

Reaching and Retaining the Next Generation: Adapting to the Expectations of Gen Z in the Classroom

Dana Schwieger
dschwieger@semo.edu

Christine Ladwig
cladwig@semo.edu

Department of Accounting
Southeast Missouri State University
Cape Girardeau, MO 63701, USA

Abstract

As the next generation of college students prepare to embark on institutions of higher education, colleges and universities are faced with significant budget cuts and state expectations for increased fiscal efficiencies and student graduation rates. A greater emphasis is being placed on improving methods for attracting new students and retaining those who are already enrolled. Institutions should examine characteristics of each phase of the process, including input, in process and output, in order to better attract and equip students to meet employer expectations. With these objectives in mind, this article examines current research on the characteristics of "Generation Z"—defined as individuals born between 1996 and 2012—as well as the employers' expectations of these technologically astute Post-Millennials. A model and recommendations are proposed to aid higher education efforts in attracting, preparing and retaining students for their future careers.

Keywords: Generation Z, Attract, Retention, Career Development, Teaching Strategies

1. INTRODUCTION

In 2007, Beard, Schwieger and Surendran examined the characteristics and educational nuances required to effectively educate incoming classes of millennial generation students. The authors found this group—comprised of individuals born between the early 1980s to mid-1990s—to have characteristics such as a sense of entitlement, a desire for customization and availability on demand, and a preference for immediate benefits. Generation "Y"ers also appear to be savvy technology multitaskers, are team oriented, and have a preference for hands-on activities. Millennials may be skeptical of the perceived "establishment," value peer opinions,

show confidence in decision making, and possess a desire to make a difference in the world. Now, almost a decade later, colleges and universities face another set of unique characteristics and expectations as Generation Z— individuals born between 1996 and 2012—begins to descend upon campuses. Just like their Millennial predecessors, Gen Z has been raised with technology easily accessible; however, the level at which technology has been incorporated into their everyday lives has been unlike that of any prior generation. This article examines the characteristics of Generation Z and their personal expectations, as well as the expectations of their future employers and what colleges and

universities can do to better prepare these students for the challenges ahead.

2. GENERATION Z

When discussing the upcoming generation born between 1996 and 2012, authors have referred to Generation Z as Tweens, Baby Boomers, The Founders, Plurals, Homeland Generation, Generation 9/11, iGeneration and Post-Millennials (Merriman, 2015; Williams, Page, Petrosky & Hernandez; 2010). As might be expected from the diversity in monikers Generation Z has garnered, researchers are just beginning to examine and understand the nature and characteristics of this demographic cohort.

Gen Z Background

The world in which Gen Zers have been raised has been fraught with political tension, violence and societal instability post-9/11. Gen Zers have never known a world in which they could not instantly connect and have information and communication channels immediately at their fingertips. Thus, many in this generation prefer to socialize online rather than face-to-face, a change which is both positively and negatively affecting society.

A number of institutions are beginning to publish studies on this upcoming generation. Better understanding of the perspectives and expectations of Generation Z members is a key to aiding them in planning for successful futures. The following sections examine some of the generational characteristics identified in these studies.

Ernst and Young (EY) Reports on Gen Z

In 2016, Ernst and Young surveyed 3,200 Gen Zers in the countries of Brazil, China, Germany, India, Japan, Mexico, the UK and the US, to learn more about the next generation of workers (Ernst & Young, 2016). Some of the population characteristics they identified are described below.

Trust and Fairness: Researchers found that Gen Z members value “employers that provide equal opportunity for pay and promotion, along with opportunities to learn and advance professionally.” Gen Z respondents cited their most important characteristics associated with future employers to include: treating people with respect, ethical behavior, fair compensation and promotion across all employees, open and transparent communication, and wise business decision-making.

However, 11% of global respondents and 18% of those from the U.S. indicated that their caretakers’ work experience had a “very or somewhat negative” impact on the level of trust they would place in future employers. They noted employment factors such as poor quality of raises, a dislike of job, or a dislike or distrust of boss, colleagues or top level executives (Ernst & Young, 2016).

