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## Rethinking Assessment: Understanding how the Millennial Generation Learns in the College Classroom

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## **Rethinking Assessment: Understanding how the Millennial Generation Learns in the College Classroom**

### **Abstract**

This paper will explore a number of profiling issues presented by the millennial generation, the nature of their challenges in learning, and the concomitant challenges in current teaching and assessment efforts. Significant implications for the future will be discussed, such as strategies for a classroom setting, listening to today's students and constantly updating our teaching methodologies.

### **Keywords**

Millennial, learning, assessment, teaching methods

## *Rethinking Assessment: Understanding How the Millennial Generation Learns in the College Classroom*

**Joseph R. Stasio Jr.<sup>1</sup>**

This paper will explore a number of profiling issues presented by the millennial generation, the nature of their challenges in learning, and the concomitant challenges in current teaching and assessment efforts. Significant implications for the future will be discussed, such as strategies for a classroom setting, listening to today's students and constantly updating our teaching methodologies.

The Millennial Generation is most commonly described as the cohort born between the years 1980 and 2000. Neil Howe and William Strauss in their book, *Millennials Rising: The Next Great Generation* (2000), identify such key elements of Millennials' behavioral traits as:

- Special
- Sheltered
- Confident
- Team-Oriented
- Conventional
- Pressured
- Achieving

As Millennials struggle to find their place in society, these traits serve as a guide to identify certain behaviors. They are also important because when profiling generational cohorts, several overlapping processes help to contextualize their development. Scott Keeler and Paul Taylor discuss these in, *The Millennials*, (2009). The Life Cycle Effect is described as the biological impact of aging and the roles people play as they age, typically producing changes in attitudes and social behavior. In short, young people may be different from older people today, but they may well be more like them tomorrow as a result of the aging process. In contrast, the Cohort Effect is the byproduct of the unique historical circumstances that members of an age cohort experience during adolescence and young adulthood. The awareness of the wider world deepens and personal identities and value systems become strongly shaped. The unique nature of the times is imprinted on each successive age cohort, producing differences that persist even as cohorts mature and move through the life cycle.

Period Effects also contribute to the maturation process. These include the generational influence of major events like wars, social movements, and scientific and technological breakthroughs. While Period Effects have a simultaneous impact on all age

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cohorts, their impact is often greatest on young people because their values and habits may be relatively less established. It is no wonder that the values of the 21<sup>st</sup> century are shifting, given the influence of internet technology like social and mobile media, which are having a profound effect on the way Millennials perceive living, learning, and working. What does a typical profile of the Millennial look like? According to surveys done by Pew Research Center, Marsha Fralick (2010) presents the following overview:

- Members of the New Millennial Generation see their generation as unique. Of this group, 54% have tattoos; hair dyed an unnatural color, or a body piercing other than their ear lobe.
- Their top goals are fame and fortune. They are more likely to admire an entertainer than a politician.
- This generation was born with technology in the home and uses it daily. Each day 50% send a text message, 29% use instant messaging, and 39% use Facebook.
- This generation uses technology to maintain contact with family and friends. Every day 42% talk to a parent by phone. They are still financially connected to their parents with 75% saying that parents helped them financially in the past year.
- 87% say that technology makes them lazier.
- 75% believe technology makes people more isolated.
- 67% think it makes people waste time.

In short, Millennials are engaged, empowered, and entitled. They are the most diverse generation in the history of the developed world, marked by social awareness and who seek to change the world. As a generation marked by a mix of ambition and practicality with a solid underpinning of values, they will surpass previous generations in influence, spending power, and wealth, if, for no other reason, by virtue of their size and value. (asterixgroup.com 2012). Historically, they represent a unique combination of traits from all previously studied cohorts.

## I.

### **Millennial Students**

How does this profile translate into depicting a typical millennial student?<sup>2</sup> In their new book, *Academically Adrift, Limited Learning on College Campuses*, Richard Arum, a professor of sociology and education at New York University and Josipa Roska, a professor of sociology at the University of Virginia, discuss their findings after studying 2,300 students at two dozen universities. One major conclusion is that 45 percent of participants demonstrated no significant gains in critical thinking, analytical reasoning, and written communications during the first two years of college. Of course, this finding invites speculation as to what transpired in the students' final two years of study. Arum and Roska

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<sup>2</sup> It is important to note that although the traits identified in the profile represent the generation of Millennials, there are many individual differences among these same students.

