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Historically, the lecture-based course delivery format has been the standard method of teaching across most college campuses. While this was once an effective approach for previous generations, it is now understood that this format creates a stale learning environment. To prevent this from happening with the Gen Z learner (1995-2012), instructional methods that foster a student-centered learning environment and promote active learning must be examined. The purpose of this study is to determine the impact of implementing the flipped classroom instructional method on student engagement, academic success, and overall course satisfaction of students in an established injury evaluation and recognition course. Students from the course (n=11) participated in this 10-week study and completed an introductory questionnaire, the Student Course Engagement Questionnaire (SCEQ), weekly journals, and a course activity satisfaction questionnaire early in the protocol and then again at the completion of the protocol. Instructor weekly journals were also included to provide an additional perspective.

Based on the combined results from the study, it appears that the intervention was worthwhile, and that the implementation of the flipped classroom instructional model had a positive effect on student engagement, academic success, and overall course satisfaction. The components of the flipped classroom appeal to this generation of learner. Offering students the opportunity to learn professionally relevant content, at their own pace, and using a wide variety of resources appears to be very beneficial. Additionally, even though students felt that the content in this course was more difficult and more work was required of them in this course compared to their other courses, they were still very satisfied with the overall structure and their performance in the course. This provides additional support of the use of the flipped classroom instructional model with the Gen Z learner.

IMPLEMENTATION OF THE FLIPPED CLASSROOM TO IMPROVE STUDENT ENGAGEMENT, ACADEMIC SUCCESS, AND OVERALL COURSE SATISFACTION

By

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I would like to dedicate this dissertation to my amazing daughters. I did my best for you two during this time and I know it wasn't always great, but you both were an amazing inspiration to me. Thank you for allowing me to be your dad!

APPROVAL PAGE

This dissertation written by Christopher P. Crawford has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

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CHAPTER I

PROJECT OVERVIEW

Despite advances in technology and innovations in teaching, the lecture-based course delivery format has been the standard method of teaching in higher education, with recent findings indicating that as many as 80% to 90% of classes are being taught in this manner (Bligh, 2000; Patterson, 2011). This instructor-centered environment was once considered to be an effective approach for educating previous generations. Now though, it is known to create a stale learning environment that leads to students who have become passive learners and who are no longer engaged (Miller & Metz, 2014). Students taught using this format are dependent on the instructor to provide the appropriate information without developing any true content comprehension or the ability to transfer that knowledge into real-world settings (Toothaker & Taliaferro, 2017; Alt, 2015). Unfortunately, many pre-professional allied health programs still rely heavily on this instructor-centered environment even though their curriculum encompasses both didactic content and practical, hands-on skills (Heinerichs et al., 2016).

In contrast, a student-centered learning environment, grounded in constructivist theory, enables students to create their own learning opportunities through active participation in the learning process (Lee & Hannafin, 2016). As a result, improvements in academic self-efficacy, student engagement, and critical thinking skills have been seen (Alt, 2015; Alt, 2016; Bradford et al., 2016; Miller & Metz, 2014). The flipped classroom is an instructional strategy that utilizes various active learning strategies and is often associated with a student-centered learning environment due to the shift in responsibility of learning to the student (El Banna et al., 2017).

In its simplest form, the flipped classroom consists of three parts: 1) a pre-class component, 2) an in-class component, and 3) a post-class component and "flips" where content absorption and content engagement take place. In the traditional classroom model, content absorption (learning) occurs in the classroom, often via lecture or some other instructor-centered method, and then students are asked to engage (apply) with the often-difficult content in isolation outside the classroom. In flipped classroom instruction, students are asked to absorb (learn) the content before attending class via pre-recorded videos and discussion (pre-class), then encourages students to engage (apply) with these concepts during class time while interacting with peers and receiving guidance from the instructor (in-class). This method encourages students to ask questions and engage in problem solving, "thus allowing students to better prepare for learning the material" (Cassola, et al., 2017, p. 421). Numerous studies in other academic disciplines have been done examining the effectiveness of the flipped classroom, but additional research is needed that focuses on the relationship between student engagement, academic success, and course satisfaction among undergraduate students in pre-professional allied health programs.

Review of Relevant Literature

Gen Z Learner Characteristics

The learner characteristics of most traditional students enrolled in higher education today are very different than those of students who had enrolled before them. Students today crave variety, activity, and a connection. What once was considered an effective model of content delivery for past generational learners like the Baby Boomers (1946-1964) and Gen Xers (1965-1980), is no longer effective. The Millennial generation (1981-1994) displayed learning characteristics that were much different than those that preceded them and thus presented some unique challenges in the classroom (Roehling et al., 2011; Monaco & Martin, 2007; Johanson, 2012). Gen Z learners, those born between 1995-2012, followed the Millennials and are now the

largest generation of learner enrolled in college. While Gen Z learners share some characteristics with Millennials, they are a vastly different generation (Seemiller & Grace, 2017). Having been influenced by numerous advancements in technology, an unpredictable economy, and social rights movements (Seemiller & Grace, 2017), Gen Z learners create an entirely new set of challenges for today's educators. They often have a short attention spans and require high levels of stimulation to remain focused. They are creative, native to most forms of technology, prefer to engage in hands-on learning, career-driven and entrepreneurial, want what they learn to be applicable to real life, comfortable with intrapersonal learning but are equally as comfortable in collaborative settings, self-reliant, goal-oriented, and socially conscious (Seemiller & Grace, 2017; Cameron & Pagnattaro, 2017; Schwieger & Ladwig, 2018). Pousson and Meyers (2018) pointed out that the Gen Z learner has a penchant for intrapersonal learning because they prefer to learn at their own pace. They continue to suggest that once these students learn the assigned content, they are now willing to work collaboratively or engage in classroom discussions.

Overall, this generation values information, stimulation, and connection (Cameron & Pagnattaro, 2017) with an environment that utilizes collaborative, self-directed, and community-based project learning. When these students are taught in an environment where the focus is on instructor, they will no longer see any relevance and disconnect with the content and the course. A shift to the student-centered environment, where students are actively engaged in their learning appears to be a much better option for this generation of learner (Betihavas et. al, 2016).

Student-Centered Learning & Constructivism

A student-centered learning environment shifts the focus from the instructor to the student, enabling them to actively participate in the learning process. Constructivism is the term often associated with this student-centered type of learning. It's important to understand that constructivism is not a single, unified theory but rather a method of instruction where the student

is engaged in knowledge construction by completing tasks that directly relate to the world around them. Lew (2010) suggests that at the heart of constructivism is the thought that learning is neither a passive or a copying process, but rather a process of discovery that requires active participation and that what they learn is ultimately based on their own experiences. Basic belief of constructivism or constructivist theory is that it supports this student-centered learning environment and is an environment where the students are active knowledge constructors rather than passive information receivers (Wang et al., 2007).

In the 21st century classroom, authentic learning is a priority; learning that includes the ability to think and apply scientific knowledge for individual and social purposes, as opposed to merely memorizing and recalling facts (Lew, 2010). Constructivism intends to refine student knowledge, develop inquiry skills through critical thinking, and lead students to applying new knowledge and developing new opinions about the world around them (Blaik-Hourani, 2011; Finn, 2011). Additionally, Wang and colleagues (2007) state that for people in the new information age, critical thinking has become an essential component for success. Powell and Kalina (2009) suggest that an effective learning environment can occur when students feel free to create unique concepts and by providing opportunities for students to collaborate and experience real world or meaningful practices. Dillman-Taylor and colleagues (2017) provide support by suggesting that the student and the instructor collaborate to create a meaningful learning opportunity, where students learn through experience, while participating in an active learning environment. When utilizing instructional methods that directly contrast those of constructivism, educators fail to challenge student thinking and their ability to apply the material that they have learned to the solving of real-world problems occurs (Blaik-Hourani, 2011).

Active Learning

Active learning is a student-centered approach rooted in constructivist theory. With this approach, the student takes over the responsibility for his/her learning and where they are active in every step of the learning process (Demirci, 2017). Thompson and Ayers (2015) suggest that active learning describes any instructional approach that "fosters student engagement in the material and is believed to promote critical thinking skills" (p. 316). This type of learning can manifest itself through a variety of ways including; in-class written exercises, debates, class or small group discussion, games, audience response systems, problem-solving exercises, simulations, case studies, role playing, etc. (Weigel & Bonica, 2014; Demirci, 2017). Demirci (2017) suggest that instead of focusing on lower levels of learning, specifically those related to remembering and understanding (Krathwohl, 2002), active learning encourages students to attempt higher levels of thinking on Bloom's taxonomy such as analysis, synthesis, and evaluation. Goldberg and Ingram (2011) found that by incorporating active learning strategies into a lower level biology class, student engagement and higher-order cognitive skills improved. Miller and Metz (2014) state that studies have indicated that active processing of information can improve student's comprehension of physiology, problem-solving abilities, and critical thinking skills. It's this transition from lower levels to higher levels of thinking that promote greater understanding of the content while also improving content retention (Goldberg & Ingram, 2011).

With active learning, improvements in engagement and collaboration occur. Additionally, there seems to be an increased motivation to learn which can then translate into an increased likelihood of meeting or exceeding learning objectives of the course (Casasola et al., 2017; Freeman et al., 2014; Goldberg & Ingram, 2011; Ott et al., 2018). Lom (2012) provides evidence that collaboration within active learning has been shown to improve scores, provide a deeper understanding of physiology, and promote classroom discussions. Starmer and colleagues (2015)

showed that there is a positive correlation between student engagement/level of participation and course performance. This suggests that their increased levels of engagement and participation attributed to greater levels of understanding.

Essential to this active learning approach is the view that the learner is responsible for discovering, constructing, and creating something new and the view of the instructor is as a resource and facilitator. Educators must be willing to find different instructional strategies for engaging students in the classroom and one such strategy is that of the flipped classroom.

Flipped Classroom

An instructional strategy that has merit in both constructivism and active learning, is that of the flipped classroom (Brewer & Movahedazarhouligh, 2016, Moraros et al., 2015; O'Flaherty & Phillips, 2015). In this model, most of the content absorption takes place outside of the classroom, where the student can learn at a pace that is ideal for them. The majority of content engagement then occurs in the classroom where they can receive guidance from their instructor and peers on more difficult concepts through debates, hands-on learning, games, simulations, case studies, role playing, and other interactive strategies. This flipping of absorption and engagement is also an active learning process since it shifts the responsibility of creating their own learning opportunities to the student. (Brewer & Movahedazarhouligh, 2016; Casasola et al., 2017; Heinerichs et al., 2016; Moraros et al., 2015; O'Flaherty & Phillips, 2015; Unal & Unal, 2017).

Beapler and colleagues (2014) examined the effects of the flipped classroom on achievement and found that student exam results in the flipped classroom were significantly better than those enrolled in the traditional class format. Using students in a Masters-level graduate class, Moraros and colleagues (2015) found that the overall effectiveness of the flipped classroom method was rated high by the students and they also felt that they were given a greater number of opportunities to be actively engaged in their own learning and improve on content

mastery. Missildine and colleagues (2013) looked for a correlation between the flipped classroom and academic success of baccalaureate nursing students and found that average examination scores were significantly higher for the students enrolled in the flipped classroom portion of the study. They also state, that by using various active learning strategies students were able to apply theoretical information to clinical practice, creating that sense of relevance that Gen Z learners desire (Missildine et al., 2013).

Purpose and Research Aims

As the Gen Z undergraduate population continues to grow, different and innovative instructional strategies are necessary to support their unique learner characteristics. When Gen Z students participate in an active, student-centered learning environment, a better educational experience is possible. The purpose of this study is to determine the impact of the flipped classroom instructional method on student engagement, academic success, and overall course satisfaction of students in an established injury evaluation and recognition course.

Specific Aim #1 – *Implement the flipped classroom instructional model in an established undergraduate course for pre-professional allied health majors*. Current literature and best practices on the flipped classroom were examined to determine the appropriate design and implementation of this instructional model.

Specific Aim #2 – *Determine the effect the flipped classroom instructional model has on student engagement, academic success, and course satisfaction*. After implementation of the flipped classroom instructional model, student weekly journals and multiple questionnaires were used to determine its effects.

Methods

Following Institutional Review Board (IRB) approval from both the University of North Carolina at Greensboro and from the university where the study took place, a presentation was

given during class that discussed the purpose of the study, details regarding implementation of the study, the role that they would have within the study, and their options for participation.

Participants

Eleven full-time students who were currently enrolled in the pre-existing, semester-long injury evaluation and recognition course were the target population for this study. Following the introduction to the study, an email was sent to each student's university email account inviting them to participate. Included in the email were instructions asking them to read, sign, and return the attached letter of consent. All eleven students (n=11) who were enrolled in the course agreed to participate. Participants were 55% female (n=6) and 45% male (n=5). Ages of the participants ranged from 19 (n=2) to 22 years old (n=1), with most indicating that they were 20 years old (n=6). Almost all study participants identified as a domestic student (n=9), with the remaining (n=2) identifying as international students. Overall, 36% (n=4) of the students in the course indicated that they had prior experiences with a flipped classroom, while the remaining 64% (n=7) indicated that they had no prior experiences with a flipped classroom. Since the researcher was also the instructor of the course, a faculty member who was not affiliated with the study agreed to act as a point of contact for the students should any concerns arise. All participating students were introduced to this faculty member and were provided their contact information as well.