Online and Personalized: In a second survey conducted by EY, the researchers surveyed 1000 adults and 400 teens to examine the mindset behind changing consumer behavior between Millennials and Post-Millennial Gen Z members (Merriman & Valerio, 2016). Although the study focused on retail consumption, the concepts can also apply to the consumption of educational resources.

The researchers found that Gen Zers desired more personalized micro-experiences and felt like “anything is possible” (Merriman, 2015). They also were more prone to purchase products online due to ease, efficiency, convenience, better selection, and lower prices (Merriman & Valerio, 2016). In addition, they expected their shopping experiences to be intuitive, seamless and error-free.

Entrepreneurial and Self-Sufficient: The researchers found Gen Z members to be very entrepreneurial, self-educated and self-sufficient; relying more on self-service tools to research products, as opposed to seeking an interaction with experts. This generation grew up having access to search engines and the habit of finding information for themselves. However, the authors further noted that coupling technology with physical location to meet functional needs and provide personal enjoyment could play a large part in re-establishing an emotional connection (Merriman & Valerio; 2016; 3).

Connected: In a report focusing upon Media and Entertainment (ME) conducted in 2016, EY found that 91% of teens studied have access to a smartphone, 69% have access to a tablet, and 90% watch YouTube daily (Ernst & Young, M&E, 2016). They also noted that Gen Zers are the most willing group to provide personal data, provided they receive something of value in return (i.e. personalized experience). They value seamless experiences and “engagement that builds into ongoing relationships” (Ernst & Young, M&E, 2016).

Immersive Storytelling: EY researchers noted that media companies (i.e. NBC Universal’s Syfy

Channel) are collaborating with technology companies (i.e. Phillips) to integrate programming with Internet of Things (IoT) devices to provide a more immersive entertainment experience. The fact that Gen Zers value storytelling, as well as the integration of IoT devices, introduces another dimension (Ernst & Young, M&E, 2016).

Self-sufficient: In a 2015 study for EY examining the characteristics of Gen Z, Merriman found the generation to be self-aware, self-learners, self-reliant and entrepreneurial. Other characteristics included persistent, realists, innovative and carrying a desire to make things happen—like betterment of the environment (Merriman, 2015).

2015 Cassandra Report

In their 2015 Cassandra Report on Gen Z, Deep Focus interviewed 902 respondents between the ages of 7 and 17. The Deep Focus group found similar results to those of Merriman (2016).

Tenacious: Gen Zers are pragmatic. They realize that life will not always be easy, and that they are very likely to experience significant failure (71%) before achieving success; 40% viewed failure as an opportunity to try again (Deep Focus, 2015).

Skill Focused: Gen Zers realize the importance of building skills at a young age—89% of those surveyed indicated that part of their free time activities were devoted to productive and creative endeavors, rather than just “hanging out.” Approximately 62% of respondents indicated a desire to be entrepreneurs, rather than working for established companies. Thus, due to their practical, forward-thinking mindset, many were developing skills in business (58%), graphic design (51%), video production (50%), and app development (50%) (Deep Focus, 2015).

In their advertising preferences, Deep Focus found similar results as Ernst and Young in that Gen Zers are interested in narratives and content using real people with realistic themes (2015). They also prefer their favorite brands communicate to them through YouTube than through other social media sites.

JWT Report

Digitally Connected: In 2012, Marketing Communications Company J. Walter Thompson Worldwide (JWT) examined the attitudes and tech habits of 200 tweens (8 – 12 years old), 200 teens (13 – 17 years old) and their parents in the U.S. and U.K. Approximately 90% would be

reluctant to give up their Internet connection, and many of those respondents also valued their online connections more highly than real activities such as movies or eating out (JWT, 2012). Over 50% of the respondents indicated that it was easier to communicate digitally with friends and 40% were more comfortable talking online than in real life.