(2011) found that students sampled don't study much. Fifty two percent reported studying two hours or less per week. As reported by Arum and Roska, many are thought to be unrepentant slackers, tied to their cell phones and FaceBook pages or on their way to another party. Thirty-two percent did not take any courses with more than 40 pages of reading per week in a typical semester. More than 50 percent did not take a single course in which they wrote more than 20 pages over the course of the semester.

Michael Mascolo, a professor of psychology at Merrimack College, in *The Origins of Underperformance in Higher Education I: Proximal Systems of Influence* (2012) identifies some of explanations for this phenomenon. Contemporarily, economic pressures and academic commercialization abound; specialization and entrenched structures increasingly exist within the academy, and a broad culture of entitled individualism, amusement, and indulgence characterize the environment outside of the academy. By different measures and from many varying perspectives, today's college students, as a cohort, do not overall seem to perform very well. College students offer a rather interesting explanation in defense of criticisms of their college experience. A study by Cathy Small, a professor at Northern Arizona University, concludes that the Millennial student learns differently from the way that older instructors teach. The contexts in which they *do* learn are often outside of their professors' experience. Students are concerned with choosing a schedule every semester that will provide them with the most control over their lives; they make every effort to limit the impact of coursework on their time. For example, how students decide to complete a reading assignment depends on the purpose of that assignment. If it will result in a quiz, be collected, or be used in an oral presentation, then they will do the reading. If not, then they will not complete the reading assignment. Students agree they want the full college experience and admit they come to college to learn, yet 65 percent say they learn most *outside* of the formal classroom. They believe that "outside" means the real, practical world, and that it includes their peer groups. Their favorite courses were ones that were, in their judgment, connected to the *outside*.

This disconnect between the way that Millennial students learn and the teaching methodologies employed in higher education settings is significant. It appears that students are learning what *they* want to learn, and not necessarily what *we* want them to learn.

This phenomenon is theoretically tied to constructivism, which suggests that learners create their own knowledge of the topics they study, instead of passively receiving knowledge transmitted to them by some other source. (Eggen and Kuchak, 2007) Given the characteristics of Millennial students, they seem to be fairly well suited to adapt and thrive in an environment which applies this theory pedagogically.

## II.

### Learning Assessment

Much has been written about learner-centered teaching, which involves a pedagogy that focuses on activities and engagement. In learner-centered teaching, experiential learning projects have essentially replaced content lectures to passive learners as a method of instruction. Advances in technology, which are increasingly present in modern, higher-education environments, have enabled online and hybrid courses to flourish, and students in traditional courses are able to participate in ways never before imagined. A variety of instructional equipment and software facilitates both in-class and out-of-class preparation. Yet despite all of the available technologies and efforts to utilize them to improve instruction, assessments reveal that student learning is suffering.

Mark Taylor, in “Teaching Generation NeXt: Leveraging Technology with Today’s Digital Learners” (2012), and “Teaching Generation NeXt: Methods and Techniques for Today’s Learners” (2012), identifies a number of issues and provides many resources and solutions which which this problem may be addressed.<sup>3</sup>Taylor addresses two very specific assessment techniques: formative and summative, as key elements in measuring learning. Formative assessment measures *how* students learn, and is characterized as assessment *for* learning; summative assessment measures *what* they learn and is characterized as assessment *of* learning. Summative assessment shifts the emphasis from student’s ability to regurgitate information to their ability to apply it. It is an assessment of learning related to values, the level of affective engagement, *i.e.*, how much students care about what they are learning. This would seem to be a more appropriate and effective measure of learning, since Millennial students appear to learn what they want rather than what might be intended. While recognizing that all assessment methods have value, perhaps summative assessment can help to bridge that gap better than other assessment efforts.

