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The Flipped Class: Experiential Learning Manifested

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INTRODUCTION

In his 1960 book, Myron Lieberman expressed concern that the nation was experiencing a learning gap that threatened the U.S. ability to meet the technological challenges of modern society. He and other educators of the time believed this gap then to be at a crisis point. Nonetheless, experts and pundits assert that this chasm has continued to widen, and perhaps, is exacerbated by the traits, preferences and shortcomings of the current generation of college-aged students, referred to as *Millennials*. Millennials represent the largest, most diverse generation to ever attend college. While individuals vary, unlike their predecessors, Millennials collective personality, thought processes and educational tendencies are unique to today's digital age. The sharp contrast between their comfort level with technology and that of their professors is creating a maelstrom of concern about how to effectively teach them.

As *digital natives*, Millennials have no memory of the world without the World Wide Web, mobile phones or personal computers (Nevid, 2011). Today's traditional students who, from a generational perspective – born between 1982 and 2004 -- have grown up in an environment where they are connected, content-centric, computerized and continually clicking (Fry, 2015, Trend Watch, 2004; Howe & Strauss, 2000). For example, Millennials typically do not wear watches because they own cell phones with this feature. Most acquire their news online rather than from a newspaper. Photos, generally. are digitally stored and uploaded to Facebook or other social media as opposed to a family photo album (Kotz, 2016). Technology has shaped these students' expectations about everything from the classroom to the workplace.

As *Baby Boomers* (born between 1946 and 1964) have retired, Millennials are now the nation's largest living cohort in the workplace. Millennials have enjoyed the lowest parent-to-child ratio in U.S. history. Moreover, as the descendants of *latch-key* children, Millennials have grown up with parents who put their careers on hold, worked alternative schedules, or even worked from home in order to be with their children (Levonius, 2015). This generation also saw homeschooling (parents educating their own children) grow exponentially. They are poised to be the most educated generation in history. However, in their book, *Academically Adrift: Limited Learning on College Campuses*, Richard Arum and Josipa Roksa (2011) found through their research that many U.S. students are enrolling in college at an increasingly higher cost, yet receiving decreasingly smaller benefits. They found that for a large proportion of them [students], the gains in critical thinking, complex reasoning and written communication are either exceedingly small or empirically nonexistent (p 121). As such, they assert that a large cohort of students today are *academically adrift*. Further these authors emphasize that at this period in history when access to college is greater than it has

ever been, the lack of preparation is more prevalent and the lack of a clear sense of purpose has never been more apparent.

Given the information-rich environment in which Millennial are accustomed to living, researchers are baffled by their lack of academic focus. This phenomenon has left experts asking: if students with a limited academic determination are passing and making progress toward their degree, are faculty also not responsible for the low standards? Arthur Powell et al, (1985) observed a tacit relationship between teachers and students whereby they seemed to have a mutual armistice related to lower academic expectations. George Kuh (2003), examining colleges and universities termed this armistice a "disengagement compact." He described this pact as one where students and professors agree that "I'll leave you alone if you leave me alone." Kuh goes on to say that there seems to be a breakdown of shared responsibility for learning – on the part of the faculty members who allow students to get by with far less than maximum effort, as well as, on the part of students who are not taking full advantage of the resources institutions provide.

The problem of limited learning does not show signs of abating. There are three factors that seem to exacerbate the problem: (1) rapidly evolving technology; (2) the values and mores of Millennials; and (3) the academy's skewed perspective on scholarship. The confluence of these factors is not only necessitating change in the style and means of faculty/student interaction, but are also calling into question the current reward systems that tend to bias faculty away from student interaction. Nonetheless, these Millennials are our students now, and it is imperative that we find ways to reach and teach them. Experiential learning, or learning by doing, has the potential to bridge the challenges of technology, being what is termed "Me"llennial and the scholarly predilection away from teaching. Specifically, the "flipped classroom" combines technology with experiential learning in a way that may help universities and colleges to embrace and value nontraditional forms of scholarship.