Beal’s Report on Gen Z

Self-Starters: Beal (2016) compared Gen Zers to Millennials, and described them as living in a “world of continuous updates” which might attribute in the negative to their lower attention spans, but in the positive, to a better ability to multitask. Beal also noted that they are early starters and are predicted to go straight into the workforce rather than taking the traditional path of finishing high school and moving on to a college degree. They are more likely to attend school online and, due to their independence, lean toward what they want to know on their own. Many (40%) identify themselves as digital device addicts and 92% have a digital footprint (Beal, 2016). Gen Zers seek uniqueness in all walks of life, especially their digital identity (Beal, 2016).

Adobe Study

In a 2016 study presented at EDUCAUSE2016, Adobe summarized findings of a survey conducted with 1000 U.S. students between the ages of 11 and 17 and 400 teachers of Gen Z. Both students (78%) and teachers (77%) surveyed felt that Gen Zers learned best by creating and hands-on experiences. In addition, 60% of the educators tried to incorporate more hands-on learning in their classrooms and 52% hoped to “evolve the teaching curriculum” (Morey & Mouratis, 2016). The five overall insights that Adobe emphasized from their study were:

1. Gen Z students see tech and creativity as important and intersecting aspects of their identities.
2. Gen Z students are excited but nervous for their futures. They do not feel fully prepared for the “real world”.
3. Gen Z members learn best by doing and creating, and that students and teachers alike want more focus on creativity.
4. Creativity will play a critical role in the future workforce.
5. Technology will set Gen Z apart in the future workforce. (Adobe Gen Z Report, 2016)

The Center for Generational Kinetics Study ongoing research into Gen Z has defined them as being “self-aware, self-reliant, innovative and

goal oriented.” They also note that Gen Z is very adept at learning things on their own using “we-based” research resources. They place a priority on how fast they can find the right information, rather than on actually knowing the right information. They also want to make a decent living working for a stable employer and have already started making plans for the future (TeamCGK, 2017).

Northeastern University Study

In a study conducted for Northeastern University of 1,015 Gen Zers in 2014, the study found that Gen Zers are:

- Self-starters with a strong desire to work for themselves, learn about entrepreneurship, and design their own programs of study in college;
- Self-directed and certain about the importance of higher education in achieving their goals;
- Concerned about their financial futures including the cost of college and accumulating student loan debt;
- Believe that college should provide some form of professional experience such as internships with employers;
- Have somewhat modest enthusiasm for technology, particularly with higher education—52% of those surveyed indicating that they felt an online degree would be accepted the same as a traditional degree; and
- Highly progressive when it comes to social policy. (Northeastern, 2014).

Other Gen Z Research

David and Jonah Stillman (2017) found Gen Z to be independent and competitive, and cognizant that they will have to pay their dues by starting at the bottom of a company and working their way up. They are also loyal with 60% of Gen Zers surveyed willing to stay at a company for at least 10 years. More than half would like to write their own job description, thus reflecting the bent towards personal customization noted in other studies (Stillman & Stillman, 2017).

Monster.com: A study by employment website Monster.com found Gen Zers to be ambitious and self-reliant. Monster’s study found that 76% of Gen Zers had an entrepreneurial focus, envisioning themselves as driving their own careers and advancement. Gen Z was found to share many characteristics with the Boomer generation (early 1940s to early 1960s) in terms of expecting to work hard, saving toward the future, and valuing security and respect. Because

Gen Zers are technologically savvy and accustomed to being “always on”, they have an interest in determining their own schedules and creating their own career paths (Monsters, 2016).

Characteristic	Research
Creative	Adobe, 2016 CGK Study, 2017
Entrepreneurial	Beal 2016 Cassandra Report 2015 CGK Study, 2017 EY 2016 (M&E Report) Monster, 2016
Fairness	EY 2016
Goal-Oriented	CGK Study, 2017 Stillman & Stillman, 2017
Hands-On Experiences	Adobe, 2016
High Expectations	Beal 2016; EY 2016 (Merriman & Valerio)
Multitasking	Beal 2016, Merriman, 2015
Personalized Microexperiences	Beal, 2016 CGK Study, 2017 Merriman 2015 Monster 2016 Stillman & Stillman, 2017
Pragmatic	Cassandra Report 2015 EY 2016
Self-Informed	Beal, 2016; CGK Study, 2017 Merriman, 2015
Self-Reliant	Beal 2016 CGK Study, 2017 EY 2016 (M&E Report) Monster 2016 Stillman & Stillman 2016 EY 2017 (Merriman & Valerio)
Skill-focused	Cassandra Report 2015
Social-Media Connections	Cassandra Report 2015 CGK Study, 2017
Storytelling	Adobe Report Cassandra Report 2015 EY 2016 (M&E Report) Morey & Mouratis, 2016
Trust	EY 2016
Workplace Advancement	EY 2016 CGK Study, 2017