### III.

#### Summative Assessment

Over the past two years, an effort to use this type of measurement has resulted in the collection of over 200 essays written by students who have taken one of our required business courses, Business Analysis and Decision-Making. This is a junior level course taken by all business students regardless of another area of concentration. The course follows a series of 2000 level courses designed to introduce students to the functional areas of organizations: accounting, finance, marketing, management, operations, etc. This course introduces students to the tools used in analysis. These tools were designed to help students understand how all of these functional areas are connected to assist management teams in creating business plans that will succeed. Students engage in a variety of writing assignments, including case analyses, vision and mission development, and a comprehensive business plan developed for an innovation created by teams of students. The emphasis of the learning goals for the course is centered on the three C’s of

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<sup>3</sup> For complete coverage of these issues, please see “A Collection of Papers on Self-Study and Institutional Improvement, 28<sup>th</sup> Edition, The Higher Learning Commission, 2012.

pedagogical prescriptions: Creative and innovative thinking, Communication (written and oral), and Collaboration (ability to work well in groups). A description of the course is as follows:

#### IV.

##### **Business Analysis and Decision-Making Course Description:**

The primary focus of the course is to provide students with the proper tools to excel at analyzing business issues in a creative and innovative fashion. It requires a broad based knowledge of the various functional areas of business and how they are inter-related. Students are expected to develop improved decision-making skills based upon operational analysis, and will work in teams to create business plans for new or existing businesses. The course serves as a foundation for the senior capstone course BUS 4402, Strategic Analysis and Decision Making.

Topics involved in the process of business plan development include:

- Problem Solving
- Creative Thinking
- Decision-Making
- Ethical Reasoning
- Leadership
- Team Building
- Organizational Design and Structure
- Information Technology

The final essay that the course requires is entitled, "*How this Course has Changed My Thinking*". This assignment represents an attempt by the instructor to learn and understand what students thought was important, based on all material covered during the semester. What did they remember, what impressed them the most, and how did they understand the changes in their thought processes. Students are asked to write from the heart. After reviewing the essays, categories are established to synthesize information into groupings that reflect overlaps in students' assessments of how they believed the course transformed their thinking. These categories were established arbitrarily, based on common words and themes mentioned in the essays. An effort was made to avoid as much overlap in cataloging responses as possible. Notably, the results could have been coded differently and a quantitative study could have been developed. However, we decided against this latter approach, based on the nature of the assessment.

Student responses categorized in the first group spoke about a general transformation in their perspectives. One student wrote:

*"I remember sitting in class the first day as you were going over the syllabus, and thinking to myself this is going to be a long semester. Hearing you talk about the group presentations, and the 25-40 pages business plan was enough to make me worrisome [sic] of what was to come and the workload. The individual cases were at first boring but then it all started to come together for me. I remember walking into class one day and sitting down for yet another Ted.com video. I thought to myself, "yeah, yeah whatever". But I remember listening to the video and thinking to myself, that it is time to start taking this seriously. I remember paying attention diligently to the video and from that point forward my mind hasn't stop [sic] racing. Above all the academic things that I can say you taught me or got me to think about, I can say that you really sparked my innovative side. I laid [sic] in bed that night and I remember trying to fall asleep but I couldn't. I looked at the clock and it was 4 AM, my first class the next day was in a few short hours and falling asleep was in my near future. I had been racking my brain about innovations and ideas...in my opinion this is greater than any academic lesson you could have taught us. You got our brains going and our wheels spinning on what could be the next big thing."*

Still another writes:

*"In my opinion the most important thing this class has taught me throughout the semester is a new way of thinking. I used to be so closed minded and think that I couldn't do things such as create a new innovation...I used to believe school was just for the degree, however after completing this course it has changed my mindset to come to school to expand my thoughts and decision-making abilities."*

A number of students expressed similar experiences early in the semester. At a particular juncture, an epiphany occurred, triggered by a number of different stimuli. In each case, they remember the moment and the particular trigger. Another student said:

*"Many of these Ted talks inspired me to think of things in ways that I never would have before and I can honestly say that I watch a new Ted talk every day (mostly ones that relate to business) because the ideas that are spread through Ted amaze me. These videos were like having a guest speaker every day in class and truly changed the way I think about management, decision-making and really life in general."*

In the second category of responses, students spoke about being inspired by a video or a story about a company or manager, etc. The descriptions of such inspiration were particularly interesting because of the emotional impact that occurred. Unlike the first group, whose epiphany about thinking differently was triggered more by a rational response, this group was moved by feeling differently about something, which then served as the motivation to change their thinking.