Technology and Educational Achievement in the U.S.
Technology is reinventing higher education and vice versa. Online enrollments increased 10.1% from fall 2009 to fall 2010, while total enrollment growth in higher education was only 0.6% (Sloan Consortium, 2011). By 2010, for-profit and not-for-profit mega e-institutions such as Udacity, Coursera and edX were responsible for driving online enrollment up to 31.3% of total U.S. college enrollments (Sloan Consortium, 2011). Leaders at public institutions believe now, more than ever before, that online education is crucial to their long-term strategy. However, technology isn't just changing the face of higher education. Higher education is changing the face of technology. Investments in education-technology companies

nationwide tripled in the last decade, shooting up to $429-million in 2011 from $146-million in 2002, according to the National Venture Capital Association (The Chronicle of Higher Education, 2012). These investments just represent one aspect of how education is shaping the development of technology. Another way in which education is shaping technology (and the economy) is through the sale of ebooks, also known as electronic or digital books. Experts assert that the ebook industry is here to stay, showing healthy growth projections. For example, retail giant Amazon's 2016 ebook sales grew 4% overall compared to 2015. By 2018, ebooks sales are forecast to account for about a quarter of all global book sales. It is projected that consumer ebooks alone will generate the equivalent of nearly 20 billion U.S. dollars. All total, 2016 global online book purchases that were either ebooks or audio books, equaled nearly 401 million units with approximately 266 million being sold in the U.S. (Anderson, 2017; Dale 2017; Statista, 2017).

As stated previously, Millennials have no memory of the world without the internet. For many of them, texting and instant messaging are their preferred method of communication. In fact, most Millennials have been plugged into one or another electronic device since they were toddlers (Nevid, 2011). A 2015 study of 675 students in colleges across 26 states showed that they spend 20 percent of their time on their phones during class. Three quarters of them stated that they were checking their phones for the time and email, with 70 percent checking social media. A 2017 (Asano) study found the average person spends two hours on social media everyday which translates into 5 years and 4 months over a lifetime. This generational shifts suggests that education has to move away from podium-based lectures to technology-enhanced modalities. Aiding millennial students to become successful in the classroom will mean catering to their preference for technology-driven educational tools (Kotz, 2016; Lynch, 2013; Elliot-Yeary, 2012).

Ironically, though digital natives, Millennials may be more adept at how to upload YouTube videos and "likes" on Facebook posts than they are performing tasks on business essential tools such as PowerPoint, Word and Excel, or how to make use of information and ideas (Read, 2009). In a commentary in the "The Chronicle of Higher Education," Professor Hieronymi (2012) cautions us to not confuse technology with college teaching. The focus of education is not the technology, but on the process of involving students in applying and analyzing course content, making decisions, critiquing a topic or evaluating a data set. (Oppenheimer, 2003, Cuban, 1986). In short, technology can help with learning, but it can sometimes become a distraction (Honeycutt, 2017; Mueller & Oppenheimer, 2014; Toyama, 2011; Behar, 2010)." As such, technology may be simultaneously the promise and challenge of reaching Millennials in the classroom.

The "*Millennial*" Effect on Education

The values and mores of Millennials may be a major contributing element to the learning gap. Psychologist Jean M. Twenge (2006) uses findings from one the largest intergenerational studies - with 1.3 million respondents - spanning six decades to reveal the values, attitudes and mores of today's young people. She identified young people under the age of 35 as being "Generation Me'ers." Her findings found these young people to be highly optimistic. They expect to go to college, make lots of money, and even to become famous. Despite their high motivation and desire to achieve, they believe that learning should require minimal effort and that difficulties encountered during the learning process is the fault of the instructor, rather theirs. Researchers call this expectation of success without the commitment of personal effort to earn it "academic entitlement" (Boswell, 2012; Worley, 2011; Twenge, 2006). Millennials are said to have a sense of entitlement across every facet of their life, including school, college and work. Researchers Goldman and Martin (2016), Boswell (2012) and Cain, Romanelli & Smith (2012) attribute Millennials' sense of academic entitlement to both their lack effort and disrespect for authority. While the "Baby Boomers" created the mentality to "question authority," Dr. Twenge asserts that Millennials don't just question authority, they disrespect it entirely.

According to Dr. Twenge, the message projected by Millennials is: We are all equals here. Though, you [the professor] may have a Ph.D. and years of experience, that doesn't mean you know any more than I do (p. 29). An extension of this attitude of entitlement has fostered a victim mentality. As victims, millennial students attribute their academic failures to the teacher. Researchers note that millennial students often lack academic responsibility (Buckner & Strawser, 2016; Goodboy & Frisby, 2014; Cain, Romanelli & Smith, 2012). In his book, Generation X Goes to College, Peter Sacks (1996) profiles students who would not show up for class or complete the required assignments, only to complain when their grades suffered. He even talked about how one of his students who turned in a phenomenally poor paper complained to the administration about his "tough grading (in Twenge, p. 154)." He maintains that misbehavior is met with blame, and the teacher is personally responsible. More than any other generations, Millennials display a greater external locus of control – blaming outside forces for the events in their lives (Sidelinger, 2010, Twenge, Zhang & Im, 2004). Sacks and other researchers, examining the mores and values of this age cohort, seem to lament the ethos of the past when students took responsibility for their decisions (Goodboy & Frisby, 2014; Vallade, Martin & Weber, 2014; McMillan & Cheney, 1996). Experts say that academic entitlement is the bedrock of a broader trend termed "academic consumerism."

