# USING ACADEMAGOGY TO MEET THE NEEDS OF MILLENNIAL LEARNERS: A COMPARATIVE CASE STUDY

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**Abstract**

Higher education institutions across the world are experiencing a new generation of students, known as millennial learners. They are more technologically literate and digitally connected than previous generations of learners. To meet the teaching and learning needs of these learners, we must offer more deliberate and meaningful learning experiences and opportunities, where students can see the connections between new material and their own experiences and real world applications – an academagogic approach. This study compares the implementation of academagogy for two different groups of millennial learners – one a traditional face-to-face undergraduate Engineering unit, and the other a mixed-mode (online and face-to-face) undergraduate Design unit. The units are discussed in terms of their student evaluation results, both qualitative and quantitative, and in terms of their academic outcomes for students. Conclusions are drawn about the applicability of academagogy as a heuristic for improving teaching and learning across disciplines, as well as its strengths and limitations in terms of student results.

**Keywords:** Academagogy, millennials, undergraduate, teaching

## Introduction

In order to understand why it is necessary to rethink current teaching pedagogical practices, it is important to understand the context of the HEI landscape in terms of our current teaching generation, as well as our contemporary learning cohorts.

It cannot be disputed that in the higher education sector the generation gap has widened between those who teach, and those who learn. In many higher education institutions (HEI) across the world, the average age of teaching staff is approximately 50 years old, whereas a student graduating from an undergraduate degree is around early to mid-twenties (Mangold, 2007). This means that many educators in HEI's are from the "baby boomer" generation (born between 1946 and 1964), and the significant majority of students are the "millennial" generation, born between approximately 1981 and 1999 (Lancaster and Stillman, 2002). Although over-generalising should be avoided, certain characteristics are shared by a common group of people such as life experiences or experienced events in society at approximately the same point in development, such as wars or the 9/11 tragedy. In sharing life experiences, a common link to values, beliefs, attitudes, behaviours and perceptions of the world is evident (Lancaster and Stillman, 2002; Collins and Tilson, 2001), and, as such, shared life experiences unique to each generational cohort also influence the learning preferences for each generation (Billings, 2004).

There are significant differences in learning environments in HEI's between those of baby boomers and millennials. Baby boomers were "educated in a time when learners were dependent on educators to give them information and this usually occurred in the lecture format. They sought a caring environment and responded well to positive feedback"

(Mangold, 2007, p.21); furthermore, they perceive technology to be something that is 'good to have', rather than a necessity. Generally, "this group wants to know the "what" and "how" before learning the "why" in a new situation...they are more process oriented than outcome oriented" (Mangold, 2007, p.21). Zemke, Raines and Filipszak (2000) assert that this group of learners do not appreciate learning environments where any form of discomfort is present and appreciate a personal touch from their educators.

On the other hand, millennials are very technologically literate and see technology as a necessity, as they have always been digitally connected. Computers are not perceived to be 'technology', but rather as tools and devices that are imperative for functioning in everyday life. This generation values the 'doing' rather than the 'knowing': the ability to search and manipulate information in the *generation* of knowledge is perceived to be far more important than the *attainment* of knowledge (Zemke, Raines and Filipczak, 1999).

Millennials are the most diverse generation in terms of teaching experiences, and therefore the approaches to teaching must be diverse. "Millennials expect to be engaged in their learning, they do not do well being passive learners. If you (as a teacher/university) do not have technology that will be part of their learning, they will go somewhere else where they can be engaged with, and interactive with, technology. Millennials perceive a sharp contrast between their comfort level of technology and the technology comfort level of their teachers" (Starlink, 2004).

The 'trial and error' approach that is inherent to the millennial generation is borne out of a video game culture "where persistence pays off and reading the manual is not very helpful" (Mangold, 2007, p.22). Frand et al. (2000) argue that millennials are adept at multitasking and it is common for them to surf the Internet, listen to music, and text at the same time. This creates intolerance for slow connections and delays. These factors lead to specific preferences in learning styles: millennials expect, prefer and appreciate technology used in learning and "excitedly anticipate what will come next" (Mangold, 2007, p.22). The pace at which this savvy generation can absorb technology exceeds the ability of many teaching staff in HEI's to constantly maintain and integrate technologically enhanced education (Collins and Tilson, 2001).