Demographic Data

Introductory Questionnaire – An introductory questionnaire (Appendix B) similar to that used by McNally and colleagues (2017), was administered to identify how the students learn best, their use of technology in the classroom, when they prefer to learn content, and any experiences with active learning techniques. In total, there were 14 questions, 10 of the questions were categorized into themes: those favoring the traditional classroom format and those favoring a

flipped classroom format. A 5-point Likert scale was used to assess these questions. The remaining four questions were used for gathering demographic information.

Student Engagement

Student Course Engagement Questionnaire – Engagement levels of participating students were assessed using the Student Course Engagement Questionnaire (SCEQ) originally developed by Handelsman and colleagues (2005). The SCEQ (Appendix C) has 23 questions that are equally weighted and are assessed using a 5-point Likert scale. The goal of the SCEQ is to provide a more comprehensive understanding of student engagement and to encourage a more thorough assessment of classroom engagement (Handelsman et al., 2005). Initial work from Handelsman and colleagues (2005) and later verified by Brown and colleagues (2017), identified four student engagement factors (SEF): Study Habits (SH), Performance (PF), Participation (PA), and Emotional (EM).

Student Weekly Journal Questionnaires – Weekly journal questionnaires were comprised of two Yes/No questions, four questions where students mark a response rating from 1 (Low) -10 (High), and two open-ended questions. This questionnaire (Appendix D), was originally developed by Thompson and Ayers (2015) and it assessed students on the value of preparation, content relevance, amount learned from peers, and amount taught to peers.

Academic Success

Academic success was examined by comparing results of specific assignments from study participants during the fall of 2019 (n = 11) to results of the same assignments from students who took a lecture-based version of the same course during the fall of 2017 (n = 15). Averages of individual student scores from four case studies, an evidenced-based project (EBP), four practical exams, and a cumulative final practical exam were used to determine if change in instructional strategy created a difference between student scores. Since the researcher is also the

instructor of the course, he was able to obtain the grades from both semesters for comparison. At that time, the researcher then de-identified the data for confidentiality purposes.

Course Satisfaction

Course Activity Satisfaction Questionnaires – Current satisfaction levels of pre-class and in-class activities were assessed twice during the study using an updated questionnaire (Appendix E) originally developed by McNally and colleagues (2017). During early study delivery (week 4), participants were asked to indicate their opinion on pre-class and in-class activities using a 5-point Likert scale. Four questions covered pre-class activities and the remaining six covered in-class activities. These questions assessed activity importance, motivation, class preparation, content clarification and application, and study skill development. At post study delivery, the same questionnaire was administered again, but with four additional questions addressing difficulty of course content, course workload, satisfaction of course structure, and satisfaction of performance (Appendix F).

Instructor Weekly Journals

Weekly journal entries were completed by the instructor to identify successes and failures throughout the semester, along with providing glimpses into the daily activities of the course and the flipped classroom instructional strategy. These journal entries asked five open-ended questions that focused on the engagement levels of the student, the academic goals for the week, and personal reflection. Unsolicited feedback was also collected from the participants and incorporated into these weekly journal entries. A sample of the instructor weekly journal can be seen in Appendix G.

Procedures and Data Collection

Implementation of Flipped Classroom Instructional Model and Classroom Observation

The chosen course for this study was an existing injury evaluation and recognition course that met three-times a week, 50 minutes on Mondays and Wednesdays, and then again for 90 minutes on Fridays. All aspects of the course were updated to reflect best practices of the flipped classroom instructional strategy identified by Phillips (2015), Betihavas and colleagues (2016), Casasola and colleagues (2017), Margolis and colleagues (2017), McNally and colleagues (2017), and Moraros and colleagues (2015).

For the pre-class activities, students were asked to complete a variety of activities, including but not limited to assigned readings from the textbook, pre-recorded lectures from the professor with a comprehension quiz, or reviewing a peer-reviewed article related to the content being covered. In-class activities began with a short review of the pre-class activities and discussion of the most missed quiz questions. These review sessions lasted approximately five minutes and were used to provide clarity on complex topics and to reinforce student learning from the night before. After the review session was finished, a variety of in-class activities were assigned based on the intended goal of the current class session. Prior to dismissal, a short summary of what was covered in that class session occurred, followed by an additional question and answer period if needed. This end of the class summary reinforced what was discussed that day and served to prepare the student for upcoming content. After each class session, a post-class activity was assigned to provide additional reinforcement of the content learned that day in class. Post-class activities included discussion forums where students highlighted something new that they learned, personal opinions, comprehension quizzes, or creation of flashcards using a provided template.

Additionally, classroom observation occurred twice during the study timeframe by two external observers. Their primary task was to ensure that best practices for the flipped classroom instructional model were being implemented properly and that students were actively engaged.

Questionnaires

All questionnaires for this study were delivered through Qualtrics and associated links made available to study participants through the course page on the university's learning management system. Once consent forms were returned, the introductory questionnaire was administered to those students who elected to participate. The first course activity satisfaction questionnaire was administered at week four of the research study timeframe, followed by the SCEQ and the second course activity satisfaction questionnaire at the end of the course and research timeframe. To assist in maintaining confidentiality and compliance, student weekly journals and the instructor weekly journals were also administered through Qualtrics. The instructor did not look at the student journal submissions until after the study was complete and final grades had been submitted. Students were given time during the last class session of each week to complete their journal observations, while the instructor completed his weekly journal observations later, but before the beginning of the next week. If the student was not present during this time, students understood that they were still expected to complete the weekly journal entry prior to the beginning of the next week.

Results and Data Analysis

Introductory Questionnaire

For the five questions that emphasized a greater preference towards the traditional classroom model, the most preferred aspects were found in question 6 – To learn everything I need to learn in class (M=3.81, SD=0.98, RR%=63.7) and question 9 – I would rather have the entire class moving at the same pace in the course (M=3.72, SD=0.90, RR%=63.7). Similarly, for

the five questions that emphasized a greater preference towards the flipped classroom model, question 2 – In-class activities to deal with practical and applied problems (M=4.72, SD=0.65, RR%=90.9) and the Question 4 – The use of technology to assist in my learning (M=4.09, SD=0.70, RR%=81.8) were the most preferred aspects. Overall, with respect to response rate (RR%), students indicated a higher preference towards aspects of the flipped classroom model (M=3.87, RR%=63.6) over aspects of the traditional classroom model (M=3.54, RR%=52.8). See Table 1 for extended findings on student preference between traditional and flipped classroom models.

Student Course Engagement Questionnaire

Multiple regression analyses were performed to determine if the previously identified student engagement factors (SEF) could be useful in predicting course grades and if so, which factor could be most useful in predicting each of the four selected grade categories. The first regression analysis revealed that the SEF explained 73% of the variance in case study grades, $F(2,9)=9.28$, $p<.05$. The statistically significant predictors of case study grades were PF(B=.60) and EM(B=.47), while SH and PA displayed no statistical significance (Table 2). A second regression analysis revealed that the SEF explained 89% of the variance in EBP grades, $F(3,9)=15.57$, $p<.05$. The statistically significant predictors of EBP grades were PF(B=.59), EM(B=.72), and PA(B=-.43) while SH displayed no statistical significance (Table 3). Regression analyses were also performed using data from the practical exam grades and the cumulative final practical exam grades. Results from those analyses indicated there was no statistically significant data with any of the SEF.

Student Weekly Journal Questionnaires

Student weekly journal results included 87 of 99 possible responses, for a response rate of 87.9%. Responses from these journals indicated a high rate of completing the pre-class

activities (80/87, 91.9%), while also reporting a high level of value in completing the pre-class activities (84/88, 95.5%). Relevance to content being used in the professional setting also scored high at 95.5% (84/88). Amount learned from peers scored high with 86.4% (76/88) of responses compared to 77.3% (68/88) of responses for information taught to peers (Table 4).

The first open-ended question asked participants if they felt there was a better way to learn the content that was presented that week. Responses showed that 10.2% (9/88) felt there was a better way to present the content learned during the week. When asked to elaborate, most indicated that they would have liked more of specific activities that we had already done, such as; additional demonstrations, more videos, quiz games, and simulations. None of the responses referenced a desire to revisit the traditional classroom model. The final open-ended question asked students to highlight something they did well this week and then something else they felt they needed to improve on. Those responses were categorized and inserted into a codebook (Appendix H) for clarification. When asked what they felt they excelled at, student responses led to the creation of five sub-themes. The most prominent sub-theme was *Specific Content Learned* (14/37, 37.8%). Examples of student responses include: “I felt I was able to retain the manual muscle tests and special tests of the knee”, “I excelled in catching up from last week”, and “My grades on the quizzes this week were good”. The second most prominent sub-theme included responses regarding *Improvement of Hands-on Skills* (11/37, 29.7%). Examples of student responses include: “I completed the special tests faster than I did last week” and “I feel much more confident with goniometric measurement”. The remaining three sub-themes are *Satisfied with the Week in Class* (5/37, 13.5%), *Preparation for Class* (4/37, 10.8%), and *Opportunity to Teach Peers* (3/37, 8.2%). The second part of the question asked students to identify an area(s) in which they felt they needed to improve; five additional sub-themes were created. *Study Skills or Methods* (16/38, 42.1%) had the largest number of responses. Examples include: “I need to

improve on my approach to studying", "Study more efficiently for quizzes", and "Improve my focus when studying". Similarly, *Improvement Needed with Hands-on Skills* (14/38, 36.8%) was the second most prominent sub-theme for this part of the question as well. Responses in this sub-theme include: "Improve on manual muscle testing of the hip" and "Improve on my confidence in performing special tests". The remaining three sub-themes are *Being Prepared for Class* (4/38, 10.5%), *Remaining Attentive or Engaged* (2/38, 5%), and *Interaction with Peers* (2/38, 5%).

Academic Success

A one-tailed t-Test was used to determine if any significant improvements in grade averages were made between students enrolled in the fall 2017 (n=15) and students enrolled in the fall of 2019 (n=11). Statistically significant improvements were found in fall 2019 students over fall 2017 students in the case study average ($M=9.205$, $SD=0.697$, $p<.05$) and the cumulative final practical exam average ($M=93.455$, $SD=5.260$, $p<.05$) (Table 5). While not statistically significant, improvements were also seen in EBP average ($M=69.3$, $SD=3.31$, $p<.05$ vs $M=67.6$, $SD=5.17$, $p<.05$) and practical exam average ($M=44.7$, $SD=4.46$, $p<.05$ vs $M=43.4$, $SD=4.03$, $p<.05$) in fall 2019 students over fall 2017 students.

Course Activity Satisfaction Questionnaires

A one-tailed t-Test was used to investigate two things: 1) Were any statistically significant improvements made in responses within each question from when the questionnaire was administered during the Early Study period and then again Post-Study? and 2) Were any statistically significant improvements made in responses from individual participants from when the questionnaire was administered during the Early-Study period and then again at Post-Study? Of the 10 questions asked, four had higher Post-Study scores, but none of them were statistically significant (Table 6). Of the 11 students who participated, only five displayed improvements in Post-Study scores and of those five, only one was shown to be statistically significant ($M=3.4$,

SD=0.966 vs M=4.7, SD=0.674, p<.05) (Table 7). No statistically significant differences were present in Pre-class activities between Early-Study (M=4.25, SD=0.73, p<.05) and Post-Study (M=4.36, SD=0.77, p<.05) and In-class activities between Early-Study (M=4.29, SD=0.85, p<.05) and Post-Study (M=4.11, SD=0.64, p<.05).

Higher scored responses on the last four questions from the Post-Study administration indicate that while students felt the course work was more difficult (M=4.27, SD=0.62, RR%=91.0) and the amount of work was greater (M=3.91, SD=0.79, RR%=81.8), they were still very satisfied with the structure of the course (M=4.18, SD=0.94, RR%=81.9) and their performance in the course (M=4.00, SD=0.74, RR%=90.9). See Table 8 for extended results on student perception and student satisfaction.

Instructor Weekly Journals

Activities done to keep the students engaged ranged from hands-on activities e.g., palpation drills and road maps, saran wrap drawing, board work, demonstrations, miming, peer teach and review, and simulations, case studies, discussion groups, and pre-recorded videos and quizzes. In general, the students enjoyed the variety of activities, with some openly commenting directly to the instructor that the variety of activities helped keep the class “fresh” and “exciting”. Responses to what the instructor would keep the same and what the instructor would change provided some additional data. The instructor felt this was a good exercise in that it helped him to “step back and get a better picture of how the course was going”. It also helped him identify where students needed help, what students were excelling at, and what the students were finding most helpful. This is also where the instructor would note unsolicited comments made directly to him or that were overheard in conversations. Some of the more telling comments included: “I wish my other classes were taught this way”, “I’ve learned more in this class than I have in any of my others”, “This is so cool, this is exactly what I’m looking to do for my career”. Additionally,

after a student took a visit to a graduate occupational therapy program she commented, “this was a graduate OT program and we were doing more challenging stuff than they were!” Frustrations of the instructor were also recorded in this section. Instructor frustrations included initial lack of student compliance on weekly journals, frustrations with himself on course setup, missing the opportunity to recreate some videos, lack of experience with the instructional model, and just an overall feeling that this could be done better.