Millennial students see their education as a consumer product, wherein they are "paying customers" who deserve customer satisfaction by way of passing grades. Grades matter to Millennials. The emphasis on grades among this group tends to supersede the learning experience (Morreale & Staley, 2016; McAllum, 2016; Berrett, 2015; Twenge, 2009; Pollio & Beck, 2000). Like it or not, millennial students have changed the landscape of higher education in permanent and irreversible ways (Phillips & Trainor, 2014)

With their sense of entitlement, focus on grades, lack of deference and preference for technology, continuing to use traditional approaches to education, we must ask the question, "What do we think we are teaching and what are our millennial students actually learning?" The imperative is to integrate technology and social media into a learner-centered and self-directed classroom. Classrooms will need to be structured for professors to be "facilitators" rather than as authority figures (Twenge, p. 29). The professor as "fact teller" is out. Howe and Strauss (2007) identified seven core traits that define millennial students: (1) they see themselves as special, (2) they are sheltered as a result of overly protective parents, (3) their confidence level is high, (4) they tend to be team-oriented, (5) they are conventional in their thinking, (6) they most often feel under pressure and (7) they have a high need to achieve. As such, for Millennials to become successful learners, effective communication and collaboration are essential. Pedagogy designed for this group of student will involve them in real-world, relevant tasks, as well as challenge them to engage in ways that utilize their prior knowledge in unconventional ways. Greg Jones, the Vice President and Vice Provost for Global Strategy and Programs at Duke University said "collaboration is at the core of good teaching, learning and research (Cisco, 2012).

Integrating Scholarship and Student Learning

Interestingly, the dynamics that have led Millennials to resist authoritarian power structures (Price, 2010) have shifted the instructor-student relationship in an unpredictable direction. The same high level of attention that millennial students received from their "hovering" parents, that led, in part, to their perception of "equals among student and professor" has also produced an expectation for the same level of attention from their instructors (Frey & Tatum, 2016). Millennials expect to build strong instructor-student rapport. Rapport is characterized as feelings of "mutual trust and harmony" in a relationship (Catt, Miller & Schallenkamp, 2007). While instructor-student rapport has been positively

associated with a number of classroom variables (Frisby, Berger, Burchett, Herovic & Strawser, 2014; Frisby & Martin, 2010; Frisby & Myers, 2008), collaboration/co-creation in the classroom is a labor-intensive process that is not supported, nor is it mutually supportive of traditional scholarship.

Ironically, just as demographic, social and technological trends are converging to create a greater need for collaboration in the classroom, academe seems to continue to be ensconced in its tradition of valuing discovery research. In 1977, mathematician and teacher, Morris Kline published a book entitled, Why the

Professor Can't Teach." In his book, Kline blamed the "overemphasis on research" as the "prime culprit" for the poor quality of undergraduate education in the U.S. Examining a reward systems that emphasizes research to the extent of "publish or perish," Kline quipped that it is as if to publish, the students perish.

In 1990, Ernest Boyer found an increasing shift among the professoriate away from teaching and institutional service. Based on his work in the late 1980s, Boyer asserted that the value of teaching was declining. His research revealed that faculty consistently reported that scholarship was more important than teaching for tenure decisions in their departments. To the extent that teaching mattered in tenure decisions, he found that it was student satisfaction with the course that reigned supreme. Boyer was concerned that shifting emphases away from teaching would "encourage individual faculty to game the system by replacing rigorous and demanding classroom instruction with entertaining classroom instruction, lower academic standards and a generous distribution of high course marks (Arum and

Roksa, 2011, p.7)." Boyer noted that "the focus had moved from the student to the professoriate, from general to specialized education, and from loyalty to the campus to loyalty to the profession (Boyer, 1990, p.13)." Based on his findings, he concluded that the desire of many faculty members to interact with their students was being undermined by an unbalanced reward system that favored one form of scholarship over others. He thought it was time for a new vision of scholarship - one that moved us passed the traditional "teaching versus research" debate.

