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Analysis of Student's Responses to using a Flipped Classroom Methodology in Higher Education University in the United Arab Emirates

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Abstract: The aim of this study is to analyse student's response to introduce flipped learning method in teaching at the American University of Ras Al Khaimah (AURAK) United Arab University. Questioners were developed and sent to all AURAK students via survey monkey. Since, this method has been used worldwide especially in high schools we assumed 60% or more would have heard about this method and more than 50% experienced high grades. We tested these assumptions and our results indicated that they are valid and correct. Moreover, we questioned students on other advantages of using flipped learning such as improving their grades, understanding of lesson material and utilization of class time. About >70% of students responded positively with few comments and concerns. It is concluded that flipped learning methodology can be useful for students however instructors preferred leaving the first 1-15 min for answering student's questions and misunderstandings before delving into problem-solving and discussion.

Key words: Flipped classroom, AURAK, communication, education, creativity, worldwide

INTRODUCTION

The intent of the flipped classroom methodology is to move from the traditional instructional paradigm to a more dynamic technologically based didactic approach. The flipped classroom is founded on learning procedures that are more reflexive, shared and connected with the modern availability of massive amounts of information. This model is one of the most creative ideas applied in large numbers of universities all around the world. The flipped classroom is a new way of teaching which moves beyond traditional methodologies to engage learners at a higher level.

The flipped classroom seems to be catching on with higher education. According to the flipped learning network (FLN, 2013) flipped learning is particularly well-suited to higher education settings for a variety of reasons. The in-class discussion and enrichment activities allowed by moving content delivery outside of class time provide opportunities for students to develop vital skills needed in the 21st century. According to same network report (FLN, 2013) these are the top five motivations for higher education faculty to flip their courses:

- Improve student's critical thinking/creative problem solving/higher-order thinking/21st century/ professional skills
- Increase student participation, motivation and engagement
- Improve student's team-based skills and peer-to-peer interaction
- Customize/differentiate learning
- Make students the centre of learning/encourage student ownership of learning

Since, flipped learning is a relatively new model for teaching and as such there are challenges to its implementation in institutions of higher education. These challenges can be course redesign, teaching load, student acceptance and student evaluation.

To date, there's no scientific research base to indicate exactly how well flipped classrooms work for higher education. But some preliminary non scientific data from school suggest that flipping the classroom may produce benefits such as the following.

Improved student-teacher interaction: Studies have shown that having teachers who recognize and respond to student's social and emotional needs is at least as important to academic development as specific instructional practices are and this is especially true for at-risk students (Hamre and Pianta, 2005).

Opportunities for real-time feedback: A small pilot study funded by the gates foundation observed that during a 5 weeks summer school program in which students received instruction through the Khan Academy website along with support from a teacher, the teacher spent

significantly more one-on-one time with students than she had in her traditional classroom; thus, she was able to provide more feedback and immediately correct student misperceptions (Greenberg *et al*., 2011).

Student engagement: Brain research tells us that the novelty of any stimulus tends to wear off after about 10 min and as a result, learners tend to check out after 10 min of exposure to new content. After that, they either need a change of stimulus, emotional variety or an opportunity to step back and process what they're learning (Medina, 2008). One benefit, then of placing lectures online may be that they can break down direct instruction into more engaging 10-min bites of learning.

Self-paced learning: An inverted classroom allows the teacher to place an entire year or semester's worth of lectures online, enabling students to accelerate through the curriculum if they are ready. According to Hattie (2008)'s synthesis of 800 research meta-analyses such acceleration has one of the strongest effect sizes (0.88) of any instructional intervention.

More meaningful homework: Beesley and Apthorp (2010) found that targeted in-class opportunities for students to practice their skills with corrective teacher feedback had an effect size nearly 4 times that of homework in which teachers had few opportunities to monitor students during their practice.

Numerous technologies can be utilized to "flip" a class. The following technologies can be utilized to make and present online substance, lessons, evaluations and criticism. Cooperation devices can be utilized both as a part of class and outside of class for gathering tasks, engaging critical thinking and sharing assets, contingent upon the instructional exercises.Some of the examples follow:

- Writing board course site (appraisals, course substance, gathering activities and then some)
- Lecture catch devices: room-based (media site, studio classrooms) and desktop (camtasia, adobe presenter)
- Video recording and modification (webcam, cam, imovie)
- Annotation/remarking (voice thread)
- Collaboration devices (google docs)
- Polling and study apparatuses (turning point)
- Video conferencing (skype, go to meeting)
- Mobile gadgets for venture based exercises (tablets, phones)

MATERIALS AND METHODS

Survey monkey tool was utilized to garner student perceptions of the usability and effectiveness of the flipped classrooms, a survey instrument was created and a subsequent questionnaire was sent to students via. their personal university email. The following hypotheses guided the study:

- H_1: about 60% or more were expected to have heard of the concept of flipped learning as a viable instructional methodology
- H_2: the 50% or more were expected to indicate confidence that flipped learning is a better learning method than any traditional lecturing methods currently in use at the university

The following questions were formulated and emailed to students through survey monkey. The first 4 questions are formulated to identify student's status at AURAK, question five targets H_1 and the remaining questions target H_2:

- Are you a male or female?
- Are you enrolled in engineering, business or art and science?
- What is your cumulative GPA?
- Are you freshman, sophomore, junior, senior or graduate?
- Flipped learning is a new concept to the university. Prior to this have you ever heard about flipped learning?
- Do you prefer watching lecture videos at your own time to save class time for problem solving and discussions with your professor?
- Do you think that saving class time for problem solving and discussions will help you achieve the course learning outcomes?
- Do you think flipped learning will help you improve your grades?

Also, the following brief introduction to flipped learning was provided with the questioner: "flipped learning is a form of blended learning in which students learn content online by watching video lectures, usually at home and homework is done in class with teachers and students discussing and solving questions. Teacher interaction with students is more personalized-guidance instead of lecturing. This method of teaching have been used in some courses that are currently taught at AURAK. The goals of this research/questioner are to investigate the educational benefits of flipped learning for AURAK students".

RESULTS AND DISCUSSION

The analysis indicated that 53.3% of the respondents were males and 46.3% were females. The about 48

students out of the university enrolment of 525 completed the survey for a response rate of 9.2%. The Engineering School scored the highest percentage of respondents with 57.8% of the participants. The business school followed with 26.5% and the Artsand Sciences School provided 15.7% of the survey's participants.

As shown in Fig. 1, freshman students constituted the largest response group at 31.1% and graduate students were the lowest with 11.1%. From Fig. 2, one notices that 66.7% of the student respondents indicated a CGPA above 3.00. About 26 point seven (26.7%) of the student respondents indicated a GPA between 2.0 and 3.00 while the remaining 6.7% indicated a GPA below 2.0. As indicated in Fig. 3, 62.2% of students indicated that they had heard offlipped classrooms while 37.8% had not heard of flipped classrooms. From Fig. 4, 75.6% of students prefer watching lecture videos at their own time

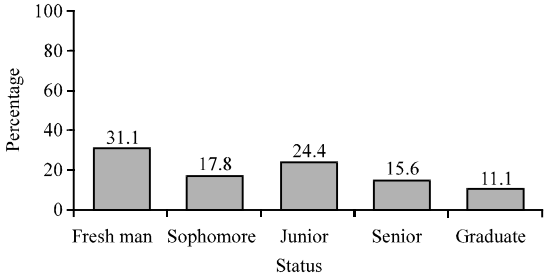

Fig. 1: Student's current registration status

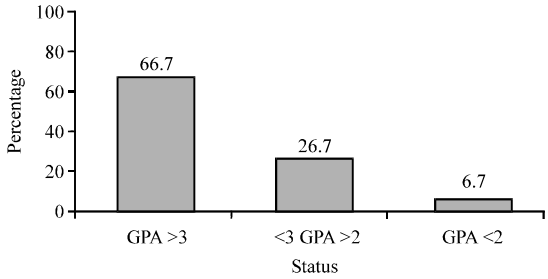

Fig. 2: Student's CGPA data

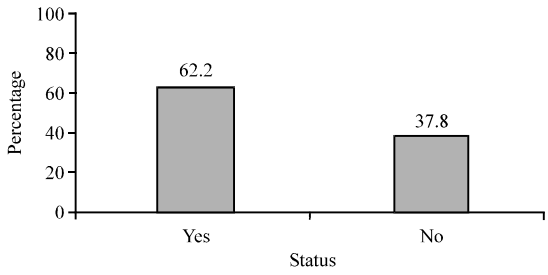

Fig. 3: Percentage of students that encountered flipped learning before

to save class time for problem solving and discussions with their professor. As a follow up question, 73.3% of students believe that saving class time will help them achieve the course learning outcome (Fig. 5 and 6).

Finally, Fig. 6 shows that 82.2% of students believe that flipped learning would increase their grades embracing the concept as a creative idea with new methods for fostering teaching and learning. The 26 comment were given by the survey respondents. These comments indicate opinions of the flipped learning concept. As previously indicated, 75% of the students agreed with the idea of flipped learning and viewed the methodology as a means of improving grades through innovative and creative instructional methodologies.