Discussion

The purpose of this study is to determine the impact of implementing the flipped classroom instructional method on student engagement, academic success, and overall course satisfaction of students in an established injury evaluation and recognition course. Student engagement displayed high levels of consistency throughout the length of this study as evidenced by the results from both the SCEQ and student weekly journals. Results from the SCEQ provided statistically significant data regarding the student engagement factors PF, PA, and EM. Student weekly journal responses indicated high response rates to activity completion, value of completing those activities, content relevance, and peer interaction. The Gen Z learner is goal-oriented and desires rigorous and meaningful curriculum, so the inclusion of the performance engagement factor, along with high response rates to completing assigned activities, and value of completing those activities is understandable. As stated earlier, Gen Z learners desire content relevance and a meaningful learning experience where they are challenged, can solve real-world problems, and are able learn from others. Thompson and Ayers (2015) examined the effects of the flipped classroom on student engagement, specifically on professional relevance and peer interaction in an undergraduate athletic training class. Their results showed that participants reported high levels of course preparation, perceived content relevance, and value of peer interaction, which are indicators for student engagement and fall right in line with the

participation engagement factor. Finally, the flipped classroom instructional strategy has roots in constructivism which promotes active involvement in the learning process. The responsibility of learning is shifted to the student, which then creates emotional engagement to the material. This affective component is often associated with this engagement factor and can be seen in the responsibility a student takes for their own learning through the amount of time and preparation spent on a course, along with the desire to have the content be relevant to life or career.

When examining academic success between fall of 2017 and fall of 2019 students, results showed statistically significant increases in two of the four grade categories. One explanation for this improvement could be that the flipped classroom instructional strategy has been shown to promote higher levels of thinking, where improved comprehension and mastery of the content is also often seen (Moraros et al., 2015; Demirci, 2017; Unal & Unal, 2017). Another explanation could be increased levels of content relevance. Missildine and colleagues (2013) flipped their classroom and in doing so, created an increased understanding of content relevance which led to significantly higher examination scores. Additionally, the flipped classroom structure is an inherently active learning environment where students can learn at their own pace, they are given more opportunities to interact and think critically about the content, and they are encouraged to collaborate with peers and interact with faculty. Not only do active learning environments improve on academic success by facilitating an increased motivation to learn (Casasola et al., 2017), but they have also been included in the discussion for improving student engagement (Goldberg & Ingram, 2011). These results are encouraging for the implementation of the flipped classroom.

The results from the Course Activity Satisfaction Questionnaire showed that even though the amount of statistical significance was low to non-existent, there was really no change at all in student responses from the Early-Study delivery of the questionnaire to the Post-Study delivery.

Students still had a high level of satisfaction with the pre- and in-class activities. Since the course was converted to the flipped classroom instructional model, it can be suggested that the reason for little to no change in student response is that they enjoy the pre- and in-class activities since they promote active learning, allowed for self-paced learning, and have relevance to their chosen careers. Fisher and colleagues (2017), examined the impact of the flipped classroom on student engagement and course satisfaction. Responses supporting increased levels of course satisfaction indicated that self-directed and self-paced learning led to a positive experience and that they were very satisfied with the overall learning experience structure of the course. The results from the final four questions on the Post-Study administration support this conclusion in revealing that even though students felt the content was more difficult and more work was required in this course, they were still very satisfied with the overall structure and their performance in the course.

As a result of the COVID-19 pandemic, the "traditional" look and feel of classrooms in higher education have changed. But while the look and feel have changed, the students enrolled in those classes have not. Results from the various instruments used in this study suggest that the flipped classroom can make a positive impact on the Gen Z learner and the classrooms within higher education, specifically in the areas of engagement, academic success, and course satisfaction. Kirk (1996) referred to a concept called practical significance and it's that concept that could have merit here. He suggests that researchers focus only on statistical significance, that it keeps them from deciding if the data is practically significant and useful. So, while the sample size for this study was small, there are some important implications for professional practice that can come from this data. Based on the combined results from the study, it appears that the intervention was worthwhile, and that the implementation of the flipped classroom instructional model had a positive effect on student engagement, academic success, and overall course

satisfaction. The components of the flipped classroom appeal to this generation of learner. Offering students the opportunity to learn professionally relevant content, at their own pace, and using a wide variety of resources appears to be very beneficial. Additionally, even though students felt that the content in this course was more difficult and more work was required of them in this course compared to their other courses, they were still very satisfied with the overall structure and their performance in the course. This provides additional support of the use of the flipped classroom instructional model with the Gen Z learner. While it would not be appropriate to suggest that all instructors should implement this instructional model, it is appropriate to suggest that for those instructors who already value the components associated with the flipped classroom, implementation of this model could be beneficial and ultimately lead to a better educational experience for the student.

CHAPTER II

DISSEMINATION

Dissemination of the complete research findings for this dissertation will be done at MidAmerica Nazarene University during the Celebration of Scholarship program, an annual event highlighting research done by both students and faculty. This event involves two poster sessions, a series of formal presentations, and a panel discussion over academic identity focusing on experiential and integrative learning. Attendees to this event include full-time faculty members from various departments across campus, adjunct faculty, faculty from surrounding institutions at both the undergraduate and high school level, and undergraduate students from the University.

A formal presentation (Appendix I) along with a research summary infographic (Appendix J) will be given that will provide an overview of the study and its findings. As it has become customary at all faculty development programming and university-wide meetings, this event will be recorded and made available through the University's faculty development webpage and Institutional Repository. The primary objectives of this presentation are to 1) Provide an overview of the current status of the undergraduate learning environment and how it impacts the current student, 2) Provide descriptions of the Gen Z student, the instructor-centered and student-centered learning environments, active learning, and the flipped classroom, 3) Provide an overview of this current study and its findings, and 4) Discuss future areas of research and its impact on the classroom.

Presentation Script

Slide 1 – Introduction. Hello and good afternoon. For those that don't know, my name is Chris Crawford and I am a doctoral candidate at The University of North Carolina at Greensboro. Additionally, I am an assistant professor and program director within the Department of Natural, Health, and Mathematical Sciences here at MNU. I've been asked today to discuss this current generation of college student, along with sharing the results of my research study examining the effects of the flipped classroom instructional strategy on student engagement, academic success, and overall course satisfaction so let's get started.

Slide 2 & 3 – Background: Why does this happen? We've all had this student before. Glazed-over look, staring off to who know where. Why does this happen? Why are students acting this way in classes? These are questions we must ask ourselves if we want to improve the learning environment in our classrooms.

Believe it or not, the lecture-based course format has been the standard method of teaching in higher education, with approximately 80-90% being taught in this manner. Why do we continue to let this happen? There are a number of reasons, but here a few of the more common answers: 1) Students today are not the same as when most professors were students, 2) Educators can become comfortable and complacent with their teaching and never look to improve/update creating an instructor-centered environment, and 4) Learning styles of the students in the class often aren't considered which can lead to a passive learning environment.

Slide 4 – The Gen Z Learner. The next few slides will provide some background information on few key topics which will hopefully help increase understanding of the research project that was done. So, let's talk more about this Gen Z learner. This generation of student was born roughly between 1995-2012 and make up most of the current traditional undergraduate population. They often have a short attention spans, roughly eight seconds in length, and require

high levels of stimulation to remain focused. They are creative, native to all forms of technology (although limited within education), prefer hands-on learning, they like to watch then do, want what they learn to be applicable to real life, comfortable with intrapersonal learning because of technology, but are equally as comfortable in collaborative settings, self-reliant, goal-oriented, and socially conscious.

Slide 5 – Instructor-centered vs. Student-centered. Remember that zoned-out student I showed you that was staring off into who knows where? She is a product or result of an instructor-centered learning environment. This type of learning environment, where the focus is on the instructor, was once considered to be an effective approach for educating previous generations. Now though, it is known to create a stale learning environment that leads to students who have become passive learners and who are no longer engaged. Additionally, students taught in this format are dependent on the instructor to provide the appropriate information without developing any true content comprehension or the ability to transfer that knowledge into real-world settings.

A student-centered environment is the exact opposite, with the focus shifting now toward the student. This learning environment is grounded in constructivist theory and enables students to create their own learning opportunities through active participation in the learning process. In the student-centered environment, the responsibility for learning falls to the student making them essentially in charge of their learning. This is the type of environment we should look to create in our classrooms because it compliments this generation of learner so well.

Slide 6 – Active Learning. There is quite a bit of literature out there discussing the benefits of active learning. Essentially, active learning is a student-centered approach rooted in constructivist theory. Since it is a student-centered approach, the responsibility for his/her learning falls on the student and because of this, they are active in every step of the learning

process. Active learning can manifest itself through a variety of ways including; debates, small group discussion, games, simulations, case studies, role playing, etc. Additionally, active learning encourages students to attempt higher levels of thinking on Bloom's taxonomy such as analysis, synthesis, and evaluation.

Slide 7 – The Flipped Classroom. The final piece of background information I need to provide you with today is over the flipped classroom. This type of instructional method has merit in both student-centered learning environment and active learning. In this model, most of the content absorption takes place outside of the classroom, where the student can learn at a pace that is ideal for them. Most of the content engagement occurs in the classroom where students can receive guidance from their instructor and work together with their peers on more difficult concepts through debates, hands-on learning, games, simulations, case studies, role playing, etc. In this environment, the instructor can now move among the students, interjecting when necessary, and even conduct on-the-fly assessments of student comprehension.

Slide 8 – Purpose of the Study. We've already established that the Gen Z learner is unlike those generations before so they must be approached in a different manner. As this undergraduate population continues to grow, we need to be considering different and innovative instructional strategies that could support their unique learner characteristics. I believe that if we can do that, a better educational experience is possible.

The purpose of this study is to determine the impact of implementing the flipped classroom instructional method on student engagement, academic success, and overall course satisfaction of students in an established injury evaluation and recognition course.

Slide 9 – Research Aims. I have two aims for this study and they are fairly straight forward. Specific Aim 1 - Implement the flipped classroom instructional model in an established undergraduate course for pre-professional allied health majors, and Specific Aim 2 - Determine

the effect the flipped classroom instructional model has on student engagement, academic success, and course satisfaction.

Slide 10 – Simplified Methods. For this research, the main intervention is the implementation of the flipped classroom instructional strategy and that is indicated by the purple box. Coming off the that purple box are the areas examined in this research; student engagement, academic success, and overall course satisfaction. You'll see that coming off each area of interest, I've indicated the instrument of measure that was used. The SCEQ and student weekly journals were used for engagement, individual student grade averages from the fall of 2017 and fall of 2019 were compared to measure academic success, and the course activity satisfaction questionnaire was used twice to determine student level of satisfaction, once at the beginning of the study and then again at the end. Finally, instructor weekly journals were completed to highlight the successes and failures throughout the semester, along with providing the perspective of the instructor on the daily activities and atmosphere of the course. But before any of that began, participants completed an introductory questionnaire where they indicated their preferences for the traditional classroom or flipped classroom models. This questionnaire also provided some basic demographic information as seen on our next slide.

Slide 11 – Participant Demographics. This was a small sample size, but that could not be changed due to the current sequencing of the courses in the major. A total of 11 students were enrolled in the class and all 11 agreed to participate. There was an even mix of males to females, with an average participant age of 20. Additionally, nine of the 11 students identified themselves as a domestic student, while the remaining two indicted that they were international students. For previous experience with the flipped classroom instructional method, seven indicated no prior experience and four indicated that they had some experience with the flipped classroom at some point.

Slides 12-20 – Results. *(Slide 12)* The next few slides depict the results from this study and at the end, I will provide a summary of what they mean as a whole. The remaining ten questions on the student introductory questionnaire asked questions regarding student preference of learning, such as; "lectures being delivered live and in person only", "the use of technology in the classroom", and "I would rather have the entire class moving at the same pace throughout the course". Five of the ten questions showed preference towards the traditional classroom format and five showed preference towards the flipped classroom format. The top three responses were in the flipped classroom category indicating that overall, students had a higher preference towards the flipped classroom format. This is an interesting find because if you remember, only four students had prior experience with the flipped classroom format.

(Slides 13&14) Results from the SCEQ on these net two slides provide evidence that student engagement can be helpful in predicting academic success in a course. Specifically, three factors of engagement: performance, participant, and emotional were identified as being potentially helpful. Significant predictors for Case Study average were performance and emotional engagement factors. While the significant predictors for EBP Project average were performance, participation, and emotional engagement factors.

(Slide 15) Student weekly journals were also used to assess student engagement. Responses to the first five questions indicated a high completion rate of the pre-class activities while also reporting a high level of value in completing these pre-class activities. If you remember from the slide showing Gen Z learning characteristics, a main characteristic is that content be career or real-life relevant. Well this question shows that relevance to content being used in the professional setting scored very high! The final two questions addressed peer interaction with one question highlighting the amount learned from peers and another

highlighting the amount taught to peers. We can see here that even though they didn't score as high as the previous questions, they still had some pretty strong response rates.

The participants also had to answer two open-ended questions each week. The first question asked them if they felt that there was a better way to deliver the content presented this week. Only 9/88 responses indicated that there was a better way and when asked to elaborate, they mentioned additional opportunities with things we had already done. At no point did they indicate a desire to incorporate aspects from the traditional classroom method.