Specifically, the Boyer model of scholarship (1997) defines four (4) separate, yet overlapping elements of scholarship (Glassick, 2000):

- Discovery - creating and building knowledge through traditional research
- Integration – interpreting the use of knowledge across disciplines
- Application – aiding society and professions through the application of research
- Teaching – advancing teaching models and practices to achieve optimal learning

The scholarship of discovery is the Boyer element most closely aligned with traditional investigative research. In this sense, the scholarship of discovery

represents the academic "old guard" whose success is measured primarily through publications in peer-reviewed forums. Without a doubt, the scholarship of discovery has the capacity to build new knowledge. However, one might infer from Boyer's work that if the role of the professoriate had remained so narrowly defined, student learners would have been left to languish. Conventional approaches to discovery in the past have led academics to being caught up in the "publish or perish" mania – meaning they were busy with papers, busy with grants, and busy with research, and more research and even more research. Consequently, discovery - in its traditional sense – has isolated scholars and restricted their engagement with students and other stakeholders. By being focused primarily on research and not the classroom, the researcher's role in the classroom is relegated to a passive dispenser of knowledge. Under these circumstances, the researcher becomes what one might term an academic "information disseminator." As such, the researcher acts in a self-perpetuating manner - neither influences the student, nor the academic community. Boyer had hoped that the professoriate might step back from its investigations in order to find connections, build bridges between theory and practice, as well as to communicate one's knowledge effectively to students (1997).

Unfortunately, at this level of scholarship, there tends be only nominal cognitive engagement by the student. Based on Anderson and Krathwohl's (2001) modified Bloom's Taxonomy, "remembering" is the level of cognitive engagement that one might expect from students when professors are otherwise focused (see Figure 1).

Bloom's Taxonomy

create — Produce new or original work
Design, assemble, construct, conjecture, develop, formulate, author, investigate

evaluate — Justify a stand or decision
appraise, argue, defend, judge, select, support, value, critique, weigh

analyze — Draw connections among ideas
differentiate, organize, relate, compare, contrast, distinguish, examine, experiment, question, test

apply — Use information in new situations
execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch

understand — Explain ideas or concepts
classify, describe, discuss, explain, identify, locate, recognize, report, select, translate

remember — Recall facts and basic concepts
define, duplicate, list, memorize, repeat, state

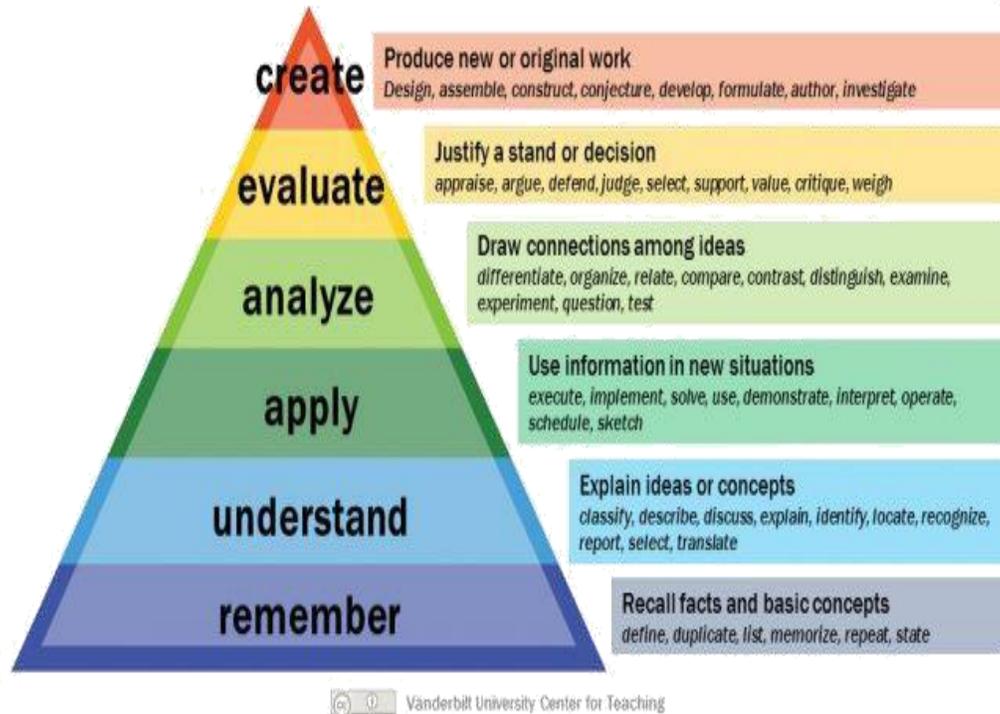Vanderbilt University Center for Teaching

