Teaching Technical Communication in the Flipped Fashion Way: A Boost in Active Learning

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The IAFOR International Conference on Language Learning-Dubai 2016 Official Conference Proceedings

Abstract
Abu Dhabi University (ADU) is following the growing trend of offering students learning opportunities that are flexible, innovative and engaging. As an educator working at this university, I am embracing student-centered teaching and learning methodologies, which require continuous reflection and adaptation. To serve this end, the objective of this study is to explore how students experienced student-centered active learning. This project used the Hybrid-Flipped classroom approach to boost active learning that leads to deeper learning when teaching a project-based technical communication course to undergraduate engineering students in ADU. The project used an action research approach to improve the in-class instructional design in a way that maximizes opportunities of deeper learning among students. The flipped classes used a Hybrid-Flipped learning approach that was revisited in a subsequent semester. Hence, aspects of student-centered hybrid learning phases were merged with inquiry-based learning to aid students in exploring concepts necessary for them to complete their group research reports. Data was collected from short interviews held with a focus group taking the course. In addition, a reflective journal was conducted by the teacher. The findings verified that the Hybrid-Flipped classrooms transformed and remodeled the lecture classes into active-learning classes. Adopting inquiry-based activities in the Hybrid-Flipped classes proved successful since it resulted in engaging students in higher-order thinking skills that are necessary for boosting engineering students’ academic performance.

Keywords: Hybrid-Flipped Classroom; active learning; technical communication; engineering students
Introduction

As a student-centered approach to learning, the flipped classroom increases students’ active learning making it a more feasible and useful alternative to the traditional classroom-based instruction. The flipped classroom model is designed to first expose students to the required learning material outside of the classroom. The most common forms of learning material include voice-over lectures, educational videos, or even written and audio material. During the face-to-face classroom teaching time, the instructor smooths the path for a student-driven discussion of the material via challenging and thought provoking questions or scenarios that engage students in complex problem solving, encourage peer interaction, and promote deep understanding of the targeted concepts.

Flipped Learning using digital technologies is a relatively new pedagogical model of education. Since more and more universities in the UAE are moving in the direction of integrating technology in the classroom, UAE university teachers are increasingly encouraged to adopt this new pedagogy for the following reasons: (1) it includes teaching and learning methods that meet the demands and expectations of the 21st “digital natives” (Prensky, 2001), (2) it enhances learning outcomes because it is a smartly designed classroom that manages class time in such a way where the use of higher cognitive skills is maximized during class time while the lower cognitive skills come into play in pre-class activities, (3) it creates an opportunity for instructors to both provide feedback that is more relevant to their students’ learning needs and receive feedback from their students both about the activities that engaged them in learning and the gaps in their understanding.

Within the tertiary sector, Eric Mazure’s work on peer instruction in flipped learning is often highlighted. He emphasized on how assistive technology allowed students to respond and give feedback during peer instruction sessions. This maximized the time available with the instructor and made it possible to increase the focus on higher order thinking skills. “Once you engage the students’ minds, there’s an eagerness to learn, to master” (Mazure cited in Berrett, 2012). Inspired by those words, this study aims to investigate how undergraduate engineering students experienced student-centered learning in the Hybrid-Flipped classroom designed to boost active learning that leads to deeper learning. This study used the Hybrid-Flipped classroom approach when teaching a project-based technical communication course to undergraduate engineering students at ADU. This course is a pre-requisite to introductory undergraduate engineering major courses. It is intended to equip engineering students with the technical communication tools necessary for them to produce technical reports in their major courses and capstone projects in their senior year.

Action research is adopted to improve the in-class instructional design in a way that maximizes opportunities of deeper learning among students. Students watch online lectures posted on Blackboard Learn (Bb)-the course management system adopted in ADU. The online lectures are created by using Lecture Captivate or via private YouTube videos designed and delivered by the instructor as homework. During the formal class time, students practice, complete assignments, engage in pair and group discussions, reflect via peer interactions, and most importantly have more one-on-one interaction with the instructor while delving into the tasks assigned only to advance towards meeting the desired course learning outcomes. The technical communication
course is project-based and centered on completing a group research report in several stages for a total of 45% within 8-9 weeks of the 13 weeks regular semester. Students need to be equipped with the right tools for their group research journey; thus, aspects of student-centered hybrid learning phases were merged with inquiry-based learning. A qualitative method was used by collecting data from short interviews held with a focus group of ten randomly picked female students from the second cohort who were taking the course. In addition, a reflective journal was conducted by the teacher. The study findings show that the Hybrid-Flipped classrooms transformed and remodeled the traditional lecture classes into active-learning classes. More importantly, the merging of inquiry-based activities with the Hybrid-Flipped classroom approach succeeded in further engaging students in higher-order thinking skills that are essential for enhancing the engineering students’ academic performance.