(Slide 16) This slide shows us responses from the first half of the second open-ended question. Students were asked to identify something they did well and from the responses, five sub-themes were identified.

(Slide 17) This slide shows us the responses from the second half of the question. As we saw on the previous slide, five sub-themes were also identified. One thing that is interesting is that the second theme for both parts of the question deal with hands-on skills, indicating that while some students felt they did well on these skills, there was a another group of students who felt that they really needed to improve on these skills.

(Slide 18) Individual student grade averages in four categories were examined to see if there were any statistical differences when I compared students from the fall 2017 course with students from the fall 2019 course. Results showed statistically significant improvement was made in evidence-based project and cumulative practical final exam grades. Additionally, while not statistically significant, the other two categories showed improvements over the fall 2017 course as well.

(Slide 19) The course activity satisfaction survey was administered twice during the semester to see if any statistically significant improvements were made in responses within each question between the first and second time it was administered, and to see if any statistically

significant improvements were made in responses from individual participants between the two times the questionnaire was administered. Results showed that only four of the ten questions had higher scores after the second delivery, but none were significant. Results also showed, five of the eleven students had higher scores after the second delivery, and of those five, only one was statistically significant. I was originally disappointed in these results because I was hoping to see statistically significant improvements from multiple students, but as I continued to examine the results, they showed that despite the lack of significance, there was really no change at all in student responses. Overall, this meant that students still had a high level of satisfaction with the pre and in-class activities between the two times this questionnaire was delivered.

(Slide 20) On the second administration of the course activity satisfaction questionnaire, the participants were asked four additional questions. The first two asked: "Compared to other courses" this course is more difficult, and the amount of work required in this course is greater. The final two questions asked: "How satisfied are you with" the overall structure of this course and your performance in this course. Results for the first two questions showed that the participants had a high degree of agreeability saying that the work in this course was more difficult and that the amount of work required in this course was greater. The results from the last two questions also showed a high degree of agreeability indicating that the participants were highly satisfied with the structure of the course and with their performance in the course. Adding all that up and this data shows that even though the participants felt the class was more difficult and required more from them, they were still pleased with the structure and their performance in the course.

(Slide 21) Just like was done with the responses from the student weekly journals, the responses from the instructor weekly journals were examined, themes were identified, and then entered into a codebook. Overall, I thought it went well and that this was a good exercise in that it

helped to “step back and get a better picture of how the course was going”, where students needed help, what students were excelling at, and what they were finding most helpful. Comprehension of the material improved and their confidence in working with each other also improved. I was very pleased with the improvements made from the beginning of the course to the end of the course. This is also where I would note comments heard in class. Some of the more telling comments included: “I wish my other classes were taught this way”, “I’ve learned more in this class than I have in any of my others”, “This is so cool, this is exactly what I’m looking to do for my career”. Additionally, after a student took a visit to a graduate occupational therapy program she said, “this was a graduate OT program and we were doing more challenging stuff than they were!” I also noted my frustrations in these journals. Some of those frustrations included initial lack of student compliance on weekly journals, frustrations with myself on course setup, missing the opportunity to recreate some videos, lack of experience with the model, and just an overall feeling that this could be done better

Slides 22 & 23 – Discussion. So, what does all this mean? If we remember that this study was created for the Gen Z student, and we remember the learning characteristics of this student, the results show some initial success. The flipped classroom was chosen specifically based off the learning characteristics of the Gen Z learner and it appears that it is a great fit for the Gen Z learner.

Based on the combined results from the study, it appears that the intervention was worthwhile, and that the implementation of the flipped classroom instructional model had a positive effect on student engagement, academic success, and overall course satisfaction. The components of the flipped classroom have an appeal to this generation of learner. Offering students the opportunity to learn professionally relevant content at their own pace, using a wide variety of resources appears to be very beneficial. Additionally, even though students felt that the

content in this course was more difficult and more work was required of them in this course compared to their other courses, they were still very satisfied with the overall structure and their performance in the course. This provides additional support of the use of the flipped classroom instructional model with the Gen Z learner. While it would not be appropriate to suggest that all instructors should implement this instructional model, it is appropriate to suggest that for those instructors who already value the components associated with the flipped classroom, implementation of this model this could be beneficial and ultimately lead to a better educational experience for the student.

Slides 24 & 25 – What can we do? Ultimately, this generation learns best by doing, so creating hands on learning opportunities will go a long way in improving the learning environment of this type of student. Don't be afraid to provide the Gen Z student a chance to create their own learning opportunities. Challenge them by creating rigorous, yet appropriate content. Additionally, connect that content to real-world situations and scenarios. This develops that content relevance that this generational learner craves. You can do that by creating simulations, case studies, role playing, etc. Include a wide variety of technology options throughout the entire course structure but incorporate that technology where it makes sense and where it can facilitate improvement in learning. Don't make the mistake of including technology, just to say you've included it. Definitely be smart about it. And finally, create a learning environment that utilizes various resources (digital, print, peers, teacher, etc.) to fulfill the Gen Z learner's desire of face-to-face interaction in team learning, independent learning, and problem solving and critical thinking approaches.

Slide 26 – Thank you. Thank you for the opportunity to present this information to you today. My contact information is included so please do not hesitate to reach out with any questions you might have over what we discussed today.

CHAPTER III

ACTION PLAN

The learning characteristics of students who are taking our courses must be central to our overall course development and design. Today's Gen-Z learner prefers to engage in hands-on learning, is career-driven, demands content relevance, is comfortable in collaborative settings, but also enjoys being able to learn at their own pace (Seemiller & Grace, 2017; Cameron & Pagnattaro, 2017; Pousson & Meyers, 2018; and Schwieger & Ladwig, 2018). Incorporating elements of a student-centered learning environment and active learning is critical to the success of the Gen-Z learner. To this end, the findings of this research will be used to create evidence-based resources for educators in higher education that may include: professional presentations at local, regional, and national conferences, publication in peer-reviewed journals focusing on both general education and discipline specific pedagogy, and finally, development of additional resources such as an online listserv or faculty development workshops based on new research findings.

Professional Presentations

The results of this research could be presented in a variety of ways such as webinars, podcasts, and through professional presentations. The initial plan of dissemination is to present the complete findings of this research at MidAmerica Nazarene University during their annual Celebration of Scholarship. This yearly event highlights research done by both students and faculty through poster sessions, formal presentations, and round table discussions on various topics. I will participate in the formal presentation portion of the program (Appendix I). The Kansas City Professional Development Council (KCPDC) is comprised of ten colleges and

and universities from the Kansas City metropolitan area that hosts programs and training sessions for faculty with the goal of sharing new information and ideas across multiple academic disciplines. I will also present my initial research findings, specifically focusing on engagement, at the Enhancing Teaching and Learning Conference, along with additional strategies for engaging the Gen-Z learner. Concentrating on a more discipline-specific audience, I would also like to present my research on Gen-Z learner engagement and the flipped classroom pedagogy at the Mid-America Athletic Trainers' Association (MAATA) Annual Meeting and at the Athletic Trainers Educator's Conference (ATEC). While some research already exists for the use of this instructional method within athletic training education, presentation of this information has been limited. Presenting at these conferences would provide athletic training educators options of best practices in course development and delivery. This research could also provide support to those who are looking to transition into a more student-centered environment and provide ideas for successful implementation that would create a more engaging and relevant learning experience for today's Gen-Z learner. Due to the robust nature of the updated curriculum standards of the Entry-Level Masters Athletic Training Programs and as these become more prevalent in this region, dissemination of this content becomes more and more important.

Publication in Peer-reviewed Journals

Publication in a professional, peer-reviewed journal can provide additional information to educators who are interested in improving how they teach and in how they meet the learning characteristics of the students in their courses. The Athletic Training Education Journal is a content specific journal of interest to me. This journal has a section on "Original Research" and another on "Educational Technique" that would be ideal for including the results of this research. Regarding a more general audience, The Journal of Scholarship of Teaching and Learning is another journal of interest to me. This journal is published by Indiana University's Faculty

Academy on Excellence in Teaching and is focused on issues associated with teaching and learning in higher education. While I am not entirely sure what the articles would entail, I do know that I would like to continue my research on the Gen-Z learner by identifying best practices for student engagement, curriculum and course development, technology use in the classroom, along with strategies for successful implementation of the student-centered environment.

Additional Resource Development

The original purpose of this research is to develop and create additional educational resources for those who have an interest. Resources such as an online listserv, podcast, or faculty development workshops for those involved in higher education. The creation of an online listserv would provide a platform where the findings from this research and any additional research with an emphasis on Gen-Z learner characteristics, engagement strategies, the student-centered environment, active learning strategies, and specific instructional strategies like the flipped classroom, etc. would be discussed. Like the online listserv, a podcast would be created and posted online. This podcast would highlight multiple variables that effect the learning of the Gen Z student, such as active learning, hands-on activities, student-centered learning, career and content relevance, intrapersonal vs. interpersonal learning, etc. In addition to the host of the podcast, guest speakers would be invited in to share their expertise and experiences with the listeners. Both the online listserv and podcast would be used to provide listeners with an improved understanding on the topics listed above, along with providing new or improved ideas to utilize in their classrooms.

Like the online listserv and podcast, creation of faculty workshops that focus on the same topics outlined above could also prove to be very beneficial to inexperienced and experienced educators alike. For example, creating a 3-modlue workshop for new or veteran full-time faculty

and adjunct faculty. This 3-module workshop would take place over the span of an academic year and focus on the development of content to use in the classroom.

The items listed in this plan of action are intended to make an impact at multiple levels across the academic landscape. The central focus throughout these ideas are the students we have in our classes. Whether our courses are filled with traditional undergraduate students, non-traditional students, or even a mixture of both, we as educators must be willing to adapt our instructional strategies to meet the needs of all the who are in our courses to provide for them a better educational experience.

REFERENCES

Alt, D. (2015). Assessing the contribution of a constructivist learning environment to academic self-efficacy in higher education. *Learning Environments Research, 18,* 47-67.

Alt, D. (2016). Contemporary constructivist practices in higher education settings and academic motivational factors. *Australian Journal of Adult Learning, 56*(3), 374-399.

Bergman, J., & Sams, A. (2012). *Flip your classroom: Reach every student in every class every day.* Washington, DC: International Society for Teaching and in Education.

Blaik-Hourani, R. 2011. Constructivism and revitalizing social studies. *The History Teacher, 44*(2), 227-249.

Beapler, P., Walker, J., & Driessen, M. (2014). It's not about seat time: Blending, flipping, and efficiency in active learning classrooms. *Computers & Education, 78,* 227-236.

Betihavas, V., Bridgman, H., Kornhaber, R., & Cross, M. (2016). The evidence for "flipping out": A systematic review of the flipped classroom in nursing education. *Nurse Education Today, 38,* 15-21.

Bradford, J., Mowder, D., & Bohte, J. (2016). You can lead students to water, but you can't make them think: An assessment of student engagement and learning through student-centered teaching. *Journal of the Scholarship of Teaching and Learning, 16*(4), 33-43.

Brewer, R. & Movahedazarhouligh, S. (2018). Successful stories and conflicts: A literature review on the effectiveness of flipped learning in higher education. *Journal of Computer Assisted Learning*, 1-8.

Brown, S. J., White, S., Bowmar, A., & Power, N. (2017). Student Engagement in Compulsory Introductory Physiology Course. *Journal of the Scholarship of Teaching and Learning, 17*(1), 52-62.

Cameron, E. A., & Pagnattaro, M. A. (2017). Beyond Millennials: Engaging Generation Z in business law classes. *Journal of Legal Studies Information, 34*(2), 317-324.

Casasola, T., Nguyen, T., Warschauer, M., & Schenke, K. (2017). Can flipping the classroom work? Evidence from undergraduate chemistry. *International Journal of Teaching and Learning in Higher Education, 29*(3), 421-435.

Demirci, C. 2017. The effect of active learning approach on attitudes of 7th grade students. *International Journal of Instruction, 10*(4), 129-144.

El Banna, M. M., Whitlow, M., & McNelis, A. M. (2017). Flipping around the classroom: Accelerated Bachelor of Science in Nursing students' satisfaction and achievement. *Nursing Education Today, 56*, 41-46.

Finn, P. (2011). Critical thinking: Knowledge and skills for evidence-based practice. *Language, Speech, and Hearing Services in Schools, 42*, 69-72.

Fisher, R., Ross, B., LaFerriere, R., & Martiz, A. (2017). Flipped learning, flipped satisfaction, getting the balance right. *Teaching & Learning Inquiry, 5*(2), 114-127.

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences, 111*(23), 8410-8415.

Goldberg, N. A., & Ingram, K. W. (2011). Improving student engagement in a lower division botany course. *Journal of Scholarship of Teaching and Learning, 11*(2), 76-90.

Handelsman, M. M., Briggs, W. L., Sullivan, N., & Towler, A. (2005). A measure of college student engagement. *The Journal of Educational Research, 98*(3), 184-191.

Heinerichs, S., Pazzaglia, G., & Gilboy, M. B. (2016). Using flipped classroom components in blended courses to maximize student learning. *Athletic Training Education Journal, 11*(1), 54-57.