Many students spoke about pride in their accomplishments and of a corresponding boost in confidence. One student wrote:

*"All the hard work that my group put into this final project is something that I will remember in the future because it made me proud of everything that we accomplished...the reason why this class has influenced my thinking is because it gave me more confidence that I could be good leader."*

Still another writes:

*"The tools that I have learned from this class are already affecting how I go about my life. Now as I go about completing my school work I try to think differently than all my peers to make an impression and solve problems."*

One student was most impressed by the books used in the course:

*"What I loved most about BUS 3302 was the use of the three books that we dissected and discussed as a class. I can honestly say that these three books are the only books that I have read from cover to cover since I started at Merrimack College."*A third category of students focused on skill development:

*"I learned that even though I am a marketing and management major, I am completely capable of creating financial and sales projections for a company. I learned I can put together a plan and it can come out fabulous [sic]. I learned that I can work in a group of diverse backgrounds and personalities and still be successful. Most importantly, I learned that I can be a leader. This is the most important value that I am taking away from this class."*

Still another said:

*"Before this class, let's just say I was not quite a 'thinker' in the aspect that I was not good at taking a case and analyzing it piece by piece to actually gain something from it. By going through a different tool each week and applying it to a case, I made my share of mistakes, but picked back up and learned what I did wrong with constructive input. When looking at different business situations I was able to take key information out of the text and carefully analyze to reach a recommendation or conclusion. Now I can confidently say that I can take a real life business issue, break it down, and analyze each piece critically."*

Each group of students focused on different parts of the course that influenced their thinking. In each case there was a new revelation about how they thought about things. This new awareness seemed to heighten their sense of self. Students seemed genuinely amazed at what they learned and how it had changed them.

One student wrote:

*"All of the different topics and skills that we have learned about and practiced throughout the course have helped to make me become more open-minded to new ideas and concepts...have changed my thinking about business analysis...my decision-making"*

*abilities and how I am able to support my decisions. I am more open-minded when considering what the problems will be in each situation and do not just assume that each case will have the same problem and require the same analysis tools.*"And finally another student said:

*"This course did not teach me how to calculate the internal rate of return, or the 4 P's of marketing, or how to generate sales forecasts, but it did change the way I think. I am able to think more competently and confidently which is the best attribute I can bring as a competitive advantage to my future employers. There is nothing I cannot accomplish with my improved sense of thinking...because of this course I feel more intelligent and more confident in myself."*

Again these examples reflect a number of comments made by many different groups of students. The survey represented the best of what they remembered about the course, and how the experience affected their thinking. But, as an exercise in assessment thought, what can be concluded from these data? Since writing was one of the major learning goals and a strong representation of how one thinks, it seemed like a good place to begin.

Their writing skills seem atrocious. Although their spelling and vocabulary were generally fine (probably due to spell check), students' use of grammar and syntax was highly problematic. Sentence structure and redundancy were the biggest area of concern. But, even though the way students communicated was not formally correct, their ability to communicate their thoughts and ideas was effective. They said what they wanted to say, and were understood.

Formality in written communication is important because it provides a basis for maximizing the impact of what it intended to be conveyed and minimizes the chances of miscommunication. But how much longer will this be the case? With speech recognition and language translation software already in use, the lines between the written and spoken word are becoming blurred. How we think and speak will be recorded as text. Our spoken words will become our written words. The power of grammar and syntax will continue to dissipate and eventually be replaced with new norms about formality of written language. Effective communication will continue, albeit in a different written form. With the rampant use of acronyms in texting and on twitter, (LOL, OMG, TGIF, etc.), it is not hard to imagine a time when that becomes at least part of the new norm.

Already new norms are being established. For example, in the world of social media, "folksonomies," defined as sets of labels or tags individuals choose in a way that makes sense to them—as opposed to using predefined keywords, akin to the taxonomies used by experts to create classifications of things—are critical in understanding the shift in what it means to communicate using social media. This also includes "tagging," which refers to the process social media users undergo to categorize content according to their own "folksonomy" and this, in turn, creates a "tag cloud" that enables others to search and retrieve information using tags that also make the most sense to them personally. (Tuten & Solomon, 2013)

According to recommendations from the major English/Language Arts professional organizations, reading instruction is most effective when conducted in conjunction with writing instruction. Research indicates that when students read extensively, they become better writers. Both are invariably linked to critical thinking because the ability to absorb information, to understand its meaning in any particular set of contexts, and to communicate effectively about issues pertaining to those circumstances, is intertwined with the ability to read and write well.