Figure 1. Revised Bloom's Taxonomy (Schultz, 2005)

The second element of Boyer's Scholarship Model is integration. This element focuses on making connections within and across disciplines which is what happens when scholars put isolated facts into perspective. While Boyer thought integration was closely related to discovery, he made the distinction that integration is serious, disciplined work where scholars seek to interpret, draw together and bring new insight to original research (p.9). The hallmark of the scholarship of integration is collaboration. It involves colleagues - often working at the boundaries of their fields - engaged in intellectual discourse, co-writing a textbook, or even teaming up to design and deliver a course. These scholars ask "What do these findings mean? Can they be integrated into a larger body of knowledge? Scholars of integration are information "processors" who are able to illuminate data in a revealing way for their students. Through their inquiry, in the classroom they are able to foster understanding, a higher order of cognitive engagement than that fostered through discovery. Boyer (1990) believed that increased attention should be given to interdisciplinary and integrative studies because they are capable of responding both to new intellectual questions and to pressing human problems.

Boyer's third element of scholarship, application, is rooted in the belief that when new ideas are applied, new knowledge is discovered. The scholarship of application is "the engagement of the scholar in extending and applying knowledge to address consequential societal problems and to improve the quality of life; it is commonly referred to as outreach scholarship (Hyman et al., 2001, p.46)." The beneficiaries of these activities include government, industry, professional organizations and student leaders. Using knowledge to solve problems, these scholars serve both community and campus. They are characterized as "promulgators," enabling their students to apply information in a new way and distinguish between different societal issues. These promulgators stimulate cognitive engagement well beyond that of the first two element of scholarship. Moreover, those engaged in application must constantly review the efficacy of applied theoretical knowledge on particular problems as well as on the ways their findings, through application, can inform and refine their disciplinary theories (Boyer, 1997).

The scholarship of teaching is the fourth element of Boyer's model. He believed that, too often, teaching is viewed as a routine function and not the focus of professional development. In 2006 Derek Bok observed, "in the eyes of most faculty members in research universities, teaching is an art that is either too simple to require formal preparation, too personal to be taught to others, or too innate to be conveyed to anyone lacking the necessary gift (p.109)" Teaching has historically, and to some extent continues to be, assigned little value among university scholars. Boyer was troubled when he found that this faculty orientation had spread far beyond the research university to a much larger set of four-year colleges. As a fourth element of Boyer's model, teaching subsumes application, integration and discovery since its manifest objective is to impart knowledge or skills to the learner. According to Hyman et al. (2001, p.48), "Teaching others how to use knowledge to solve problems carries out the application function [of Boyer's model]. To do so, we often need to integrate material from different fields or subfields and/or to incorporate new discoveries." To shift from a faculty orientation that values discovery to one that also values the scholarship of teaching, Edgerton (2000) believes fundamental changes would need occur. He identifies three (3) primary activities: setting new expectations for faculty roles, re-vamping performance evaluation processes, as well as rethinking the way in which faculty are recognized and rewarded.

Scholarly teaching is said to initiate students into the best values the academy offers. Cognitive engagement when professors adopt, and are supported, in scholarly teaching is at its highest levels. Boyer (1990) recognizes that scholarly teaching means "not only transmitting knowledge but transforming and extending it as well (p.24)." Scholars at this level are characterized as "participators." Boyer also knows that when the professoriate can embrace the value of teaching and

research, or participating, students are likely to be the primary beneficiaries, although evidence suggests that scholarly teaching has the potential to also entice future scholars. Thus, the academy also benefits (see Table 1).