Millennials are adaptive, open to interdisciplinarity, are team workers and are "natives" of this new, digital, consumer driven, flat, networked, instant satisfaction world. While some in the older generations may adapt quickly, they will always be "digital immigrants" and will never be as competent, resourceful or "natural" as the Millennial "natives" born into this new culture (Sweeney, 2006). Additionally, where lecture theatres and other traditional classroom and laboratory environments may be comfortable from an educator's point of view, the millennial generation are more engaged and motivated to learn in connected ways, 'authentic learning experiences', or 'real world' contexts rather than sitting listening to the educator 'lecturing' the facts to them.

The complexities of the millennials' learning needs require us to 'repurpose' teaching practices, and many educators have approached the classroom with new and inventive ways to impart learning. To address these new approaches, the authors of this paper discuss a teaching approach which challenges the baby boomer approach to teaching and offers deliberate and meaningful learning experiences and opportunities for millennial students.

Certain pedagogical paradigms such as experiential learning (Schank, 2007) and the application of Bloom's taxonomy (Forehand, 2005) are commonplace in university curriculum, but notwithstanding these and other valuable initiatives and programs implemented in various institutions, the disconnect and ever-increasing gap between the current generation of learners and teaching and learning methodologies have become even more apparent.

**Academagogy**

The many theories in the teaching and learning context "are constantly being reviewed and discussed in professional education, especially in terms of the university educational environment. Teaching and learning theories in this context are not static and appear to be in a constant developmental process" (McAuliffe, Hargreaves, Winter and Chadwick, 2008, p.1). Education, in particular in the university sector, is in a constant state of flux and those in teaching and learning constantly seek ways toward improvement particularly in undergraduate education. However, some approaches that are proposed typically follow the 'one size fits all' that tends to observe rigid 'rules' and procedures. This is especially true in the HEI context of decreasing resources, an increasing risk-adverse environment and university demand for quality assurance involves greater transparency and learning outcomes linked directly to course aims and objectives (McAuliffe, 2013).

Academagogy (Winter et al., 2009) is a 'meshed' model of pedagogy, andragogy and heutagogy and allows for flexibility in teaching by using a variety of methods. It may be used across diverse cultural, generational and disciplinary backgrounds, as it considers students' prior knowledge in the context of social constructivism. In teaching undergraduate students (including millennials whose complex learning styles prompted its development) using the academagogical model, it is understood that academics do not simply deliver knowledge and content to a 'tabula rasa'; students are taught the content, and as such, a variety of student characteristics affect the way that learning occurs.

Discussions around academagogy to date are summarised in McAuliffe and Winter (2014); it has progressed from development as a heuristic organising construct through to implementation in face-to-face engineering education and then to the online space in design education. One of the primary aims of academagogy is to "open up teaching concepts, and allow the informed academic to apply what works for them in their own context. This means that the facilitator, or, in the university context, the lecturer, could select certain concepts from the 'buffet' of educational concepts – take what is required for the appropriate learning outcomes, because they have permission to look at the whole spread and evaluate it for their own purposes" (Winter, McAuliffe, Chadwick & Hargreaves, 2009, p. 993).

In our previous work on academagogy, we have focused on the traditional classroom face-to-face (f2f) student and teacher interaction space, then its progression to an online learning environment. The first case study was in engineering education (Winter, McAuliffe, Chadwick and Hargreaves, 2009) where the application of academagogy to a third year face-to-face (f2f) subject resulted in both better outcomes for all students and a statistically significant improvement in the subject evaluation at the end of the semester. The second case study was the implementation of academagogy in two new ways – firstly, in a design subject (rather than an engineering one), and secondly in a unit offered in a largely online (rather than f2f) format (McAuliffe and Winter, 2013). The outcomes of these two case studies are the focus of discussion below.