Hightower, S. 2014. *Effect of active learning on student's academic success in the medical classroom* [Unpublished doctoral dissertation]. Waldon University.

Kim, M. K., Kim, S. M., Khera, O., & Getman, J. (2014). The experience of three flipped classrooms in an urban university: An exploration of design principles. *The Internet and Higher Education, 22,* 37-50.

Kirk, R. E., (1996). Practical significance: A concept whose time has come. *Educational and Psychological Measurement, 56*(5), 746-759.

Krathwohl, D. R. (2002). A revision of Bloom's Taxonomy: An overview. *Theory into Practice, 41*(4), 212-218.

Lee, E. & Hannafin, M. J. (2016). A design framework for enhancing engagement in student-centered learning: own it, learn it, and share it. *Educational Technology Research and Development, 64,* 707-734.

Lew, L. Y. 2010. The use of constructivist teaching practices by four new secondary school science teachers: A comparison of new teachers and experienced constructivist teachers. *Science Educator, 19*(2), 10-21.

Lom, B. (2012). Classroom activities: simple strategies to incorporate student-centered activities within undergraduate science lectures. *Journal of Undergraduate Neuroscience Education,11,* 64-71.

McLaughlin, J. E., Roth, M. T., Glatt, D. M., Gharkholonarehe, N., Davidson, C. A., Griffin, L. M., Esserman, D. A., & Mumper, R. J. (2014). The flipped classroom: A course redesign To foster learning and engagement in a health professions school. *Academic Medicine, 89*(2), 236–243.

McNally, B., Chipperfield, J., Dorsett, P., Del Fabbro, L., Frommolt, V., Goetz, S., LeWohl, J., Molineuz, M., Pearson, A., Reddan, G., Roiko, A., & Rung, A. (2017). Flipped classroom experiences: Student preferences and flip strategy in higher education context. *Journal of Higher Education, 73,* 281-298.

Miller, C. J., & Metz, M. J. (2104). A comparison of professional-level faculty and student perceptions of active learning: its current use, effectiveness, and barriers. *Advanced Physiology Education, 38,* 246252.

Missildine, K., Fountain, R., Summers, L., & Gosselin, K. (2013). Flipping the classroom to improve student performance and satisfaction. *Journal of Nursing Education, 52*(10), 597-599.

Monaco, M. & Martin, M. (2007). The millennial student: A new generation of learners. *Athletic Training Education Journal, 2,* 42-46.

Moraros, J., Islam, A., Yu, S., Banow, R., & Schindelka, B. (2015). Flipping for success: Evaluating the effectiveness of a novel teaching approach in a graduate level setting. *BMC Medical Education, 15,* 27-37.

O'Flaherty, J. & Phillips, C. (2015). The use of flipped classrooms in higher education. *Internet and Higher Education, 25,* 85-95.

Ott, L. E., Carpenter, T. S., Hamilton, D. S., & LaCourse, W. R. (2018). Discovery learning: Development of a unique active learning environment for introductory chemistry. *Journal of Scholarship of Teaching and Learning, 18*(4), 161-180.

Patterson, M. P. (2011). *Movement and Learning in Lecture Classrooms* [Unpublished doctoral dissertation]. University of Missouri.

Powell, K. C., & Kalina, C. J. (2009). Cognitive and social constructivism: Developing tools for an effective classroom. *Education. 130*(2), 241-250.

Pousson, J. M., & Myers, K. A. (2018). Ignatian pedagogy as a frame for universal design in college: Meeting learning needs of Generation Z. *Education Sciences, 8,* 193-203.

Roehling, P. V., Vander Kooi, T. L., Dykema, S., Quisenberry, B., & Vandlen, C. (2011). Engaging the millennial generation in class discussions. *College Teaching, 59,* 1-6.

Seemiller, C. & Grace, M. (2017). Generation Z: Educating and engaging the next generation of students. *About Campus,* (July-August). DOI: 10.1002/abc.21293.

Schwieger, D. & Ladwig, C. (2018). Reaching and retaining the next generation: adapting to the expectations of Gen Z in the classroom. *Information Systems Education Journal, 16*(3), 45-53.

Starmer, D. J., Duquette, S., & Howard, L. (2015). Participation strategies and student performance: An undergraduate health science retrospective. *Journal of Chiropractic Education, 29*(2), 134-138.

Thomas, J. R., Nelson, J. K., & Silverman, S. J. (2015). *Research methods in physical activity (7th ed.)*. Champaign, IL: Human Kinetics.

Thompson, G. A., & Ayers, S. F. (2015). Measuring student engagement in a flipped athletic training classroom. *Athletic Training Education Journal, 10*(4), 315-322.

Toothaker, R. & Taliaferro, D. (2017). A phenomenological study of millennial students and traditional pedagogies. *Journal of Professional Nursing, 33,* 345-349.

Tynjala, P. (1999). Towards expert knowledge? A comparison between a constructivist and a traditional learning environment in the university. *International Journal of Educational Research, 31,* 357-442.

Unal, Z. & Unal, A. (2017). Comparison of student performance, student perception, and teacher satisfaction with traditional versus flipped classroom models. *International Journal of Instruction, 10*(4), 145-164.

Wang, Q., Woo, H. L., & Zhao, J. (2007). Investigating critical thinking and knowledge construction in an interactive learning environment. *Interactive Learning Environments, 17,* 95-104.

Weigel, F. K., and Bonica, M. (2014). An active learning approach to Bloom's Taxonomy: 2 games, 2 classrooms, 2 methods. *The United States Army Medical Department Journal,* Jan-Mar: 21-29.

Zainuddin, Z. and Halili, S. H. (2016). Flipped classroom research and trends from different fields of study. *International Review of Research in Open and Distributed Learning, 17*(3), 313-340.

APPENDIX A

LIST OF TABLES

Table 1. Descriptive Data for Introductory Questionnaire Responses

Preference for the traditional classroom format					Response Rate %					Total %
	Min	Max	M	SD	1	2	3	4	5	R4 & R5
Question 1	2.00	5.00	3.27	0.79	0.0	18.2	36.4	45.5	0.0	45.5
Question 3	2.00	5.00	3.45	0.82	0.0	9.1	45.5	36.4	9.1	45.5
Question 6	2.00	5.00	3.81	0.98	0.0	9.1	27.3	36.4	27.3	63.7
Question 8	2.00	5.00	3.45	1.04	0.0	18.2	36.4	27.3	18.2	45.5
Question 9	2.00	5.00	3.72	0.90	0.0	9.1	27.3	45.5	18.2	63.7
									Overall	52.8

Preference for the flipped classroom format					Response Rate %					Total %
	Min	Max	M	SD	1	2	3	4	5	R4 & R5
Question 2	3.00	5.00	4.72	0.65	0.0	0.0	9.1	9.1	81.8	90.9
Question 4	3.00	5.00	4.09	0.70	0.0	0.0	18.2	54.5	27.3	81.8
Question 5	2.00	5.00	3.27	0.90	0.0	18.2	45.5	27.3	9.1	36.4
Question 7	2.00	5.00	4.00	1.34	0.0	27.3	0.0	18.2	54.5	72.7
Question 10	2.00	5.00	3.27	0.91	0.0	18.2	45.5	27.3	9.1	36.4
									Overall	63.6

Table 2. Multiple Regression Data for Specific Engagement Factors - Case Study Grades

	B	Standard Error	P	95% Confidence Interval Lower	Upper
Constant	0.791	2.209	0.731	-4.432	6.013
Performance Engagement (P	0.138	0.047	0.022*	0.027	0.249
Emotional Engagement (EM	0.289	0.127	0.052*	-0.011	0.589

*Note: *p<0.05*

Table 3. Multiple Regression Data for Specific Engagement Factors - EBP Grades

	B	Standard Error	P	95% Confidence Interval Lower	Upper
Constant	31.239	7.380	0.005*	13.182	49.296
Performance Engagement (P	0.634	0.160	0.007*	0.242	1.025
Participation Engagement (P	-0.716	0.287	0.047*	-1.418	-0.014
Emotional Engagement (EM	2.119	0.535	0.007*	0.810	3.428

*Note: *p<0.05*

Table 4. Student Weekly Journal Descriptive Data and Responses % (freq)

	Min	Max	M	Low (1-3)	Neutral (4-6)	High (7-10)
Q1 - Assignment completion	1.00	10.00	9.28	8.0 (7)	0.0 (0)	92.0 (80)
Q2 - Preparation value	3.00	10.00	9.15	1.1 (1)	2.3 (2)	96.6 (84)
Q3 - Content relevance	5.00	10.00	9.55	0.0 (0)	4.5 (4)	95.5 (84)
Q4 - Amount learned from pe	3.00	10.00	8.25	1.1 (1)	12.5 (11)	86.4 (76)
Q5 - Amount taught to peers	2.00	10.00	7.86	4.5 (4)	18.2 (16)	77.3 (68)

Table 5. Assignment Grade Average Between Fall 2017 and Fall 2019 students

	df	2017 M	2019 M	2017 SD	2019 SD	P
Case Study Average	21	8.383	9.205	1.417	0.697	0.033*
EBP Project Average	24	67.600	69.273	5.180	3.319	0.163
Practical Exam Average	20	43.433	44.682	4.039	4.468	0.236
Cumulitive Practical Exam Avera	20	89.400	93.455	4.763	5.260	0.028*

*Note: *p<0.05, one-tailed: two-sample assuming unequal variances*

Table 6. Responses Within Each Question Between Early and Post Study Delivery

	df	early M	post M	early SD	post SD	P
Question 1	10	4.364	4.091	0.674	1.044	0.233
Question 2	10	4.091	4.182*	0.821	1.022	0.398
Question 3	10	3.909	4.273*	0.906	1.011	0.153
Question 4	10	4.455	4.545*	0.952	1.005	0.338
Question 5	10	4.273	4.182	0.976	1.003	0.389
Question 6	10	4.545	4.364	0.988	1.001	0.276
Question 7	10	3.909	4.091*	0.994	1.001	0.294
Question 8	10	4.182	4.182	0.997	1.000	0.500
Question 9	10	4.455	3.909	0.998	1.000	0.108
Question 10	10	4.273	3.909	0.999	1.000	0.153

*Note: *Higher Post-Study Scores, not significant, p<0.05, one-tailed: paired 2 sample for means*

Table 7. Responses From Individual Students Between Early and Post Study Delivery

	df	early M	post M	early SD	post SD	P
Student 5859	9	4.600	4.400	0.516	0.516	0.278
Student 3973	9	4.700	3.400	0.483	0.699	0.001
Student 4225	9	4.000	4.000	0.667	0.943	0.500
Student 4802	9	4.500	4.600*	0.527	0.516	0.296
Student 9091	9	3.400	4.700*	0.966	0.675	0.001**
Student 9957	9	4.700	4.300	0.675	0.483	0.084
Student 9055	9	3.700	3.600	1.252	0.843	0.406
Student 5150	9	4.200	4.400*	0.789	0.699	0.321
Student 6148	9	4.600	3.900	0.516	0.876	0.005
Student 2650	9	3.900	4.000*	0.738	0.667	0.363
Student 4129	9	4.400	4.600*	0.966	0.516	0.296

*Note: *Higher Post-Study Scores not significant, **p<0.05, one-tailed: paired 2 sample for means*

Table 8. Descriptive Data for Course Activity Questionnaire 2 Responses

Compared to other courses…					Response Rate %					Total %
	Min	Max	M	SD	1	2	3	4	5	R4 & R5
Content more difficult	3.00	5.00	4.27	0.62	0.0	0.0	9.1	54.6	36.4	91.0
Amount of work greater	2.00	5.00	3.91	0.79	0.0	9.1	9.1	63.6	18.2	81.8
									Overall	86.4

How satisfied are you with…					Response Rate %					Total %
	Min	Max	M	SD	1	2	3	4	5	R4 & R5
Overall structure of cour	2.00	5.00	4.18	0.94	0.0	9.1	9.1	36.4	45.5	81.9
Your performance	2.00	5.00	4.00	0.74	0.0	9.1	0.0	72.7	18.2	90.9
									Overall	86.4

APPENDIX B

INTRODUCTORY QUESTIONNAIRE

Instructions

1. By completing this questionnaire, you are consenting to participating in this study.
2. This questionnaire contains several statements about a student's preferred learning styles and activities. You will be asked what you think about the statements, and how they apply to **you**. There are no "right" or "wrong" answers.
3. If you "*agree*" with the statement, choose a response of 4, if you "*strongly agree*", choose a response of 5.
4. If you "*disagree*" with statement, choose a response of 2, if it is "*strongly disagree*", choose a response of 1.
5. If there is no preference, i.e. *"Neither agree nor disagree"*, then choose a response of 3.