Boyer Scholarship Type	Purpose	Role of the Professoriate	Student's Level of Cognitive Engagement (Bloom's Taxonomy)
Discovery	Searching for new information – purely investigative	Disseminator	Remembering
Integration	Putting isolated facts into perspective	Processor	Understanding
Application	Using knowledge to solve problems and serve both community and campus	Promulgator	Applying Evaluating
Teaching	Mastering knowledge to shape both research and practice	Participator	Analyzing Co-creating

Table 1. Aligning Scholarship with Cognitive Engagement

Experiential Learning: Scholarly Teaching Manifested

Boyer argues that traditional discovery research is antithetical to the aims of liberal education, and that the academy has failed to reward, thus motivate, the scholarship of teaching and learning. A 2009 study by the American Council of Trustees and Alumni (http:// what willtheylearn.com) concluded that even "as our students need broad-based skills and knowledge to succeed in the global marketplace, our colleges and universities are failing to deliver." Clearly the current system and methodologies are not working. Information dissemination is outmoded. Millennial students are immersed in information. The learning gap, however, is pronounced when they are asked to transform information into knowledge. The

ability to find, interpret, communicate and turn knowledge into action is said to be a critical differentiator (Jennings and Wargnier, 2010). In this new learning landscape, academic responses will require not just identifying, but rewarding new approaches to teaching and learning. Further, research suggest that Millennials are forcing institutions of higher education to rethink the traditional, lecture mode of teaching for more engaging, experiential instructional approaches.

Experiential learning, sometimes referred to as "active learning" engages students as co-creators of the learning process. Jean Piaget's (1973) theory of constructivist learning is the epistemological basis for experiential learning. Piaget stated that learners must construct their own knowledge through experiences. Experiences enable these learners to create schemas – mental models of the world. In 1984, Kolb built on Piaget's work to develop his Experiential Learning Theory (ELT). ELT can best be described as a continuous cycle of experience, observation and reflection (McCarthy, 2010; McHann & Frost 2010; Kolb & Kolb, 2005). The underlying premise of experiential learning is that "learning takes place when students mix their own thoughts and principles about an issue with other ideas through investigation, probing and incorporating these ideas with novel, improved and innovative ones" (Butler & Gheorghiu, 2010). Elder and Paul (2009) assert that thinking must be grounded in and oriented toward life experiences. A number of studies have corroborated the benefits of active learning (Maskulka et al., 2012; Benecke & Bezuidenhout, 2011; Fedynich et al., 2011; Penger et al., 2011; Clark & White, 2010; Williams et al., 2010; Burnett, 2008; Chia and Holt, 2008; Steel et al., 2007; McCarthy & McCarthy, 2006). These studies reinforced the fact that experiential learning positively impacts valuable learning objectives that may have a life-long influence on undergraduates as they prepare for both advanced academic studies and professional service. From 2006 to 2009, nineteen (19) institutions participated in The Wabash National Study of Liberal Arts Education (Pascarella and Blaich, 2013). The findings of the study show academic experiences that engage students in analyzing ideas and exploring their own thoughts push them to think critically (Goodman, 2011). Wallace and Jefferson (2015) extend this research with their findings, whereby they confirm that the earliest stages of critical thinking can be developed with practice, training the mind to operate inquisitively (see Figure 2).
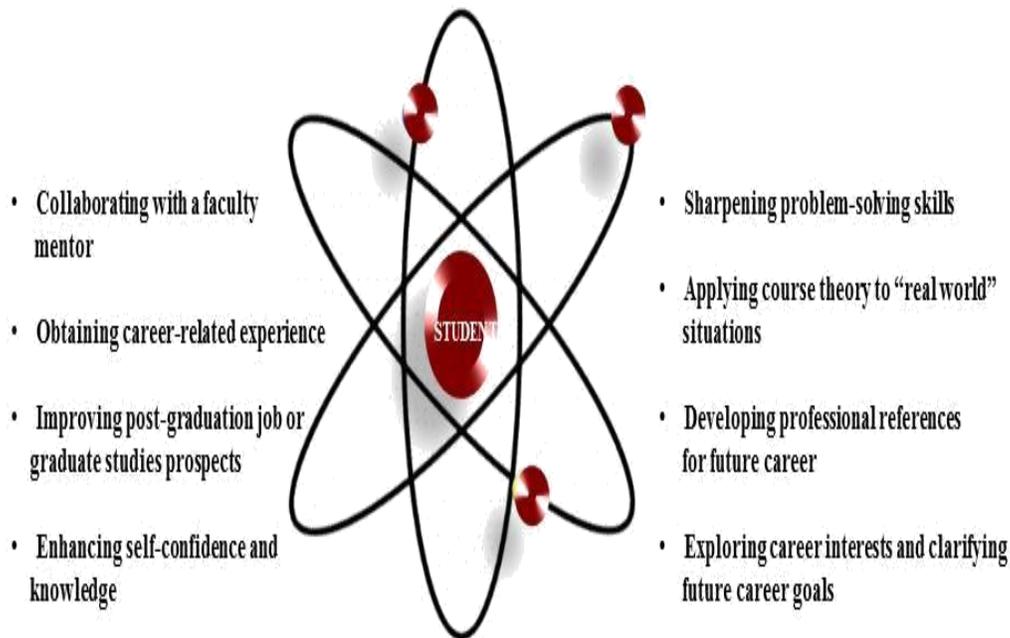
Figure 2. Student's Benefits from Experiential Learning