**The Philosophical Position of Academagogy**

In discussing academagogy it is important to state our position of social constructivism as the underlying perspective. This standpoint defines that learning is shaped by context, conversation, and collaboration (Brown, Collins & Duguid, 1989; Dewey, 1963; Vygotsky, 1978). As a summary of the importance of using the social constructivist stance in terms of learning practices, Swan (2005) suggests that "learning is essentially a social activity, [and] that meaning is constructed through communication, collaborative activity, and interactions with others. It highlights the role of social interactions in meaning making... [and] knowledge construction" (Swan, 2005, p.5). This is the underlying principle that guides the academagogical approach.

Murthy, Furness and Wardle (2012) argue that the academagogical framework hinges on social constructivism in that it addresses the major skill gap of team work for professionals new to industry, it provides increased interaction between learners and facilitators allowing more active communication, and finally, it permits millennials social connectivity.

When the social constructivist stance is employed as a theoretical framework and applied in an online course, the online discussions and e-tutorials are critical as they connect individuals to each other in an online learning environment and motivate them to take an active role in knowledge construction and meaning-making processes (Fung, 2004; Henning, 2004; Stacey, 1999). Moreover, Hill, Song and West (2009) suggest that online environments should support threaded discussions, through which individuals "interact and observe the results of their interactions while responding to and engaging with others" (Hill, Song & West, 2009, p.89).

According to Partlow and Gibbs' (2003) study, courses designed from constructivist principles should be relevant, interactive, project-based, and collaborative, whilst also providing learners with some choice or control over their learning.

**Academagogy and Interdisciplinarity**

Interdisciplinary approaches in higher education are not a new concept, and increasingly the HEI is meeting the needs for the millennial generation in adopting interdisciplinary approaches to educational programs. These programs provide students with a broad based education and prepare them to function in collaborative work teams which are increasingly prevalent in today's workplace. When students work with students from different disciplines, development of high level communication skills requisite to effective teamwork is accelerated. El-Zubeir, Rizk, and Al-Khalil (2006) suggest that this model of learning provides a greater degree of intended, structured and planned interaction among students from different programs. Interdisciplinary structured programs also create opportunities for joint learning, planning, and understanding as well as decreasing tensions among stakeholders who traditionally have worked alone or in strict discipline groups.

Interdisciplinary learning and teaching provides opportunities for both students and facilitators to work in diverse projects, provides understanding and appreciation of the roles of others, and sharing successes and areas for improvement. Further, this style of curriculum supports the team oriented millennial student.

In applying the academagogical approach to a non-specific, curriculum development and interdisciplinary level, Murthy, Furness and Wardle (2012) suggest that the "suitable learning methodologies [are required] in to assure achievement of stated learning outcomes and...an academagogical framework...is suitable to leverage technology and build a learning ecology that suits millennial learning styles" (Murthy, Furness and Wardle, 2012, p. 305). The authors present a conceptual map of the academagogical framework which suggests the application at a faculty level encompassing learning and teaching consultants as well as teaching staff (Figure 1).

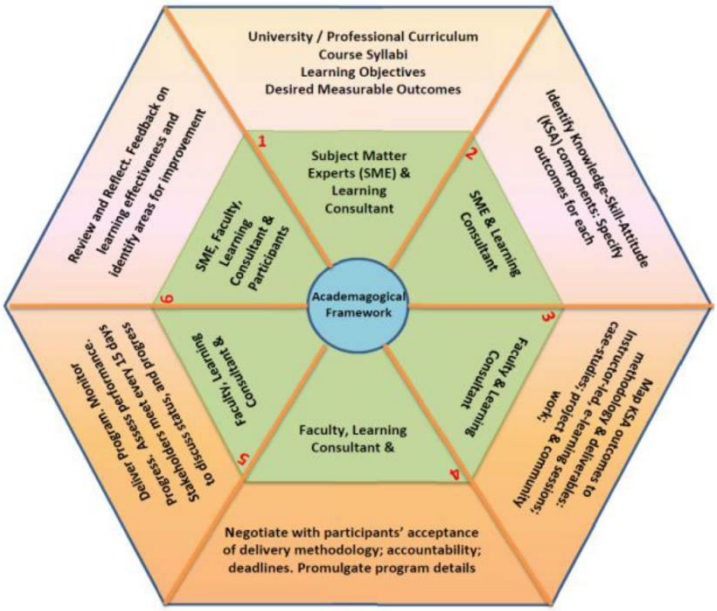


Figure 1: Conceptual map of academagogical framework (Murthy, Furness and Wardle, 2012, p. 307)