So, critical thinking remains an area of great concern. Paul and Elder (2008) describe the critical thinker as one who identifies vital questions and problems, formulates them clearly and precisely, gathers and assesses relevant information, and then uses abstract ideas to interpret that information and draw well-reasoned conclusions. It has already been established by the Millennials themselves that they read as little as possible and only when it appears absolutely necessary.

Stan Persky writes in his book, *Reading the 21<sup>st</sup> Century*, (2011). "I see the decline of book reading and the deterioration of knowledge as an impending cultural catastrophe...that among the activities at the heart of human understanding are reading and conversation...our methods of comprehension are in the process of atrophying, that much of conversation has been reduced to mere chatter and twittering and that the decline of serious reading threatens our ability to sustain thought. The dangers include the prospect of the diminution of memory, imagination and our sense of history."

It is clear from the research that the Millennials think differently than other generational cohorts. They reflect, from Persky's point of view, an ignorance and disregard of the formal intellectual values of previous generations. Part of the problem is trying to understand what the "thinking difference" means in effectively dealing with issues "at the heart of human understanding." continues Persky. In their world, what seems to be mere "chatter and twittering" to some is to others exactly and effectively dealing with the heart of their human understanding. Technology is supplanting their memory and enhancing their imagination in ways still to be understood. Thinking differently includes all the many facets of how the mind functions and because of technology, Millennials' minds do seem to function differently. Has a difference in mindset and sensibility, as a practical matter, altered the way in which Millennials understand and practice critical thinking, or is it the case that they really don't know how to think critically at all?

In essays written by the students in the Business Analysis and Decision-Making course, what was communicated rather effectively was the positive impact the course did have on their thinking. In all cases, students experienced a sense of intellectual growth, even students who had negative experiences in the course developed a sense of critical thinking because of it. Something about the course touched a nerve in each of them. It was a different something for different groups of students, but it was something. This effect served as motivation to change their thinking in relation to that something. For some it was the Ted.com video series, for others it was writing a comprehensive business plan, and for others still, it was new insights gained from involvement in a business case analysis.

For some students, personal growth may have been small in comparison to others, who grew rather substantially as a result of the efforts which they individually invested. Should we take them at their word or do we need to try to measure that growth? If our assessment results indicate otherwise, is their sense of intellectual growth negated, or does it call into question our assessment efforts? The old saying is that perception is reality. Their perception is their reality, not ours.

Michael Mascolo continues in his work by discussing the results of an array of assessments of student achievement, "Although these recent studies are exceptionally valuable, they employ a small number of assessment tools to assess a limited range of skills (*e.g.* critical thinking, writing, moral understanding). They do not assess, for example, the content of what a student learns in courses...moreover the challenges associated with assessing student learning over the college years are not simply methodological; they are conceptual and axiological as well. For example, while the studies described above are intended to assess critical thinking, there is no clear consensus on the meaning of this concept. Most important, the question of what and how to assess student learning presupposes a prior understanding and articulation of what should be taught in college". (2012, p. 12).

College curricula and pedagogies should continue to evolve to reflect an effort to achieve a balance between the relevance and needs of the practical world and the essentials of old world values. Students need to learn a set of relevant skills that will prepare them for their world, the world of the future. They also need to understand the value of old world lessons; lessons that should be learned, for example, in courses on history and literature. Can the relevance of Shakespeare's comedies and tragedies, or Miller's, "Death of a Salesman," in contemporary society, be denied? It is understood that those who are ignorant of history are doomed to repeat it. It is also a lesson of history to demonstrate how the fear and ignorance of one era is replaced by more progressive thought of another, only to be replaced again as time and technology exert their influence on how societies work, play and engage in leisure activities. These are the tensions that will drive change as the academy struggles to prepare students for their professional and personal lives. It can be extremely gratifying to witness the intellectual growth of students, whether it occurs in one course or after the full set of course required for graduation. This experience represents perhaps one of the purest forms of education, in that it allows bits and pieces of information to blend together into an evolving perspective of how the world operates. When combined with practical experiences, the two become a powerful mechanism for addressing the challenges of life.