The positive comments saw many advantages to the utilization of flipped learning. Respondents saw the concept as a successful means of managing time and fostering creative thinking. Advantages were also noted in having the opportunity to watch and re-watch instruction videos until concepts were mastered. Several noted the importance of being able to take notes by watching the videos slowly. They noted that more time was available to actually focus on the problem sets while the videos could be watched at their leisure. One of the most common themes foxed on the flexibility of the model to meet their varied life and work schedules. Some of the positive comments (as is with grammar and spelling

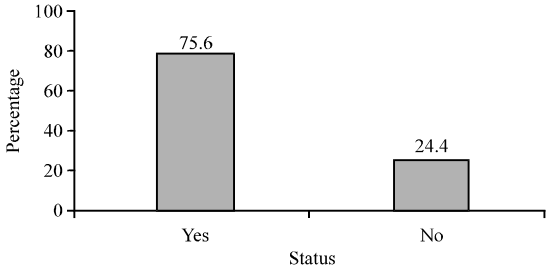

Fig. 4: The >70% of students think flipped learning can save time for problem solving and discussions

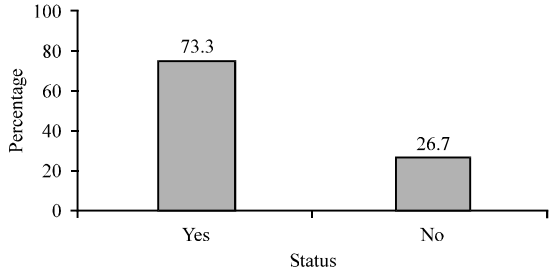

Fig. 5: The >70% of students think flipped learning will help them understand the course material

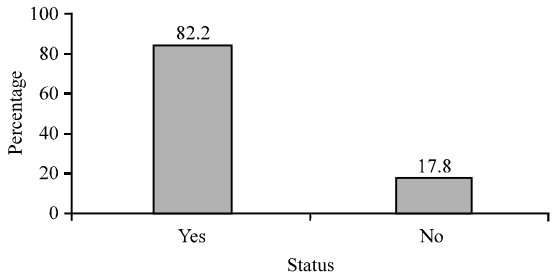

Fig. 6: The >70% of students think flipped learning will help them improve their grades

mistakes) follow. I really believe that flipped learning method will help students to have better ways of understanding than those provided by the normal old method.

I liked the idea of the flipped learning this way students can interact with the professors more and even understand the material better. I have experienced flipped learning in two courses, It was a good experience; saving the time for learning basic stuff (especially when you can learn what exactly could be given in a whole hour of class, at home) and focusing on the more important material. I really support the idea of having flipped classes here at the university. Some of the negative comments (as is with grammar and spelling mistakes) provided by the respondents are as follows.

I think that it is more important to focus on lecturing and teaching than practice, since practice can be conducted more easily by the student alone. It is more important to be able to ask questions during the lecture than when practicing.

I think personally think that flipped classroom might be a flop idea because discussions and problem solving can only be done when the concept is clear. When the concept itself is blurry then problem solving is another level task.

The problem is that, even if this idea will save the class time for solving problems and discussions, we will spend more time at home watching videos of lectures and that is an extra time for education. It will be like even when we are back home we still have lectures to attend and eventually we will get exhausted and bored because we are not having enough time to relax and refresh ourselves.

CONCLUSION

According to the survey results, H_1 was true as more than 60% of the students who completed the survey have heard about flipped learning. However, the percentage was slightly above 60% and this because most high school teachers in this region still prefer using the traditional method of lecturing and hence some AURAK student's never heard about it before. One key issue in this region is that high school teaching is mostly in in Arabic language in Arabic school and therefore many teachers are reluctant to create their own video of lectures, since ready video lectures are scarce over the internet. On the other hand, English high school teachers have the choice to create their own videos or use those over the internet. Regardless of our AURAK student's background, the question was if they heard about flipped learning rather than experienced flipped learning. Most likely, they have heard about it at the university level and it will be fair to assume a lower percentage for practicing flipped learning. Hypothesis 2 was also strongly supported with the percentages found in the last three questions exceeding the assumed value of 50%. The reason is believed to be to the introduction given to students about flipped learning method. They understood the concept thought about it and believed that this new method of learning can improve their knowledge, skills and eventually improve their grades. This can be deduced from their positive comments and suggestions.

Student's negative comments indicate that there are some concerns of less student-professor interaction and increase self-study load. These concerns are valid and can be addressed through proper student's guidance, advising and seminars. For example, the instructor can interact with the student on line or dedicate the first 10 min of the lecture to briefly explain the concept and answer student's questions. Moreover, faculty training and support to apply flipped learning model in their classes is very important to ensure the acceptance and success of this method among students.

Finally, the flipped learning method was clearly viewed by students asa creative idea that would be successfully implemented in the university. Many positives were identified relating to this innovative concept. These didactic strategies were viewed as a means to improve and strengthen the university experience. Flipped learning methodology can be useful for students. Instructors are encouraged to examine this methodology as a means of engaging students at a higher level to strengthen problem-solving skills and foster creative thinking through empowering discussion.

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