Table 1 Gen Z Characteristics

Overall Findings

In examining the published literature to compile a list of characteristics (Table 1), several themes seemed to surface about Gen Zers:

- They value hard work that is duly rewarded.
- They are independent, resilient and realize they must work hard to achieve.
- They value trust, fairness, loyalty and respect from their employer.
- They are ambitious, self-starters and entrepreneurial.
- They are creative and appreciate personalization.
- They plan for the future and are willing to learn on their own.

As this population of students begin to think about entering higher education or the work force, colleges and universities need to prepare to attract, retain and educate the students to fill employer needs. The next section examines the skills emphasized and sought by employers of current and future graduates.

3. TOP SKILLS SOUGHT BY EMPLOYERS

Research indicates that employers for IT positions value both IT and non-IT graduates due to the lack of qualified IT-based applicants. Skill sets sought by employers include a mix of both technical skills and soft skills (Half, 2017). The U.S. Bureau of Labor Statistics identified the following skills as important to someone seeking a job in software development: analytical, ability to communicate, technical, creativity, detail oriented, concentration, interpersonal and problem-solving skills (BLS, 2017).

A 2017 study by Robert Half Technology noted that tech employers place significant value on mathematics and problem-solving skills (36%), business or marketing skills (31%), and soft skills and critical thinking capabilities (22%) (Half, 2017). In a study of 2500 CIOs from the U.S., respondents indicated that the skill sets in greatest demand in their organizations were database administration (41%) followed by desktop support and network administration (42%). The same study surveyed 270 Canadian CIOs who indicated that the skills in greatest demand in their organizations were network administration (62%), database management (61%) and wireless network management (58%) (SIA, 2017).

NACE, the National Association of Colleges and Employers, provides college career centers with

research and information regarding employment of the college educated, hiring forecasts, and recruiting and employment practices. (Gray, K. & Koncz, 2017). In collecting data for their Job Outlook 2017 report, NACE compiled results from 169 surveys completed from employers between August 5, 2016 through October 4, 2016. The respondents indicated that the top three attributes sought in new hires included: the ability to work in a team (78% of respondents), problem-solving skills (77.3%), and written communication skills (75%). (See Table 2.)

Concern has been raised across the U.S. about college graduate career readiness and skills gaps (Hora, 2017). In a two-year study collecting interview data from 17 institutions and 52 companies, Hora (2017) attempted to unearth the skills and career competencies sought by employers to address the skills gap. Employers identified the composite "ideal" employee as someone who is hard-working and possessing knowledge, technical abilities and hands-on experience; a problem-solver; good communicator; able to work in teams; able to adapt to new situations; and a willingness to commit to lifelong learning (Hora, 2017).

Skill	Interest
Ability to work in a team	78.0%
Problem-solving skills	77.3%
Communication skills (written)	75.0%
Strong work ethic	72.0%
Communication skills (verbal)	70.5%
Leadership	68.9%
Initiative	65.9%
Analytical/Quantitative skills	64.4%
Flexibility/Adaptability	63.6%
Detail-oriented	62.1%
Interpersonal skills (relates well to others)	58.3%
Technical skills	56.8%
Computer skills	49.2%
Organizational ability	47.7%
Strategic planning skills	37.9%
Friendly/Outgoing Personality	25.8%
Tactfulness	25.8%
Creativity	21.2%
Entrepreneurial Skills/Risk-Taker	19.7%
Fluency in a foreign language	4.5%