The course used as the focus of this paper, Business Analysis and Decision-Making, is not unlike many college courses offered today. Thus, students' reactions could very well have been similar to responses to other courses taken during their college careers. If the results captured here were multiplied many times over to reflect the total of all their experiences in full set of courses, then it is not difficult to understand the reality of their intellectual growth. It may not be of the kind or at the level of depth that faculties envision, but that does not negate the reality of this development.

## V.

**Future Implications**

For as long as human hair has turned gray, elders have looked at their successors and frowned. “Children nowadays are tyrants” goes an old quotation widely attributed to Socrates. “They contradict their parents, chatter before company, gobble their food and tyrannize their teachers.” In 1855, a professor at Davidson College described college students as “indulged, petty, and uncontrolled at home...with undisciplined minds and an uncultivated heart, yet with exalted ideas of personal dignity and a scowling contempt for lawful authority.” (Hoover, 2009) Albert Einstein opined that while classrooms are many, “the number of young people who genuinely thirst after truth and justice is small” (Hoover, 2009). In this same article, Hoover (2009) identifies one of the key elements in trying to understand younger generations. In absolute terms, they are different than all the generations that came before them. In relative terms, they are exactly the same. Palmer H. Muntz, director of admissions and an enrollment-management consultant at Lincoln Christian University, sums it best, “To accept generational thinking, one must find a way to swallow two large assumptions. That tens of millions of people, born over about a 20 year period, are fundamentally different from people of other age groups—and that those tens of millions of people are similar to each other in meaningful ways.” (Muntz, 2009)

This notion helps explain the differences between generations, although it is an idea that is not wholly accepted by all researchers on the subject. If the recent past is any indication, technology and popular culture tend to be strong drivers of generational change. The Baby Boom Generation was defined by television and rock & roll music; Generation X, by computers and video games; and the Millennials, by the internet, social media and mobile technology. What is interesting about this evolution is that as one generation gives way to another, the baby boomers of the 1960’s & 1970’s counterculture revolution have now become members of the same establishment they once railed against. This new establishment has changed in absolute terms, but in relative terms, it is still the establishment. In the not too distant future, today’s Millennial generation will also take their rightful place as part of the new establishment, meaning all the elements that represent an understanding of the establishment, institutions, consumers, and government, and how they interact, will be different.

Howe and Strauss (2000), who identified the seven traits of the Millennials, identified earlier in this paper, predict, “This generation is going to rebel by behaving not worse, but better. Their life mission will not be to tear down old institutions that don’t work, but to build up new ones that do.” Likewise, Frank Moss, in his article, “Why Today’s College Students Will Save the World” (2010), writes:

The impact of information and communication technology on all of our lives has already been immense, removing almost all boundaries of space and time and literally transforming how we search for anything, shop for everything and socialize with everyone. But in the hands of this generation of college students its reach has been

nothing less than extraordinary. Born digital natives, today's college students naturally and deftly employ all the tools of the Mobile Web: search, social media, email, texting, tweeting, blogging, web services, mobile apps, and even massive multi-player games. Students operate seamlessly across multiple (often incompatible) devices; multi-task effortlessly; troubleshoot like IT pros; create and share their own multi-media content; and securely manage exponentially exploding volumes of personal data, links and social connections...College students mastery of the Mobile Web is an incredible phenomenon to observe, perhaps the greatest manifestation yet of the power of information and communication technology to change our lives. This is why I believe today's college students will save the world.

Along with critical thinking, creative thinking is a skill that is currently in high demand. Globally, organizations require individuals who can think creatively, communicate effectively, and work collaboratively. Ideas then become innovations, manifestations of the creative thinking process. Organizations that cannot innovate will seldom be able to effectively compete in the marketplace. This is the realm of entrepreneurship. People with entrepreneurial guile develop new ideas, create innovations, and endeavor to deliver value to society with them. According to a recent poll, 54 percent of individuals aged 18-34, the so called Millennial generation, are an entrepreneurial bunch who want to either start a business or already have started one. Today's younger generation is enthusiastic about being involved with new and young firms, and sees no artificial borders to launch their ideas. (Millennial Generation-Entrepreneurship.org, 2013)

As an example of Millennials' entrepreneurial spirit, at the 22<sup>nd</sup> annual Values and Ventures business plan competition at Texas Christian University, teams from 30 universities around the world competed to win money to support their business ventures. These were the 5 finalists:

1. An Oklahoma team developed a sanitation system for the millions of people in India who don't have access to toilets, which causes 80% of the country's health problems.
2. A group from Monterrey, Mexico harvested organic cactus as a way to engage and employ the poor, rural communities in Mexico.
3. A team from Canada created a web site that will allow consumers to pick the ads they want to see. Furthermore, 50% of the price of goods purchased on the site will be refunded and sent to charity.
4. An Arizona crew made a student backpack, the proceeds of which will fund under-financed public schools.
5. Students from Houston developed a method to source products designed for use by the 43 million Americans who are disabled.