Rather than implementing academagogy at a subject level (as was originally proposed by Winter et al., 2009), Murthy (2011) suggests building an academagogical framework based on learning principles, where the "delivery of curriculum is jointly negotiated between the learners and facilitators, much akin to a client-supplier relationship in industry. The scope of learning delivery should include professional competencies and behavioral skills that address industry needs" (Murthy, 2011, p 1). This approach is "an effort to bridge the competency-gaps while keeping aligned to technology, environmental and societal changes (Murthy, 2011, p. 2). The application of the academagogical framework at the curriculum development level "promotes joint ownership of outcome based academic curriculum between the learners and facilitators; encourages communication and teamwork; leverages on the millennial need for social connectivity on a 24x7 basis [but] more significantly, the framework supports [a] holistic transformation from using of information to application of wisdom; converting knowledge into action through experiential learning and simulated role plays; [and] nurturing positive attitudes impacting behavioral transformation" (Murthy, Furness and Wardle, 2012, p. 307).

Taking the academagogical framework proposed by Murthy (2011) and Murthy, Furness and Wardle (2012) above, this interdisciplinary approach benefits more than students and Maier (2012) confirms the value of faculty interaction and collaboration. Evidence suggests there is value in faculty collaborating with other faculty (Cox, 2004) and in sharing pedagogical practices and effective uses of eLearning tools and instruction "collaboration is often the basis for improving teaching effectiveness and building community online" (Maier, 2012, p. 885).

Developing curriculum and teaching practices and approaches with a connected interdisciplinary approach helps prepare future professionals to work with more complex systems; requiring our graduates to have integrated knowledge and competencies capitalising on the challenges and opportunities in building community-based collaborations is necessary in "building trust among team members, selecting an effective leader with strong facilitation skills, respecting different areas of expertise, learning to deal with conflicting opinions in constructive ways, recognizing the difficulties and stresses inherent in team membership, and supporting team decisions once they are made are all suggestions for avoiding internal team problems" (The Higher Education Mental Health Alliance Project (n.d., p. 31).

**Case Studies in Academagogy**

The first case study (Winter et al., 2009; Winter, McAuliffe, Hargreaves and Chadwick, 2009) was an Engineering context where third year (in a four year degree) undergraduate students were learning the theoretical and practical principles for stress analysis. Almost 100 students were enrolled in the unit, and lectures and tutorials were all held f2f over the thirteen week semester. Prior to implementing academagogy, the history of the unit indicated mediocre results: student feedback and the results of the final exam showed limited retention of knowledge. Students were passing the unit based on quizzes and assignments, with 40% failing the final exam. Student evaluations of the unit consistently showed that the teaching was too fast and covered too much content. Following the implementation of the academagogical approach, the outcomes revealed a remarkable difference in the reduction of failure rate in the final exam (20.54%). Student evaluations of the unit also showed a statistically significant improvement in ratings.

Taking the principles of academagogy, the second case study (McAuliffe and Winter, 2013; McAuliffe and Martin, 2013) was a Design context where second year (in a four year degree) undergraduate students were learning the theoretical and practical principles for colour theory, light and lighting. More than 120 students were enrolled in the unit, and approximately 90% of the subject matter was delivered online over a thirteen week semester. Prior to this iteration all material was delivered f2f, and the history of the unit indicated poor student feedback, as well as low pass rates for the assignments.

The primary differences between the two case studies are that the Engineering unit was only taught f2f, and the Design unit was taught primarily online. The discussion below examines student satisfaction rate and academic outcomes, but does not concern the discussion of delivery mode.