Table 2 – Graduate Skills Preference
(Source: Job Outlook 2017, NACEWEB)

Hora (2017) also noted that some of the methods used to address identified skills gaps include: development of new academic programs for "high-demand" jobs (i.e. nursing and computer

programming); internships; skills-based boot camps; and alternative credentialing such as badges and certifications (Hora, 2017). In addition, knowledge is being gleaned through cross-sector partnerships with employers as gathered through their involvement in curriculum advisory boards and course curricula design (i.e. providing class projects oriented toward researching and solving employer problems) (Hora, 2017).

Several of these same skills were noted in research published in Forbes surveying 100 top HR managers, recruiters, and CEOs (Beason, 2017). Similar to previous studies, the author found that the most important skills for entry level job seekers were still the traditional soft skills including leadership, communication and collaboration (Beard, et al., 2008). However, additional skills that were noted (and mentioned by technology employers) included: trust (Prezi) attention to detail, conscientiousness, time management, follow-through (Updater), the ability to prioritize, curiosity, commitment to continuous learning, agility and adaptability (Adobe), ability to overcome under pressure (Adobe), and humility (Beason, 2017). In the next section, the authors propose two models for examining the skills sought by employers in light of the characteristics of the students and the educational requirements of the program.

4. SKILLS DEVELOPMENT MODEL

Providing educational value for both students and employers is important in maintaining ongoing growth for college and university programs. However, the value of the traditional four-year education is being called to question (Hora, 2017). In light of the characteristics of students currently entering college age classes, coupled with the expectations of the employers, the authors propose a skills-based infrastructure model (Figure 1) to attempt to bridge the skills gap to attract, retain, and prepare Gen Z for future employers—while, at the same time—maximizing utilization of computer science program resources. In developing the strategies, the authors utilized the input processing output (IPO) model to correlate characteristics.

IPO Characteristics: In comparing the expectations of employers with the characteristics of Gen Z, there is an overlap of skills that may be enhanced through the educational process. The underlying thought behind the IPO model in Figure 2 is that students (input) come with several desirable characteristics and personality traits. In the

process of educating the students, higher learning institutions can build upon and enhance those characteristics (processing) in order to prepare the program graduates to better meet the expectations sought by future employers (output). Figure 2 shows the correlation of the summarized characteristics at each phase of the IPO educational framework.

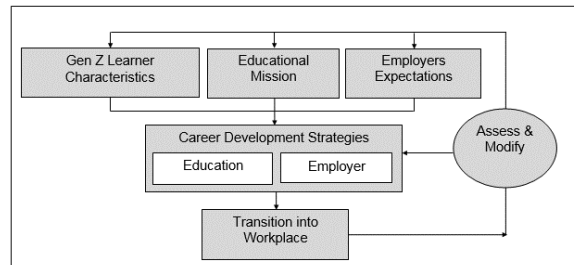


Figure 1 - Skills-based Infrastructure Model

In light of the IPO characteristics (Figure 2) and the skills-based infrastructure model (Figure 1), the next section offers program attraction and retention strategies (lower portion of Figure 2) to address the characteristics and personality traits present in Gen Z and desired by employees (Figure 2).

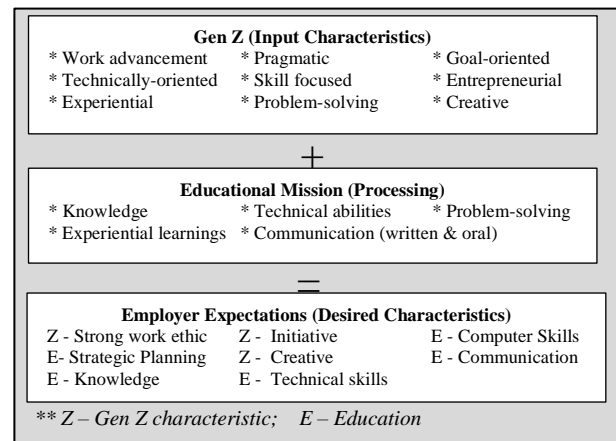


Figure 2 – Skills IPO Model

5. PROGRAM ATTRACTION AND RETENTION STRATEGIES

The research indicates that Gen Zers are self-starters, appreciate skills that are valued, have a long term focus, and are hard workers who are willing to learn on their own. In light of these characteristics, there are many strategies that programs may consider initiating to enhance their programs (Hora, 2017).