These young people, ages 18-21, developed business plans that were extremely well thought out and expressive, their PowerPoint and oral presentations were excellent. Furthermore, they demonstrated a genuine passion for their ideas, and the executions of concepts. Students they were also poised and confident when receiving feedback. (Spiegelman, 2011)

## Conclusion

The academy will continue to struggle with questions of how to deliver a better education to our nation's college students. Soon another generational cohort will replace the Millennials, and new discussions will ensue about new learning deficiencies and other such inabilities. Pedagogies will shift to respond accordingly as new technologies replace old, and classrooms accommodate a fresh group of ill equipped students ready to take up the struggle toward earning a degree.

Assessment of student achievement will continue to be an important part of the academy's efforts to improve learning. Efforts in assessments have led to serious debates about the relationship between teacher-centered and learner-centered pedagogies. The discussions have resulted in numerous examples of new teaching approaches: active learning, experiential learning, cooperative learning, collaborative learning, and inquiry-based learning, to name a few examples. The latest entry into this mix is guided-learning. Each approach offers many advantages, but each may also be limited in certain ways.

Summative assessments appear to offer distinctive advantages over other assessment models for many reasons. Because they are qualitative, the feedback is more honest and reflective of each student's understanding of what they believe they are learning and how it is impacting their lives. This is particularly important to Millennials, as they seem more likely than other generations to reject anything that they believe is irrelevant to them. Thus, summative assessments offer insight into their thought processes. This feedback can be useful in improving certain elements of content, context, and delivery mechanisms of courses. By allowing students to have such a direct influence, they become unwitting collaborators in course design. Types of summative assessments can be conducted throughout a quarter or semester, in which case students and instructors are offered a different type of learning opportunity. Furthermore, summative assessments can influence the use of, and compliment other types of learning measurements to improve their effectiveness.

Together, all assessment programs have afforded the academy an ability to engage in the continuous improvement efforts that are so highly regarded and often mandated by accreditation boards across the United States. Mary Ann Wisniewski, in her paper, "Leadership and the Millennials: Transforming Today's Technological Teens into Tomorrow's Leaders" (2010), best captures the transformation in programmatic assessments over these past many years. (See Figure 1.) The 21<sup>st</sup> century will continue to offer the academy unique opportunities to catalyze the best components of the technological and social revolution into pedagogical development. Individuals' desire for autonomy has never been more evident than today. In many examples of people navigating through everyday life, individual participation and choice have become central to execution and ultimate success of endeavors. As technological advances permit, Millennials will continue to exert their influence on contemporary culture. Our task, as professors, is to prepare students for successful personal and professional lives. If we observe and listen closely enough, perhaps they can help us do just that.

<b>20<sup>th</sup> Century Classroom</b>	<b>21<sup>st</sup> Century Classroom</b>
Time-based.	Outcome-based.
Focus on memorization of discrete facts.	Focus on what students know and can do.
Lessons focus on the lower levels of Bloom's taxonomy – knowledge, comprehension and application.	Lessons emphasize upper levels of Bloom's taxonomy – synthesis, analysis, and evaluation.
Textbook-driven.	Research-driven.
Passive learning.	Active Learning.
Learners work in isolation.	Learners work collaboratively with classmates and others around the world.
Teacher-centered: teacher is center of attention and provider of information.	Student-centered: teacher is facilitator/coach.
Fragmented curriculum.	Integrated and interdisciplinary curriculum.
Teacher is judge. No one else sees student work.	Self, peer, authentic assessments.
Curriculum/School is irrelevant and meaningless to the students.	Curriculum is connected to student's interests, experiences, talents and the real world.
Print is the primary vehicle of learning and assessment.	Performances, projects, and multiple forms of media are used for learning and assessment.

**Figure 1.** *20<sup>th</sup> Century versus 21<sup>st</sup> Century Education*

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