**Student satisfaction**

In the 2009 Engineering unit, the end-of-teaching evaluation of the unit resulted in a final score from 15% of the class of 3.7 (on a five-point Likert scale) to the question: *I have been satisfied with the overall quality of this unit*. In the 2013 Design unit, the end-of-teaching evaluation of the unit resulted in a final score from 27% of the class of 4.0 (on a five-point Likert scale) to the question: *Overall, I am satisfied with this unit.*

In the Engineering unit, students were asked two open-ended questions. The first was, *What were the best aspects of the unit and why?* Their responses covered three main areas: the skills of the teaching staff, the software taught, and the academagogic teaching approach. For example:

- The layout of the unit was really good, as were the presentation of the lectures. Asking for student feedback on how the lectures should be run is also a great idea.
- It is the way the lecturers presents the lecture, they provide a cool amount of the examples and explanations
- The notes that were sent out before each lecture for the last few lectures were a great help. They were much easier to read than the text and showed us exactly what we needed to know for the unit.

Students in the Engineering unit were also asked to respond to a second open-ended question, *What aspects of this unit are most in need of improvement and why?* Their comments in response to that question were mainly about the textbook being a less-than-useful resource for the unit:

- The textbook is fairly bad, hard to understand and in fairly badly set out.
- The textbook needs improvement, the contents aren’t easy and not really straightforward

- The content is very difficult to get at first. Textbook is no help. Sending out notes was a good idea - do that next year, rather than posting them on blackboard.

The final comment indicates an appreciation for the academagogic approach taken by the lecturer – sending out notes ahead of each class so that students could focus on the complexity of practical exercises rather than theory during valuable class time with the lecturer.

Students in the Design unit were also asked to respond to an open-ended question in their end-of-teaching evaluation, *Please provide any further feedback you may have about this unit*. Their responses were generally about the teaching approach of the unit – being mostly online with occasional face-to-face meetings:

- Even though the unit was online, the lecturers were very helpful and understanding which helped make students feel comfortable and kept us on the right track. the lecturers made this unit very enjoyable with their constant support and communication
- not particularly a fan of the online learning ... I would rather more face to face feedback ... however the learning strategies implemented worked well ... alot of effort shown by the tutors and lecturers
- although I was not very happy that this unit was conducted online, the coordinators made a huge effort to make sure everyone was okay and got all the help they needed
- Being an online unit was quite difficult as there are no formal lectures and tutees, however the one on one Skype sessions have been fantastic!
- The overall unit was good. I felt it made it difficult being online just with meeting up with tutors and trying to get out information. However, I loved the research assignments and very interesting to the field of interior design. Tutors amazing and helpful as always.
- The online lectures of this class were a fantastic resource to learn at my own pace and have the ability to revise the content whenever needed. Having pdf copies of the content was also very useful. All of my questions were promptly answered and the teaching staff were always happy to help. Having a few on campus classes was also very beneficial to be able to receive some feedback from peers and tutors. In the future I think the technology will be better integrated and the unit will run more smoothly. I was really impressed with all of the work produced by my peers in this subject.

**Academic outcomes**

In terms of student outcomes, both units have strong results. The Engineering unit reduced the failure rate from 40.54% in 2008 to 20.00% in 2009. The Design unit improved from two grades of 7 (on a 7-point scale, where 7 is the highest grade available, a High Distinction) in 2012 to 16 grades of 7 in 2013, when both an academagogic approach and the first online offering of the unit were implemented. The failure rate for the Design unit has remained low, between 1% and 4%, each year that the author has been the coordinator (2009-2013). One exception to that low failure rate occurred in 2011, when a different staff member was in charge of curriculum.

As shown in Figure 2 below, the spread of results is different between the ordinary approach to teaching and learning and the academagogic approaches, in both the Engineering and Design units.