Attracting Students

Storytelling: Research indicated that Gen Z students are interested in the stories of their peers and that they prefer to get some of their information through YouTube. To attract students, programs can regularly develop and rotate through student video stories on their web site. These stories can focus on topics such as a student's internship, a competitive event, student organizations, a first year experience, or a graduate's first job or career path. Many universities are doing this at the institution or college level, but finding resources to provide this resource at the program level may be more difficult. Institutions' public relations departments may be able to provide a script, template or editing resources to help programs create their own videos.

High School Focus: Gen Z students are future focused and driven. Programs need to get their attention early by participating in high school events such as campus visits, regional high school competitive events, or assisting with corporate STEM-based initiatives. Because Zers prefer peer based information, hands-on experience and stories, providing prospective Gen Zers with opportunities to interact with current students may be beneficial. Several corporations have implemented STEM-based initiatives such as Microsoft's DigiGirly, Lockheed Martin's GMIS (Great Minds In STEM) and Boeing's STEM Saturday aimed at young Gen Z girls. These corporations may have opportunities for college representatives to assist with events.

Early Program Interaction: Develop a freshmen level general studies course in which students are introduced to the computer science major or gain hands on skills in app development early. Such an introduction may draw students from other areas of the institution to select computer science as a major or minor, as well as develop a relationship with students who had already intended to take a computer science major.

Minors, Concentrations or Certificate Programs could be developed in cooperation with programs outside the computer science area to build upon the early program connection. Gen Zers are described as being very creative and entrepreneurial-focused. Researching possible concentration areas (i.e. entrepreneurship and arts programs, as Gen Zers exhibit these characteristics) may bring to light untapped student populations already associated with the institution. The authors' institution has worked with departments across campus to create new

minor variants in business, math and entrepreneurship.

Employer Involvement in Curriculum Development: Hora (2017) noted that educational institutions are involving employers in programs through advisory boards, internships, curricula development, and classroom projects. Such involvement could correlate with Gen Z's goal orientation and future focus. The authors' institution has an advisory board that meets on a regular basis. Members of the board provide curricula input, serve as program sounding boards, offer classroom projects, provide internships, speak in classes and provide factory tours.

Career Development Strategies

These strategies focus upon the processing step of the model and are developed based upon the mission of the educational institution and influenced by the characteristics of the students and the expectations of the employers. Freeman, et al. (2014) published a meta-analysis of 225 studies comparing student performance in STEM courses utilizing traditional lecture versus active learning styles. The authors found that "average examination scores improved by about 6% in active learning sections" (Freeman, et al., 2013). The following are suggestions that could be incorporated into computer science programs and classrooms to attract, engage and retain students.

Experiential Learning Opportunities: Through co-ops, internships and classroom projects, Gen Zers gain hands-on experience, as well as develop important skills including those that are technically-oriented, collaborative and group centered work skills, analytical, problem solving, the ability to follow-through, coping, as well as oral and written communication skills. The authors' institution has had an on-going initiative to provide students with immersive experiences such as corporate sponsored group projects, internships, externships, corporate guest speakers, and participation in competitive events.

Online or Blended Courses: Gen Z students are self-starters who do not mind learning topics on their own. Online technology courses taught by adjunct professionals or current courses taught in a blended online/face-to-face format, may help to attract students while not significantly draining current resources. The authors' university is providing an increasing number of classes offered in multiple formats.

Competitive Events: Holding competitions such as hackathons or app development contests will challenge students as well as address their need for a personalized experience. Participation in collegiate level competitions also allows students to practice their skills and interact with like-minded students and professionals. The authors' institution encourages students to be involved in student organizations that participate in state, regional and national level competitions such as the Midwest Regional Collegiate Cyber Defense Qualification Competition and Phi Beta Lambda/FBLA.