The Flipped Classroom: Experiential Learning Manifested

The flipped classroom is an experiential pedagogical approach that involves students gaining first exposure to new material outside of class, usually via reading or lecture videos, and then using class time to do the harder work of assimilating that knowledge, through activities such as problem-solving exercises, debates, class/team discussions, case studies or guided discussions using controversial issues. In the flipped classroom, the professor's role is transformed from lecturer and deliverer of content to learning coach (Phillips & Trainor, 2014; Bergmann & Sams, 2012). Though the concept of the flipped class has been around for more than a decade, it is gaining in popularity (Reyna, 2015; Garrison & Vaughan, 2008). Research suggest that millennial students prefer interactive and experiential-learning experiences (Phillips & Trainor, 2014; Skiba & Barton, 2006).

In the flipped classroom, students may watch video lectures or listen to online audio prior to class in order for in-class time to be reserved for active learning assignments such as discussions, hands-on applications, problem solving exercises, games and engaging and collaborative activities. Using Bloom's revised taxonomy (Overbaugh & Schultx, 2013), student perform the lower-level cognitive

skills – remembering and understanding – outside of class. They, in concert with the instructor, then focus on the higher order cognitive skills – application, analysis, evaluating and creating – in class where they have the support of their peers and instructor (Walvoord and Anderson, 1998). This approach contrasts the traditional model where first exposure to individual topics is generally via in-class lectures, with students assimilating knowledge through homework. Thus, the term "flipped classroom. Of particular importance, teamwork, or peer engagement is central to teaching and learning among this group. Consequently, learning is mediated by learners themselves, rather than solely by the teaching and direct guidance of professors.

Implementing the flipped classroom requires careful planning and preparation. Once the topic and flipped strategies are chosen, the suitable content for the students must made available prior to class. There are many ways faculty can make lessons available for students; lecture notes, digital lectures, YouTube videos, websites or online videos (e.g., Khan Academy, Open Educational Resources, etc.), or even problem solving using software programs. Accountability for completing pre-class assignments can be monitored through self-reviewed quizzes, discussion forums, blogs, wikis, journaling or written assignments (Reyna, 2015; Frydenberg, 2012). Activities programmed between steps can motivate students to take the preparation seriously, especially if it counts toward the final grade. It also provides the faculty member with important information that can be used in subsequent planning, course activities and topic review.

In-class assignments are commonly completed in teams of 4-5 students. Faculty move among the teams, providing guidance and answering questions. If several teams are struggling with the same concept(s), then the instructor can provide an explanation to the entire class in the form of a mini-lecture, allowing the lesson to continue. Note should be taken that the "class" may be a community service project or a lab practicum. Frydenberg (2012) also suggests a debriefing at the end of the "class" where students can share how they did the assignment, as well as what problems the encountered. Findings from a 2017 study suggest that although students may find the flipped classroom more difficult, student outcomes and active participation in class activities do improve when the course conveners