Please circle the most appropriate response:

#	Item	Response (1-5)				
		Strongly Disagree	Agree	Neither agree no disagree	Agree	Strongly Agree
If I could choose, I would like:						
1	Lectures delivered live and in person only	1	2	3	4	5
2	In-class activities to deal with practical and applied problems.	1	2	3	4	5
3	The first time I learn about content to happen in class.	1	2	3	4	5
4	To use technology to assist in my learning.	1	2	3	4	5
5	To be quizzed at the beginning of class on content that has been made available before class.	1	2	3	4	5
6	To learn everything I need to learn in class.	1	2	3	4	5
7	To be active and collaborate with other student in class.	1	2	3	4	5
8	Readings, videos, and other pre-class activities to be optional.	1	2	3	4	5
9	I would rather have the entire class moving at the same pace in the course.	1	2	3	4	5
10	The first time I learn about content to happen at home, before class.	1	2	3	4	5

Please answer the following questions:

1. Gender Male Female Other

2. Type of student Domestic International

3. Age 18 19 20 21 22+

4. Please use this definition of a "Flipped Classroom" to help you answer the next question – The flipped classroom is strategy that reverses or "flips" the traditional classroom environment by delivering instructional content at home and then moving activities, including those that may have traditionally been considered homework, back into the classroom.

   Do you have any experience in a flipped classroom, yes or no? If you answered yes, please provide the following information: how old you were, what grade you were in, and in what class did you experience it in.

APPENDIX C

STUDENT COURSE ENGAGEMENT QUESTIONNAIRE

Instructions

1. By completing this questionnaire, you are consenting to participating in this study.
2. This questionnaire contains several statements about a student's engagement towards learning. You will be asked what you think about the statements, and how they apply to **you**. There are no "right" or "wrong" answers.
3. If the statement is "*more like me*" choose a response of 4, if it is "***much*** *more like me*", choose a response of 5.
4. If the statement is "*less like me*" choose a response of 2, if it is "***much*** *less like me*", choose a response of 1.
5. If there is no preference, i.e. neither "*like me*" or "*not like me*", then choose a response of 3.

Please circle to most appropriate response

#	Item	Response (1-5)				
		Less like me		Neutral	More like me	
1	Raising my hand in class	1	2	3	4	5
2	Participating actively in small group discussions	1	2	3	4	5
3	Asking questions when I don't understand the instructor	1	2	3	4	5
4	Doing all the homework problems	1	2	3	4	5
5	Coming to class everyday	1	2	3	4	5
6	Asking the teacher to review assignments or tests	1	2	3	4	5
7	Thinking about the course between class sessions	1	2	3	4	5
8	Finding ways to make the course interesting to me	1	2	3	4	5
9	Taking good notes in class	1	2	3	4	5
10	Looking over class notes between class sessions	1	2	3	4	5
11	Really desiring to learn the material	1	2	3	4	5
12	Being confident that I can learn and do well in the class	1	2	3	4	5
13	Putting forth effort	1	2	3	4	5
14	Being organized	1	2	3	4	5
15	Getting a good grade	1	2	3	4	5
16	Doing well on the tests	1	2	3	4	5
17	Staying current on assigned readings	1	2	3	4	5
18	Having fun in class	1	2	3	4	5
19	Helping fellow students	1	2	3	4	5
20	Making sure to study on a regualr basis	1	2	3	4	5
21	Finding ways to make the course material relevant to my intended profession	1	2	3	4	5
22	Applying course material to my life	1	2	3	4	5
23	Listening carefully in class	1	2	3	4	5

APPENDIX D

STUDENT WEEKLY JOURNAL

Instructions

At the end of each week, please complete the “Weekly Journal” questionnaire using the link provided.

For the following five (5) questions, circle the most appropriate response:

#	Item	Response (1-10)									
		No/ Low									Yes/ High
1	Did you complete the assigned *Pre-class* activities?	1	2	3	4	5	6	7	8	9	10
2	Value of completing the Pre-class activites to be successful this week in class.	1	2	3	4	5	6	7	8	9	10
3	How likely will the content covered in class this week be used in a professional setting?	1	2	3	4	5	6	7	8	9	10
4	How much information did you learn from your peers?	1	2	3	4	5	6	7	8	9	10
5	How much information did you teach or explain to your peers?	1	2	3	4	5	6	7	8	9	10

Please answer the following short answer questions:

1. This week in class we used the following ways to learn the content: Flipped classroom, peer learning, discussion posts, content reflection, quiz games, video lectures, and hands on learning. Is there a better way to learn the content we covered this week that would have been more useful to you? Please elaborate on your "Yes/No" response.

2. What do you feel you did well with or excelled in this week and what do you feel you need to improve?

APPENDIX E

COURSE ACTIVITY SATISFACTION QUESTIONNAIRE 1

Instructions

1. By completing this questionnaire, you are consenting to participating in this study.
2. This questionnaire contains several statements about a student's satisfaction levels towards *"Pre-class"* and *"In-class"* activities. You will be asked what you think about the statements, and how they apply to **you**. There are no "right" or "wrong" answers.
3. If you "*agree*" with the statement, choose a response of 4, if you "*strongly agree*", choose a response of 5.
4. If you "*disagree*" with statement, choose a response of 2, if it is "*strongly disagree*", choose a response of 1.
5. If there is no preference, i.e. *"Neither agree nor disagree"*, then choose a response of 3.

Please circle the most appropriate response:

#	Item	Response (1-5)				
		Strongly Disagree	Agree	Neither agree no disagree	Agree	Strongly Agree
Pre-class activities in this course (assigned readings, online lectures, quizzes):						
1	Were helpful to my learning	1	2	3	4	5
2	Motivated me to learn more	1	2	3	4	5
3	Enabled me to learn at my own pace	1	2	3	4	5
4	Prepared me for the I*n-class* activities	1	2	3	4	5
The *In-class* activities helped me:						
5	Clarify what I had learned in the *Pre-class* activities	1	2	3	4	5
6	Apply what I had learned in the *Pre-class* activities	1	2	3	4	5
7	Develop prolem solving skills	1	2	3	4	5
8	Improve my ability to work in groups	1	2	3	4	5
9	Develop better learning and study skills	1	2	3	4	5
10	Improve my communication skills	1	2	3	4	5

APPENDIX F

COURSE ACTIVITY SATISFACTION QUESTIONNAIRE 2

Instructions

1. By completing this questionnaire, you are consenting to participating in this study.
2. This questionnaire contains several statements about a student's satisfaction levels towards *"Pre-class"* and *"In-class"* activities. You will be asked what you think about the statements, and how they apply to **you**. There are no "right" or "wrong" answers.
3. If you "*agree*" with the statement, choose a response of 4, if you "*strongly agree*", choose a response of 5.
4. If you "*disagree*" with statement, choose a response of 2, if it is "*strongly disagree*", choose a response of 1.
5. If there is no preference, i.e. *"Neither agree nor disagree"*, then choose a response of 3.

Please circle the most appropriate response:

#	Item	Response (1-5)				
		Strongly Disagree	Agree	Neither agree no disagree	Agree	Strongly Agree
Pre-class activities in this course (assigned readings, online lectures, quizzes):						
1	Were helpful to my learning	1	2	3	4	5
2	Motivated me to learn more	1	2	3	4	5
3	Enabled me to learn at my own pace	1	2	3	4	5
4	Prepared me for the I*n-class* activities	1	2	3	4	5
The *In-class* activities helped me:						
5	Clarify what I had learned in the *Pre-class* activities	1	2	3	4	5
6	Apply what I had learned in the *Pre-class* activities	1	2	3	4	5
7	Develop prolem solving skills	1	2	3	4	5
8	Improve my ability to work in groups	1	2	3	4	5
9	Develop better learning and study skills	1	2	3	4	5
10	Improve my communication skills	1	2	3	4	5

#	Item	Response (1-5)				
		Strongly Disagree	Agree	Neither agree no disagree	Agree	Strongly Agree
Compared to other courses:						
1	The content in this course is more difficult than most	1	2	3	4	5
2	The amount of work required in this course is greater	1	2	3	4	5
#	Item	Response (1-5)				
		Very Unhappy	Unhappy	Neither happy no unhappy	Happy	Very Happy
How happy are you with:						
1	The overall structure of this course	1	2	3	4	5
2	Your performance in this course	1	2	3	4	5

APPENDIX G

INSTRUCTOR WEEKLY JOURNAL SAMPLE

Week of 11-4

Faculty Weekly Journal

Instructions

At the end of each week, please complete the "Weekly Journal" questionnaire.

Please answer the following short answer questions:

1. What did I do to actively engage the students this week? How do I know?
   Hands on learning, videos, discussion forums, group work, peer review, post-class reviews

2. Did the students learn what I intended and were my objectives met for the week? Supporting evidence?
   Introduced 8 special tests for knee — Review bony anatomy
   were able to identify tissues tested — muscular anatomy
   MOI + S/S — Quiz Friday
   Continued demonstration of tests — Timed evals

3. Were my instructional strategies and activities effective? Supporting evidence?
   Objectives- ~~Special tests for knee - action, MOI, S/S~~
   Review (G03 G04 G08) New (G012 + G017)

4. Were the assessment(s) effective in determining student learning? Supporting evidence?
   Quiz- Boner or ankle 7/11 pass
   During assigned "board" work, inserting correct answers
   Pre + Post class activities show understanding

5. If I had the opportunity to redo this week, what would I keep the same and what would I do differently? Why?
   Videos for special tests - wanted to do something other than videos. Tried text readings, discussions, identification, etc. Probably would have been better to include videos. Worksheets worked well
   Not going to force completion of Pre+Post activities (getting about 80% Pre 50% Post)

The following form was adapted from various university student teaching handbooks.

Changed who doing weekly surveys- doing in class last day of WK — don't want to assign points b/c looking at effectiveness

low compliance — Frustrated ↓ compliance of weekly journals + Pre/Post activities