Boot Camps: Gen Zers are self-starters who are interested in learning on their own. Boot camps, short run classes, or concentrated programs, similar to LaunchCode, can be developed to attract students from outside computer science majors to build their computer science skills. Certificates of completion may be provided to students to add to their professional portfolios, or designations may be provided on graduation diplomas.

Certificates and Badges: Gen Zers are driven individuals who expect to work hard and be rewarded for their efforts. They are also interested in technology and willing to learn on their own. Computer science programs can develop short online, face to face, or self-paced workshops utilizing homegrown materials, Massive Open Online Courses (MOOCs), certificate preparation resources, or some other pre-developed materials to encourage students to further their development on their own and to receive recognition for their work.

Professional Certification Programs: Encouraging students to prepare for professional certification exams as well as providing resources and recognition of their accomplishments addresses Gen Zers entrepreneurial bent and goal orientation. The authors' institution offers students opportunities to prepare and sit for Microsoft Office certifications.

Assess and Modify: As attraction, retention and development strategies are employed, programs need to evaluate their effectiveness to determine how they can be improved (Figure 2). Soliciting feedback from stakeholders including faculty, students, employers, recent graduates, admissions office personnel and high school career counselors may provide direction for enhancing and further developing recruitment, retention, and education efforts.

6. CONCLUSION

In this paper, the authors review relevant literature relating to the characteristics of Generation Z and the expectations of potential employers. A model is proposed that attempts to correlate those skills and expectations in order to generate course and program recommendations to attract, retain and guide students to prepare for their future careers.

7. REFERENCES

- Adobe (2016). Gen Z in the Classroom: Creating the Future. Retrieved June 10, 2017 from <http://www.adobeeducate.com/genz> Accessed on May 26, 2017.
- Beal, G. (2016). 8 Key Differences between Gen Z and Millennials. Retrieved April 28, 2017 http://www.huffingtonpost.com/george-beall/8-key-differences-between_b_12814200.html .
- Beard, D. Schwieger, D. & Surrendran, K (2008). Bridging the Academic / Industrial Chasm for the Millennial Generation. *Information Systems Education Journal*, 5 (33), 3-15.
- Beard, D. Schwieger, D. & Surrendran, K (2010). A value Chain Approach for Attracting, Educating, and Transitioning Students to the IT Profession. *Information Systems Education Journal*. 8(7) 3-12.
- Beaton, C. (2017). Top Employers Say Millennials Need These 4 Skills in 2017. *Forbes*. Retrieved September 2, 2017 from <https://www.forbes.com/sites/carolinebeaton/2017/01/06/top-employers-say-millennials-need-these-4-skills-in-2017/#4bc904267fe4>
- Bureau of Labor Statistics (2017). Software Developers. *Occupational Outlook Handbook*, Retrieved September 2, 2017. <https://www.bls.gov/ooh/computer-and-information-technology/software-developers.htm#tab-4>
- Deep Focus (2015). Deep Focus Cassandra Report: Gen Z Uncovers Massive Attitude Shifts Toward Money, Work and Communication Preferences. Retrieve on April 28, 2017 from <http://www.marketwired.com/press-release/deep-focus-cassandra-report-gen-z-uncovers-massive-attitude-shifts-toward-money-work-2004889.htm>

