of the Board of Educational Affairs, 1997. *Learner-Centered Psychological Principles: A Framework for School Reform and Redesign*. American Psychological Association, Washington D.C., USA.
- Arnett, J. J., 2000. Emerging Adulthood: A Theory of Development from the Late Teens through the Twenties. *American Psychologist*, 55(5), 469-480.
- Arnett, J. J., 2007. Emerging Adulthood: What Is It, and What Is It Good For? *Child Development Perspectives*, 1(2), 68-73.
- Arnett, J. J., and Schwab, J. 2012. *The Clark University Poll of Emerging Adults: Thriving, Struggling, and Hopeful*. Clark University, Worcester, USA.
- Baker, W. M., et al, 2012. On the Use of Cell Phones and Other Electronic Devices in the Classroom: Evidence from a Survey of Faculty and Students. *Journal of Education for Business*, 87 (5), 275-289.
- Bennett, S., and Maton, K., 2010. Beyond the 'Digital Natives' Debate: Towards a More Nuanced Understanding of Students' Technology Experiences. *Journal of Computer Assisted Learning*, 26, 321-331.

- Busha, C. H., and Harter, S. P., 1980. *Research Methods in Librarianship: Techniques and Interpretation*. Academic Press, Orlando, USA.
- Cassidy, E. D., et al, 2011. Higher Education and Emerging Technologies: Student Usage, Preferences, and Lessons for Library Services. *Reference & User Services Quarterly*, 50, 380-391.
- Dahlstrom, E., et al, 2013. *ECAR Study of Undergraduate Students and Information Technology (Research Report)*. Louisville, CO: EDUCAUSE Center for Analysis and Research, available from <http://educause.edu/ecar>.
- D'Angelo, J. M., and Woosley, S. A., 2007. Technology in the Classroom: Friend or Foe. *Education*, 127(4), 462-471.
- Flowers, S. M., 2014. A Philosophy for Teaching and Learning in Emerging Adulthood. *New Horizons for Learning*, 11(1), 1-8.
- Geng, G., 2013. Investigating the Use of Text Messages in Mobile Learning. *Active Learning in Higher Education*, 14(1), 77-87.
- Gonzalez-DeHass, A. R., and Willems, P. P., 2013. *Theories in Educational Psychology: Concise Guide to Meaning and Practice*. Rowman & Littlefield. Lanham, USA.
- Gorra, A. et al, 2010. Learning with Technology: What do Students Want? *Proceedings of the European Conference on e-Learning*. Porto, Portugal, pp. 126.
- Jackson, L. D., 2013. Is Mobile Technology in the Classroom a Helpful Tool or a Distraction?: A Report of University Students' Attitudes, Usage Practices, and Suggestions for Policies. *The International Journal of Technology, Knowledge, and Society*, 8, 129-140.
- Koehler, M. J. et al, 2013. What is Technological Pedagogical Content Knowledge (TPACK)? *Journal of Education*, 193(3), 13-19.
- Levine, A., and Dean, D. R., 2013. It's Only Technology if it Happens After You Are Born. *The Journal of College Admission*, 220, 6-12.
- Morgan, G., 2003. Faculty Use of Course Management Systems 2. Available at: <https://net.educause.edu/ir/library/pdf/ers0302/rs/ers0302w.pdf>. June 2013.
- Owston, R., 2006. Contextual Factors that Sustain Innovative Pedagogical Practice Using Technology: An International Study. *Journal of Educational Change*, 8, 61-77.
- Pitler, H., et al, 2007. *Using Technology with Classroom Instruction That Works*. Association for Supervision and Curriculum Development, Alexandria, USA.
- Prensky, M., 2010. *Teaching Digital Natives: Partnering for Real Learning*. Corwin, Thousand Oaks, USA.
- Sherer, P. and Shea, T., 2011. Using Online Video to Support Student Learning and Engagement. *College Teaching*, 59(2), 56-59.
- Subrahmanyam, K., et al, 2008. Online and Offline Social Networks: Use of Social Networking Sites by Emerging Adults. *Journal of Applied Developmental Psychology*, 29, 420-433.
- Tapscott, D., 1998. *Growing Up Digital: The Rise of the Net Generation*. McGraw Hill, Cambridge, USA.
- U.S. Department of Education, National Center for Education Statistics, 2012. *Digest of Education Statistics, 2011*, Chapter 3, Table 220.
- Vygotsky, L. S., 1978. *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press, Cambridge, USA.
- Weller, M., 2007. *Virtual Learning Environments: Using, Choosing and Developing Your VLE*. Routledge, London, UK.