look to improve act. ←

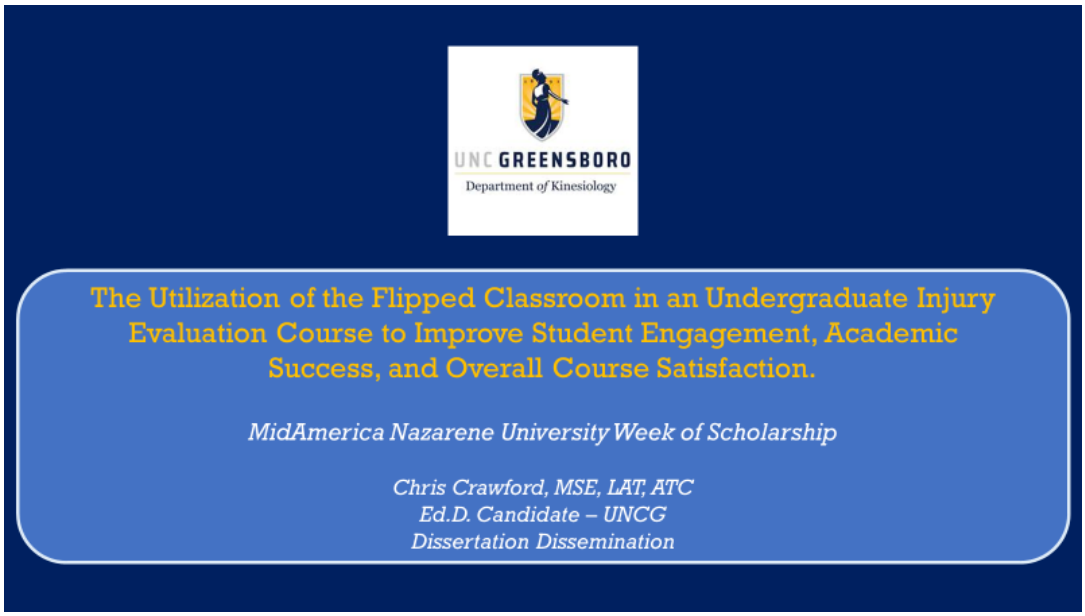
APPENDIX H

STUDENT WEEKLY JOURNAL RESPONSE CODEBOOK

Theme	Sub-Themes	Definition	Examples
Area(s) in which students felt they excelled	Specific content learned	Students provided examples of the content they learned during the course.	4225 - I did well at memorizing muscles. 9055 - I created a study set of the bony landmarks and drew illustrations which helped me to memorize where they are. 4225 - I asked questions when needed help. 2650 - I excelled in catching up from last week. 9055 - I excelled in learning the structures and anatomy of knee. 4802 - I feel I learned a lot of material this week. 6148 - I did well learning the Special Tests. 4129 - I feel I improved on the knowledge discussed this week. 9091 - I excelled at foot practical exam. 9091 - My grades on quizzes we good. 2650 - I felt I learned a lot. 3973 - I felt I remembered content well. 9091 - I retained information well. 4802 - I felt I was able to retain the special test and the manual muscle tests pretty well.
	Improvement of hands-on skills	Students describe the improvements made on Special Tests, Manual Muscle Tests, and Goniometric Measurement.	4129 - I did well with palpation of bony landmarks. 4802 - Learning the Special Tests of the knee. 9055 - I did much better at performing Special Tests. 4225 - I excelled in practicing and performing Special Tests. 3973 - I did well in performing Special Tests. 2650 - Practicing and improving my Special Tests. 4225 - Goniometric measurement and ROM was better. 9055 - I completed the Special Tests faster than I have in previous weeks. 9054 - I did well on performing Special Tests. 4225 - Goniometric measurement and MMT of hip. 9055 - I did well performing Special Tests.
	Satisfied with the week in class	Students describe how they felt the course was going for them.	2650 - It was a good week. 2650 - I felt I did well this week. 5150 - I felt like it was a good learning week. 9055 - I did better this week that last. 4129 - I'm feeling like there's overall improvement in this class for me.
	Preparation for class	Students describe how prepared they feel for certain activities in the course.	9091 - I was well prepared for the knee. 6148 - I participated in the learning plan and activities and did a little extra study outside of class. I'm practicing with my wife when I can. 9091 - I did well with prioritizing this week. 6148 - I practiced outside of class.
	Opportunity to teach peers	Students describe interactions with their peers.	5150 - I felt I was good at explaining the information to others. 9054 - I did well in explaining content to others. 9055 - I felt I have done well explaining content to others.
Area(s) in which students felt they needed to improve	Study skills or methods	Students provided examples of what they need to study or how they should go about studying it.	9091 - I need to study more. 5859 - I need to improve memorization of bony landmarks. 6148 - I need to improve in the clinical scenarios. 3973 - Writing things down and self-quizzing. 9055 - Improve on my method/approach of studying 4225 - Memorization of muscles 9091 - Improve my focus while studying. 6148 - memorization of special tests. 9957 - Learning what to look for on special tests. 3973 - Improve on my note taking to improve on retention. 9055 - Need to study more, just don't have the time. 4802 - Knowing signs and symptions and mechanism of injury. 3973 - Study more efficiently for quizzes. 4225 - Memorization of special tests. 4225 - Memorization of muscles. 3973 - Learning the material more completely.
	Improvement needed with hands-on skills	Students describe the improvements needed on Special Tests, Manual Muscle Tests, and Goniometric Measurement.	2650 - Practice more on special tests. 4225 - Improve on MMT positioning. 4802 - Goniometric measurement of the knee. 5150 - Doing the special tests. 9055 - Performing special tests. 2650 - Improve my confidence in performing special tests. 3973 - Remembering evals and hand placements better. 9091 - Focus on special tests when there are so many of them. 9055 - Palpation of bony landmarks of the knee. 4802 - Can get better at applying it to scenarios. 4225 - Improve on MMT of the hip. 4129 - Perform MMT of the hip better. 9957 - Improve on special tests of the hip. 4802 - Improve on locating muscles/tendons of the hip.
	Being prepared for class	Students describe how then needed to prepare more for certain activities in the course.	4129 - Need to start doing the pre-class activities which I know will help. 4225 - Getting pre and post-class activities completed. 9054 - Being prepared for class but lacking time. 9091 - Completing journals and pre-class activities.
	Remaining attentive and engaged	Students describe how they felt during the course.	5859 - Pay attention more in class even though I'm tired. 9091 - Stay present in class.
	Opportunity to teach peers	Students describe interactions with their peers.	6148 - Working with others. 6148 - Working with others in the class, switching partners.

APPENDIX I

FORMAL PRESENTATION



Background

- Lecture-based course delivery format has been the standard method of teaching in higher education.
  - 80% to 90% of classes are being taught in this manner (Bligh, 2000; Patterson, 2011).
- Instructor-centered environment was once considered to be an effective approach for educating previous generations.
- Creates a stale learning environment ➡ passive learners and no longer engaged (Miller & Metz, 2014).

http://saltystallion.com/index.php/2017/08/28/professor-spends-twenty-minutes-lecturing-on-student-interrupting-lecture/

The Gen Z Learner

- Short attention spans – roughly 8 seconds.
- Require high levels of stimulation and engagement.
- Digital natives – use within education is limited
- Prefer hands-on learning – like to watch, then do.
- Want what they are learning to applicable in real life.
- Preference towards intrapersonal learning, but value collaboration.
- Goal-oriented
- Socially conscious

Seemiller & Grace, 2017; Cameron & Pagnattaro, 2017; Pousson and Meyers, 2018; Schwieger & Ladwig, 2018

https://www.bandt.com.au/different-sets-gen-z-apart/

Instructor-Centered vs. Student-Centered

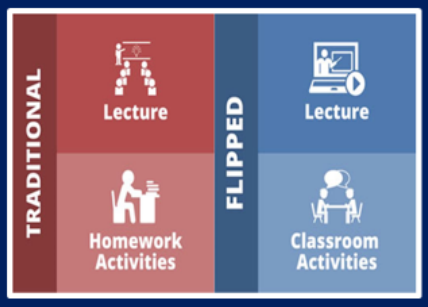
- Instructor-Centered
  - Focus is on the instructor.
  - Creates a passive learning environment.
  - Students are dependent on the instructor for information.
  - Encourages lower-levels of thinking.
  - Creates learners who do not posses true content comprehension.
- Student-Centered
  - Focus now shifts toward the student.
  - Grounded in constructivist theory – create their own learning opportunities.
  - Active participation in the learning process.
  - Responsibility falls on the student instead of the instructor.

Active Learning

- Student-centered approach rooted in constructivist theory.
- Students are active in every step of the learning process.
- Can manifest itself through:
  - Debates
  - Small group discussion
  - Games
  - Simulations
  - Case studies
- Encourages higher levels of thinking.

The Flipped Classroom

- At its best, in the flipped classroom:
  - Most of the content absorption occurs outside of the classroom.
  - Students engage with content they accessed before coming to class.
  - Content engagement occurs in class when students work together on activities that deepen their understanding of the content—for example, completing a "real-world" scenario or challenge.
  - The instructor works with students during the class period by moving among the students or conducting on-the-fly formative assessments.



https://www.yuja.com/in-browser-capture/

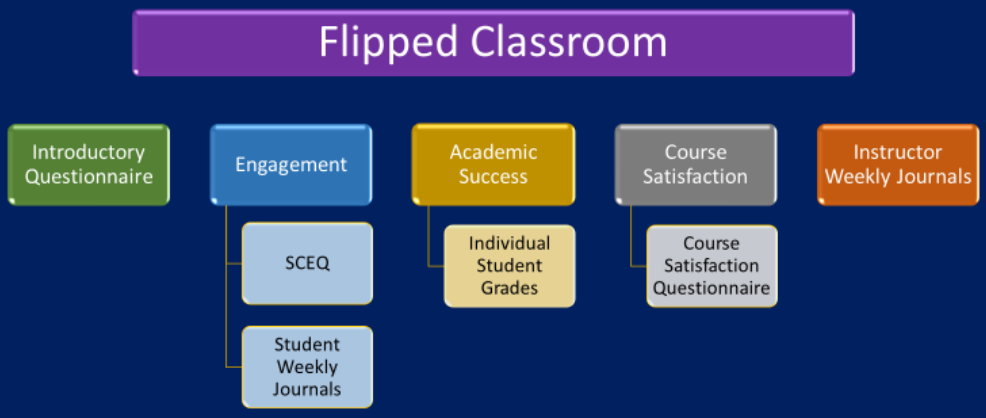
Purpose of the Study

- The purpose of this study is to determine the impact of implementing the flipped classroom instructional method on student engagement, academic success, and overall course satisfaction of students in an established injury evaluation and recognition course.

Research Aims

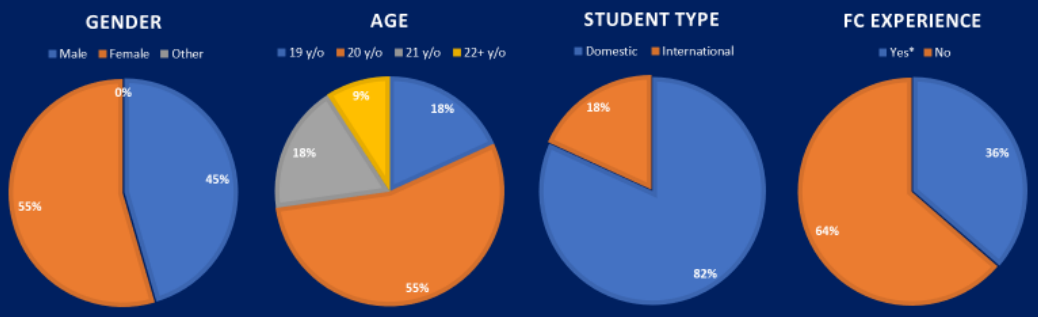
- Specific Aim #1 – Implement the flipped classroom instructional model in an already established undergraduate course for pre-professional allied health majors.
- Specific Aim #2 – Determine the effect the flipped classroom instructional model has on student engagement, academic success, and course satisfaction.

Methods



Participants

- Pre-existing, semester-long injury evaluation course.
- All students enrolled in the course (n = 11) agreed to participate.



Participant Descriptive Data

Results: Student Introductory Questionnaire

Student Introductory Questionnaire: Overall Descriptive Data and Response Rate Percentages

Traditional Classroom			Response Rate %					
Question	M	SD	1	2	3	4*	5*	*
1	3.27	0.79	0.0	18.2	36.4	45.5	0.0	45.5
3	3.45	0.82	0.0	9.1	45.5	36.4	9.1	45.5
6	3.81	0.98	0.0	9.1	27.3	36.4	27.3	**63.7**
8	3.45	1.04	0.0	18.2	36.4	27.3	18.2	45.5
9	3.72	0.90	0.0	9.1	27.3	45.5	18.2	**63.7**
Overall	**3.54**	**0.91**						**52.8**

Flipped Classroom			Response Rate %					
Question	M	SD	1	2	3	4*	5*	*
2	4.72	0.65	0.0	0.0	9.1	9.1	81.8	**90.9**
4	4.09	0.70	0.0	0.0	18.2	54.5	27.3	**81.8**
5	3.37	0.90	0.0	18.2	45.4	27.3	9.1	36.4
7	4.00	1.34	0.0	27.3	0.0	18.2	54.5	72.7
10	3.27	0.91	0.0	18.2	45.5	27.3	9.1	36.4
Overall	**3.87**	**0.90**						**63.6**

- "Learning all the information I need to learn in class"
- "Having the entire class moving at the same pace"
- "Application of in-class activities to real world problems."
- "Use of technology in the classroom."

- Overall, students indicated a higher preference towards the flipped classroom.

Results: SCEQ

ANOVA Tests for Case Study Average

	df	SS	MS	F	Significance F
Regression	2	3.45405	1.72702	9.28367	0.01073*

*Significance level P < 0.05

Multiple Regression Data for Case Study Average

	Coefficients	Std Error	P-value	Lower 95% CI	Upper 95% CI
Intercept	0.79068	2.20852	0.73088	-4.43164	6.01301
Performance (PF)	0.13795	0.04710	0.02205*	0.02658	0.24933
Emotional (EM)	0.28919	0.12696	0.05682*	-0.01102	0.58940

*Significance level P < 0.05

Results: SCEQ

ANOVA Tests for Evidence Based Project (EBP) Average

	df	SS	MS	F	Significance F
Regression	3	96.05822	32.01940	15.56636	0.00308*

*Significance level P < 0.05

Multiple Regression Data for Evidence Based Project (EBP) Average

	Coefficients	Std Error	P-value	Lower 95% CI	Upper 95% CI
Intercept	31.23874	7.37959	0.00548*	13.18153	49.29596
Performance (PF)	0.63354	0.15993	0.00744*	0.24219	1.02489
Participation (PA)	-0.71586	0.28696	0.04686*	-1.41802	-0.01369
Emotional (EM)	2.11888	0.53491	0.00744*	0.81000	3.42776

*Significance level P < 0.05

Results: Student Weekly Journals

Student Weekly Journals: Overall Descriptive Data and Frequencies: %, (f)

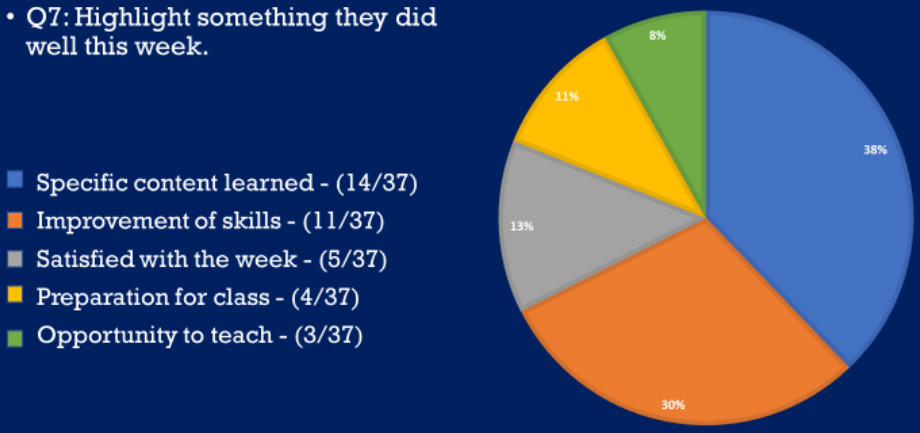
Question	Min	Max	M	Low (1-3)	Neutral (4-6)	High (7-10)
Content completion (Q1)	1.00	10.00	9.28	8.0 (7)	0.0 (0)	92.0 (80)
Preparation value (Q2)	3.00	10.00	9.15	1.1 (1)	2.3 (2)	96.6 (84)
Content relevance (Q3)	5.00	10.00	9.55	0.0 (0)	4.5 (4)	95.5 (84)
Amount learned from peers (Q4)	3.00	10.00	8.25	1.1 (1)	12.5 (11)	86.4 (76)
Amount taught to peers (Q5)	2.00	10.00	7.86	4.5 (4)	18.2 (16)	77.3 (68)

Total possible number of responses (99), Actual number of responses (n = 88) with 11 missing responses

- Final two questions were open-ended.
- Q6: Was there a better way to present content? Yes - 10.2% (9/88).
  - Demonstrations, more videos, quiz games, and simulations.
  - None of the responses indicated a desire to incorporate aspects from the traditional classroom model.