(a)   use a theoretical perspective to inform their flipped teaching strategy, (b) integrate assessment into the design of their flipped classroom, and (c) flip the entire course (see Figure 3).
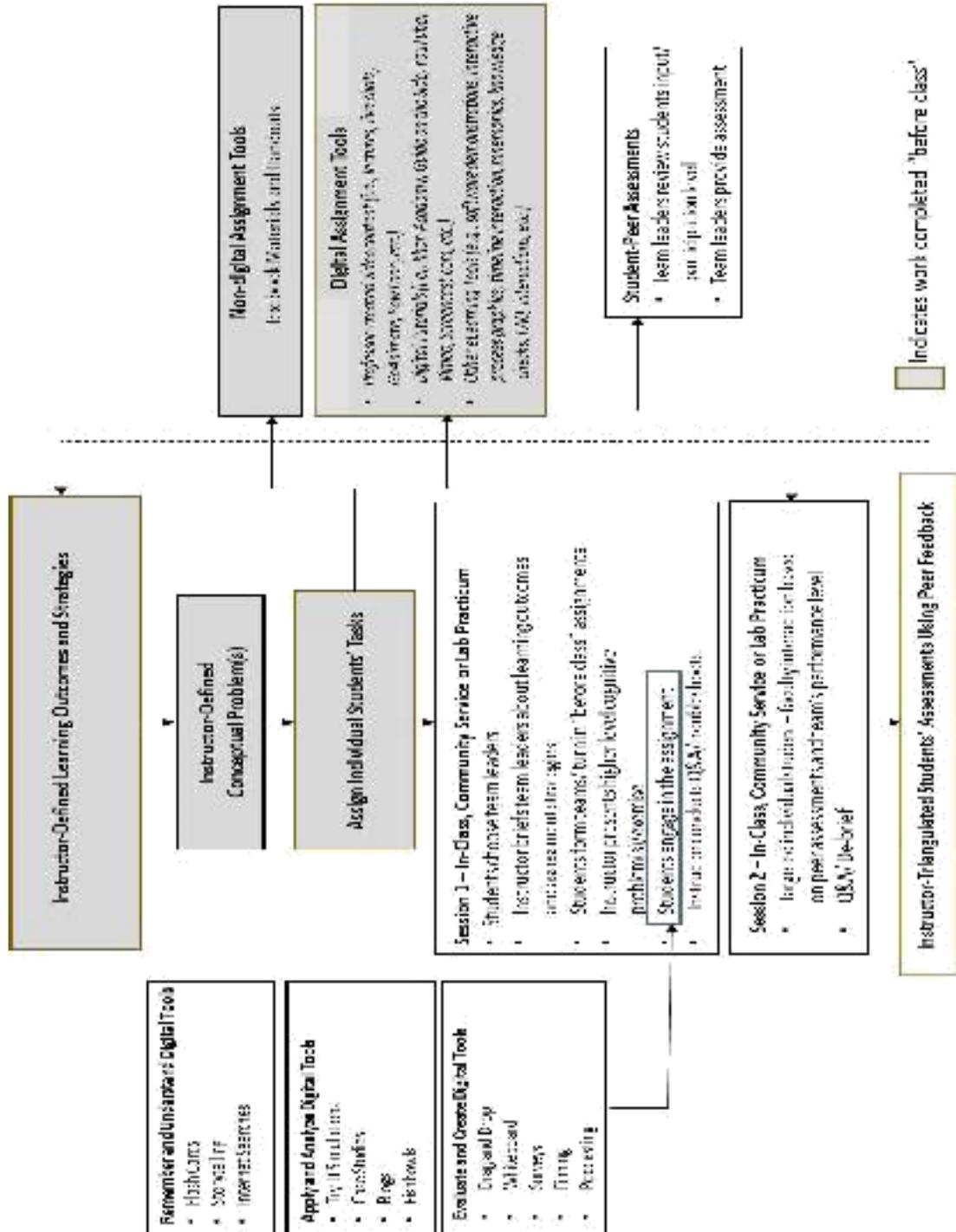
Figure 3. A Two-Session Flipped Class Model Integrating Technology and Enhanced Student-Faculty Interaction

Conclusion

The failure of teaching and learning models to foster critical thinking has led researchers, corporate leaders and educators, alike, to conclude we are a nation "academically adrift." Turning the tide will require non-traditional teaching and learning models that train students to design and exercise critical thinking skills across their academic, daily and work lives.

  Developing well-grounded pedagogy is time consuming for faculty. Implementing an engaging and experientially-based flipped classroom is no exception. Educating Millennials, and generations to come, will require not just more effective teaching methodologies, but the commitment on the part of colleges and universities to value and reward the work necessary to facilitate deep student learning. Research shows that reforming reward systems to encourage multiple forms of scholarship has made a difference (O'Meara, 2005). There is consensus, however, that overhauling the faculty-reward system will not work without a broad shift in the attitudes of professors who determine whether the scholarship of their peers measure up. In the meantime, it is incumbent upon the academy to maximize, in creative ways, the use of various technologies that can both facilitate and enhance learning experiences for these millennial students. Flipping the classroom represents one pedagogical approach. Flipping the classroom places technology in a context that helps encourage student-faculty contact, cooperation among students and active learning. Active learning is associated with deep learning. It fosters a search for meaning and understanding, greater student responsibility for his/her learning, concern for skills as well as knowledge, and approach to the curriculum which goes beyond graduation to career, social and global settings.

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