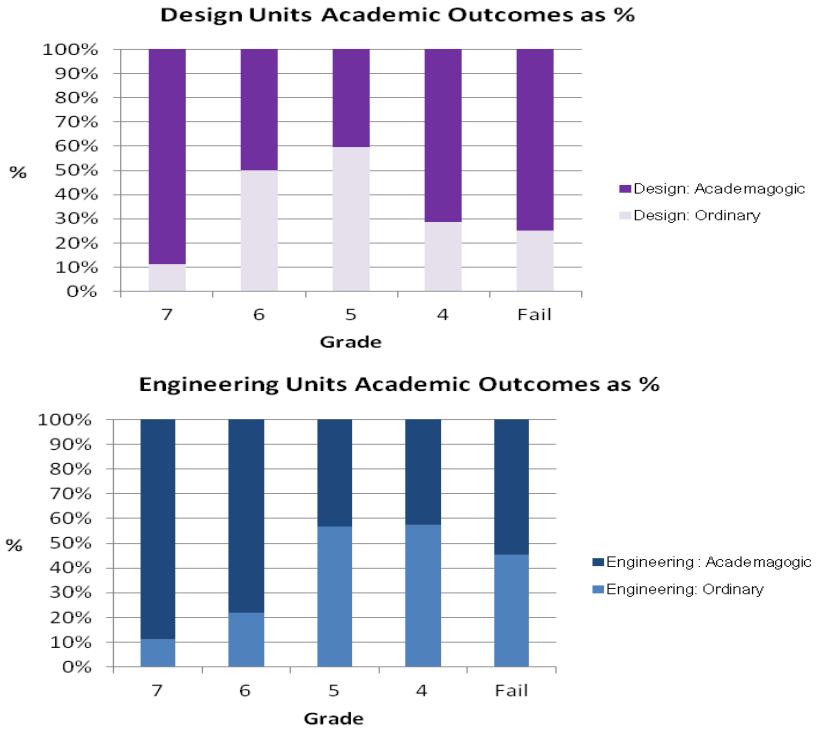


Figure 2: Spread of results of Ordinary and Academagogic approaches to teaching and learning

## Outcomes

The student evaluation and results data for these two units show that students appreciate the academagogic approach when it is offered to them, even if other circumstances (the content, the textbook, the mode of delivery) are challenging for them. Comments surrounding the Engineering unit about asking for student feedback, and the Design unit about the learning strategies show that students both recognise the work that has gone into designing and implementing the unit in an academagogic way, and value the interest that the teacher is showing in their learning by taking the time to use academagogy in an effort to make their learning more personalised.

The data also reveals that applying an academagogic approach to teaching and learning in higher education does not mean a lowering of the standards – both units maintained similar failure rates; it was the spread of results that shifted, with more students achieving higher grades.

Early results appear to be positive when the approach proposed in the Engineering context is applied to the Design unit, which suggests that the framework proposed by Murthy (2011) and Murthy, Furness and Wardle (2012) benefits learning outcomes as well as creating cross-disciplinary faculty interactions, collaboration and research in learning and teaching. This also aligns with Maier's (2012) concept of sharing pedagogical practices, thus improving teaching effectiveness and building interdisciplinary learning and teaching communities.

## Conclusion

Implementing academagogy is not a 'one size fits all' approach, and as such, is very time consuming for the lecturer because of the need to tailor the delivery to the students' requirements (which will most likely change from semester to semester). Extra support and planning time is one of the major requirements for academagogy. Delivering material online also requires the lecturer to play more of a facilitator role, rather than a more directive or authoritative one, which conflicts with traditional teaching methods and requires the teacher

to somewhat 'trust the learning process', to step back and allow learning to happen without 'hands-on' direction and guidance.

When taught using academagogical principles, students' comments show that they develop the knowledge and confidence as independent thinkers and this leads to new thought processes. This approach has challenged the students to 'step up to the plate' in terms of their own learning, and they have responded to this challenge, exhibiting that they are empowered by having input into what and how they learn. This has enabled them to broaden their knowledge, being able to think holistically about the interdependence and interrelationships of complex issues that do not have 'hard and fast' rules, but rather are complex, mutli-faceted and abstract, such as the case in colour theory.

The academagogical approach requires more than taking elements of other 'gogies'; it is rather an ongoing process applied to tailor the teaching and curricula to suit the students' needs. It requires flexibility with each cohort of students, their generation, and their own learning and life experiences. Distance education has moved on from the time where the lecturer could simply upload teaching materials online and then expect students to undertake their own learning without ongoing support from the teaching staff. Taking this into account, the academagogical approach has the potential to greatly assist with distance education, particularly in a time where the needs of Millennials have dramatically changed the face of teaching and learning across the globe.

**Acknowledgements**

The authors gratefully acknowledge the valuable contribution, support, thoughts and advice of Dr. Gary Chadwick and Ms Penelope Martin at the Queensland University of Technology.

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