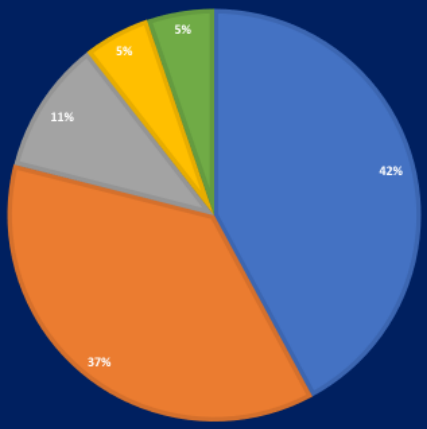
Results: Student Weekly Journals (cont.)

- Q7: Highlight something they did well this week.



Results: Student Weekly Journals (cont.)

- Q7: Highlight something they felt they needed to improve on.



- Study skills or methods - (16/38)
- Skills improvement needed - (14/38)
- Being prepared for class - (4/38)
- Remain attentive/engaged - (2/38)
- Interaction with peers - (2/38)

Results: Academic Success

One-tailed t-Test for Case Study Average

Case Study Average		
	Fall 2017	Fall 2019
Mean	8.38333	9.20454
Variance	2.00773	0.48522
Observations	15	11
Hypothesized Mean	0	
df	21	
P(T<=t) one-tail	0.03253*	

*Significance level P < 0.05

One-tailed t-Test for Cumulative Final Practical Exam

Cumulative Final Practical Exam		
	Fall 2017	Fall 2019
Mean	89.4	93.45454
Variance	22.68571	27.67272
Observations	15	11
Hypothesized Mean	0	
df	20	
P(T<=t) one-tail	0.02848*	

*Significance level P < 0.05

- EBP Project average (+1.67 points) increase between Fall 2017 and Fall 2019.
- Practical Exam average (+1.25 points) increase between Fall 2017 and Fall 2019.

Results: Course Activity Satisfaction

- One-tailed t-Tests were used.
  - Improvements within each question and individual participants.
- 4/10 (40%) questions ⬆ Post-Study scores, none were statistically significant.
- 5/11 (45%) students ⬆ in Post-Study scores, one statistically significant (M=3.4, SD=0.966 vs M=4.7, SD=0.674, P=0.0009).

Pre-class Activity Satisfaction		
	M	SD
Early-study	4.25	0.73
Post-study	4.36	0.77

In-class Activity Satisfaction		
	M	SD
Early-study	4.29	0.85
Post-study	4.11	0.64

Results: Course Activity Satisfaction

- Responses from last four questions from the Post-Study administration of the questionnaire

Compared to other courses...					Response Rate %					
	Min	Max	M	SD	1	2	3	4*	5*	*
Content was more difficult	3.00	5.00	4.27	0.62	0.0	0.0	9.1	54.6	36.4	91.0
Amount of work was greater	2.00	5.00	3.91	0.79	0.0	9,1	9.1	63.6	18.2	81.8
								Overall		86.4

How satisfied are you with...					Response Rate %					
	Min	Max	M	SD	1	2	3	4*	5*	*
Overall structure of the course	2.00	5.00	4.18	0.94	0.0	9.1	9.1	36.4	45.5	81.9
Your performance in the course	2.00	5.00	4.00	0.74	0.0	9.1	0.0	72.7	18.2	90.9
								Overall		86.4

Results: Instructor Weekly Journals

- Five open-ended questions
  - Engagement levels of the student
  - Academic goals for the week
  - Personal reflection
- Overall, thought it went well.
- Saw good response from students – seemed to enjoy the class.
- Content knowledge and comprehension improved – impressed!
- Great student quotes about learning, course structure, confidence, etc.
- Instructor did experience some frustrations with compliance early on and in himself over certain aspects of the course.

Discussion

- When looking at the results of this study, it's important to remember that our study population is the Gen Z student.
- The flipped classroom instructional method was chosen because of the specific characteristics of this learner.
- Results from all the study instruments have a connection to Gen Z learner characteristics.

Discussion (cont.)

- Based on the combined results from the study, it appears that the intervention was worthwhile, and that the implementation of the flipped classroom instructional model had a positive effect on student engagement, academic success, and overall course satisfaction.
- Updating measure on engagement to get a more complete picture.
- Incorporating active learning and student-centered activities led to grade improvements.
- Improvements in grades and performance led to improved course satisfaction.

What can we do?

- Ultimately, this generation learns best by doing, create hands on learning opportunities – active learning.
- Continually "switch" things up to keep the students engaged – you do not need to be an entertainer.
- Integrate active and problem based learning – self-paced learning, encourages creativity, etc.
- Connect content to real-world situations, scenarios, etc. – simulations, case studies, role play, etc.

What can we do? (cont.)

- Provide opportunities for students to construct their own learning experiences – Constructivist learning.
- Include a wide variety of technology options throughout the entire course structure – teaching and learning.
- Create a learning environment that utilizes various resources (digital, print, peers, teacher, etc.) to fulfill this groups desire of face-to-face interaction in team learning, independent learning, and problem solving and critical thinking approaches.

Thank You

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References

- Brown, S. J., White, S., Bowmar, A., & Power, N. (2017). Student engagement in compulsory introductory physiology course. *Journal of the Scholarship of Teaching and Learning*, *17*(1), 52-62.
- Cameron, E. A. and Pagnattaro, M. A. (2017). Beyond Millennials: Engaging Generation Z in business law classes. *Journal of Legal Studies Education, 34*(2), 317-324.
- Carter, T. (2018). Preparing Generation Z for the teaching profession. *SRATE Journal*, *27*(1), 1-8.
- Casasola, T., Nguyen, T., Warschauer, M., & Schenke, K. (2017). Can flipping the classroom work? Evidence from undergraduate chemistry. *International Journal of Teaching and Learning in* Higher *Education, 29*(3), 421-435.
- Dillman-Taylor, D. L., Blount, A., and Bloom, Z. (2017). Examination of student outcomes in play therapy: A qualitative case study design. *International Journal for the Scholarship of Teaching and Learning, 11*(1), 1-7.
- Demirci, C. 2017. The effect of active learning approach on attitudes of 7th grade students. *International Journal of Instruction, 10*(4), 129-144.
- Goldberg, N. A., and Ingram, K. W. (2011). Improving student engagement in a lower division botany course. *Journal of Scholarship of Teaching and Learning, 11*(2), 76-90.
- Handelsman, M. M., Briggs, W. L., Sullivan, N., & Towler, A. (2005). A measure of college student engagement. *The Journal of Educational Research, 98*(3), 184-191.
- Mandernach, B. J. (2015). Assessment of student engagement in higher education: A synthesis of literature and assessment tools. *International Journal of Learning, Teaching, and Educational Research, 12*(2), 1-14.

References

- Miller, C. J., and Metz, M. J. (2104). A comparison of professional-level faculty and student perceptions of active learning: its current use, effectiveness, and barriers. Advanced Physiology Education, 38, 246 252. DOI:10.1152/advan.00014.2014.
- Monaco, M. and Martin, M. (2007). The Millennial Student: A new generation of learners. Athletic Training Education Journal, 2, 42-46.
- Moore, K., Jones, C., and Frazier, R. S. (2017). Engineering education for Generation Z. *American Journal of Engineering Education, 8*(2), 111-126.
- Pousson, J. M., Myers, K. A. (2018). Ignatian Pedagogy as a frame for Universal Design in College: Meeting Learning Needs of Generation Z. *Education Sciences, 8*, 193-203. DOI:10.3390/edusci8040193.
- Seemiller, C. and Grace, M. (2017). Generation Z: Educating and engaging the next generation of students. *About Campus*, (July-August). DOI: 10.1002/abc.21293.
- Schwieger, D. and Ladwig, C. (2018). Reaching and retaining the next generation: Adapting to the expectations of Gen Z in the classroom. *Information Systems and Education Journal, 16*(3), 45-54.
- Seemiller, C. and Grace, M. (2017). Generation Z: Educating and engaging the next generation of students. *About Campus*, (July-August). DOI: 10.1002/abc.21293.

References

- Shatto, B. and Erwin, K. (2017). Teaching millennials and Generation Z: Bridging the generational divide. *Creative Nursing, 23*(1), 24-28.
- Starmer, D. J., Duquette, S., and Howard, L. 2015. Participation strategies and student performance: An undergraduate health science retrospective. *Journal of Chiropractic Education, 29*(2), 134-138. DOI:10.7899/JCE-14-20.
- Taylor, L. and Parsons, J. (2011). Improving student engagement. *Current Issues in Education, 14*(1), 1-33. Retrieved from http://cie.asu.edu/.
- Thompson, G. A., Ayers, S. F. (2015). Measuring student engagement in a flipped athletic training classroom. *Athletic Training Education Journal, 10*(4), 315-322.
- Weigel, F. K., and Bonica, M. (2014). An active learning approach to Bloom's Taxonomy: 2 games, 2 classrooms, 2 methods. *The United States Army Medical Department Journal,* 21-29.
- Young, K. (2009). The X, Y, and Z of generations in schools. *The International Journal of Learning*, *16*(7), 203-215.

APPENDIX J

KEY FINDINGS INFOGRAPHIC

FLIPPED CLASSROOM

FOR IMPROVED

Student Engagement, Success, & Course Satisfaction

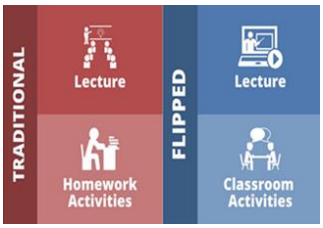
PURPOSE OF THE STUDY

The purpose of this study was to determine the impact of implementing the flipped classroom instructional method on student engagement, academic success, and overall course satisfaction of students in an established injury evaluation and recognition course.

GEN Z LEARNER

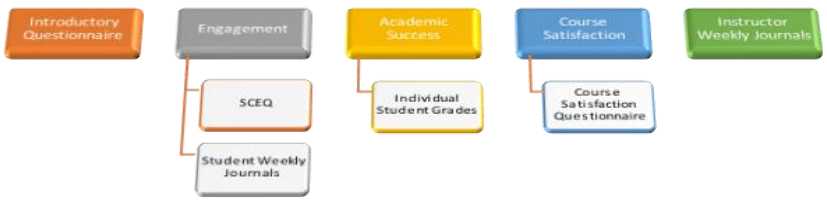
- Short attention spans – roughly 8 seconds.
- Require high levels of stimulation and engagement.
- Digital natives – use within education is limited
- Prefer hands-on learning – like to watch, then do.
- Want what they are learning to applicable in real life.
- Prefer intrapersonal learning, but value collaboration.
- Goal-oriented
- Socially conscious

FLIPPED CLASSROOM



- Most of the content ABSORPTION occurs outside of the classroom.
- Content ENGAGEMENT occurs in class when students work together on activities that deepen their understanding of the content.
- The instructor is free to move about the classroom, working with students during the class period.

STUDY METHODS



KEY FINDINGS OF THE STUDY

1. Results from the SCEQ showed statistically significant differences in the factors of performance, participation, and emotional engagement in with helping to predict student outcomes of the case study and evidence-based project grade categories.
2. Student journal responses indicated a high level of engagement through their responses, specifically to activity completion, value of completing those activities, content relevance, and peer interaction support this theory.
3. There was a statistically significant increases in grades for the evidence-based project and cumulative practical final exam grades for fall of 2019.
4. Even though not considered significant, grade averages from case studies and practical exams improved 1.67 points and 1.25 points respectively.
5. The statistical significance was low to non-existent for the Course Activity Satisfaction Questionnaire, but the data did show that there was really no change at all in student responses and that they still had a high level of satisfaction with the pre and in-class activities between Early-Study and Post-Study administration.
6. Even though students felt the content was more difficult and more work was required in this course, they were still very satisfied with the overall structure and their performance in the course.

SUMMARY OF RESULTS

- Based on the combined results from the study, it appears that the intervention was worthwhile, and that the implementation of the flipped classroom instructional model had a positive effect on student engagement, academic success, and overall course satisfaction.
- Incorporating activities centered around active learning and a student-centered environment contributed to the improvement in course grades.
- With that improvement in grades, comes an improved satisfaction level for the course.
- Even with a small sample size, there is practical significance with this data that can provide important implications for professional practice.

TIPS FOR PRACTICAL IMPLEMENTATION

- Continually “switch” things up to keep the students engaged.
- Integrate active, problem-based learning, and self-paced learning.
- Connect content to real-world situations, scenarios, etc. – simulations, case studies, role play, etc.
- Provide opportunities for students to construct their own learning experiences.
- Include a wide variety of technology options throughout the entire course structure.
- Create a learning environment that utilizes various resources (digital, print, peers, teacher, etc.) to fulfill this groups desire of face-to-face interaction in team learning, independent learning, and problem solving and critical thinking approaches.

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