- Ernst & Young Report (2016). From Innovation to Expectation – How M & E Leaders are Responding to Gen Z. Accessed April 28, 2017 from [http://www.ey.com/Publication/vwLUAssets/ey-media-entertainment-leaders-respond-to-gen-z/\\$FILE/ey-media-entertainment-leaders-respond-to-gen-z.pdf](http://www.ey.com/Publication/vwLUAssets/ey-media-entertainment-leaders-respond-to-gen-z/$FILE/ey-media-entertainment-leaders-respond-to-gen-z.pdf)
- Freeman, S. Eddy, S., McDonough, M. Smith, M. K., Okoroafor, N., Jordt, H. & Wenderoth, P. (2014). Active Learning Increases Student Performance in Science, Engineering, and Mathematics. *Proceedings of the National Academy of Sciences of the United States of America*. 111(23), 8410-8415.
- Half, R. (2017). How to Get a Job in IT Without a Tech Degree. Retrieved Sept. 1, 2017 from <https://www.roberthalf.com/blog/job-market/how-to-get-a-job-in-it-without-a-tech-degree>
- Hora, M. T. (2017). Beyond the Skills Gap. NACEWeb Retrieved May 23, 2017 from <http://www.naceweb.org/career-readiness/trends-and-predictions/beyond-the-skills-gap/>
- JWT Intelligence (2012). Gen Z: Digital in their DNA. Retrieved April 28, 2017 from <https://www.jwt.com/en/worldwide/news/genzdigitalintheirdnastudyexaminesattitudesandtechhabitsofteensandtweensandtheirparents/>.
- Merriman, M. (2015). What if the Next Big Disruptor Isn't a What but a Who? Ernst & Young. Retrieved April 28, 2017 from [http://www.ey.com/Publication/vwLUAssets/EY-rise-of-gen-znew-challenge-for-retailers/\\$FILE/EY-rise-of-gen-znew-challenge-for-retailers.pdf](http://www.ey.com/Publication/vwLUAssets/EY-rise-of-gen-znew-challenge-for-retailers/$FILE/EY-rise-of-gen-znew-challenge-for-retailers.pdf)
- Merriman, M. & D. Valerio (2016). One Tough Customer: How Gen Z is Challenging the Competitive Landscape and Redefining Omnichannel. Ernst & Young Report. Accessed April 28, 2017.
- Monster Worldwide, Inc. (2016). Move over Millennials: Gen Z is about to Hit the Workforce. *PR Newswire*. Retrieved May 27, 2017 from <http://www.prnewswire.com/news-releases/move-over-millennials-gen-z-is-about-to-hit-the-workforce-300319567.html>
- Morey, S. & Mouratis, J. (2016). New Adobe Study Shows Gen Z Students and Teachers See Creativity as Key to Success. *Adobe Press Release*. Retrieved on May 26, 2017 from <http://news.adobe.com/press-release/creative-cloud/new-adobe-study-shows-gen-z-students-and-teachers-see-creativity-key>
- Gray, K. & Koncz, K. (2017). Employers Seek Teamwork, Problem-Solving Skills on Resumes. *NACEWeb*. Retrieved June 10, 2017 from <http://www.naceweb.org/about-us/press/2017/employers-seek-teamwork-problem-solving-skills-on-resumes/>
- Northeastern University (2014). Meet Generation Z Retrieved on May 26, 2017 from http://www.northeastern.edu/innovationsurvey/pdfs/Innovation_Summit_GenZ_PollRes_KeyMess.pdf
- CGK - The Center for Generational Kinetics (2016). Top 10 gen Z and iGen Questions Answered. Retrieved May 26, 2017 from <http://genhq.com/igen-gen-z-generation-z-centennials-info/> Accessed.
- Staffing Industry Analysts (2017). IT Hiring in US to Slow in First Half of 2017, Robert Half Survey Finds. Retrieved Sept. 1, 2017 from <http://www2.staffingindustry.com/eng/Editorial/IT-Staffing-Report/Jan.-5-2017/IT-hiring-in-US-to-slow-in-first-half-of-2017-Robert-Half-survey-finds>.
- Stillman, D. & J. Stillman (2017). *Gen Z @ Work*. HarperCollinsPublishers, New York.
- Team CGK (2017). New National Study: The State of Gen Z 2017. Retrieved May 26, 2017 from <http://genhq.com/new-national-study-state-gen-z-2017/> .
- Williams, K. C., Page, R. A., Petrosky, A. R., & Hernandez, E. H. (2010). Multi-generational Marketing: Descriptions, Characteristics, Lifestyles, and Attitudes. *The Journal of Applied Business and Economics*, 11(2), 21-36.