Flipped Classroom: Rethinking Teaching…Rethinking Learning

In 2007, the pioneers of flipped learning, Bergman and Sams (2008) created videos of their science class lectures to deliver the instructional material to absent secondary school students. Surprisingly, students who had already attended the class were also watching the videos because they wanted to reinforce and review the lecture’s key concepts. From then onwards, the flipped classroom was in the limelight as educators, researchers, teachers, and most and foremost learners started to evaluate its impact on their quest to gain knowledge and make use of it.

The Flipped Classroom approach entails reorienting the normal class set up by swapping class instruction and homework. Before class – during class- after class pattern of teaching re-orientates the traditional teacher-focused pattern into a student-centered one with goals set for each step of the pattern to actively engage learners of different levels and competencies in meaningful learning. In contrast, a traditional pattern of learning is a one size fits all pattern that transfers knowledge to learners in a passive way.

The flipped classroom approach addresses the learning needs of not only low-achieving students but also the advanced ones. It is adaptable to the learner’s needs in the sense that it gives advanced students the opportunity to learn independently while allowing struggling students to revise content and synthesize the material at their own pace as opposed to feeling frustrated due to lagging behind. Learners can “pause to reflect on what is being said, rewind to hear it again, listen to as much or as little of the lecture as their schedules permit, and view the lecture on a mobile device rather than in a fixed location” (Talbert, 2012). Zownikera (2013) states another advantage of the flipped approach highlighting that, “With the flipped method, a student can refresh their memory before a unit exam or at any moment in the educational experience.”

During class time, students concentrate on internalizing the material. This is done with the support of their instructor and the help of their peers. As watching instructional videos turns into an established routine before the class time, learners become more autonomous and self-directed since they can identify their learning goals and make informed decisions. Pearson (2013) stresses that, “flipping the classroom creates the potential for active, engaged, student-centered learning, peer interactions, and personalized instruction.” To help learners overcome learning
hurdles, the flipped classroom approach offers differentiated instruction as it accommodates students’ diverse learning styles. Active learning refers to effective student-centered approaches that increase student learning and achievement. It is generally associated with enhanced student academic performance (Michael, 2006; Freeman, 2007, Chaplin, 2009). It is defined as “the process of having students engage in some activity that forces them to reflect upon ideas and how they are using those ideas” (Michael, 2006). Teachers using student-centered active learning approaches engage students in actively constructing knowledge; working with students to evaluate their learning (Huba & Freed, 2000). In active learning, knowledge is acquired within the context in which it will be used; enabling learners to meaningfully apply the information, be responsible for, and have ownership over their learning. The flipped class approach rests on rethinking teaching and learning as “teachers shift direct learning out of the large group learning space and move it into the individual learning space, with the help of one of several technologies” (Pearson, 2013).

The Bold and the Blended make Flipping Work!

A successful flipped class does not happen by replacing yourself with a video or by being proficient in communicating the subject’s content. It is about being bold enough to take the risk of transforming your all-knowing teacher role- the source and provider of all knowledge- to a guide who skillfully and professionally facilitates learning. Flipped classroom instruction is not a simple and artless video recording. Its success rests on a make-over of the teacher’s role. No longer in the comfort zone of being a lecturer- the source of knowledge, the sage on the stage but transformed into a risk-taker, a guide on the side that designs and assembles rather than teaches. In fact, the role of the flipped classroom instructor includes the same features outlined for the transformed instructor as highlighted by McWilliam (2008, p. 265):

• reduced instruction time while more time is dedicated to being a participant in the learning action;
• transforming from risk-minimizing teacher to risk-taker;
• moving from classroom editor-teacher to designer and assembler;
• seeking authentic evaluation of students' work

As the flip in roles takes place and the sage becomes a guide, the flipped classroom sets off a paradigm shift in the teaching methodology. This shift from the transmission mode leads to more productive learning outcomes, allows more practical learning during class time, enables more student engagement and differentiated learning, and allows students to be self-directed learners who can build on their strengths and interests and take advantage of the instructional time inside the borders of the classroom. (Bergmann& Sams, 2014). The challenges that the professional educator face when teaching in the flipped fashion way are not be taken for granted.

By embracing Bloom’s taxonomy, the flipped classroom approach works only when all the levels; high and low, are activated. This demands from the professional educator to design the in-class activities in a way that activates the higher levels of cognitive skills manifested in applying, analyzing, synthesizing and/or evaluating and creating. However, the low order cognitive skills of understanding and remembering are activated by pre-class activities using educational digital technologies to create an engaging blended learning experience for the students.


Background and need for the study

On an institutional level, blended learning has been advocated financially, logistically, and technically in ADU and other renowned private and governmental universities in the UAE. It is the new direction that is facilitated for faculty to adopt and apply in ADU undergraduate classrooms. The UAE is taking strides to employ information and communication technology (ICT) in the classroom. Yet, an overview of literature shows that very few studies have been conducted so far on the use of flipped learning in the UAE context. Only a scant number of peer-reviewed studies of flipped learning pedagogy exist at the tertiary level of education in the UAE context. A few exist at the high school level or college foundation level which include (Fallows, 2013; Farah, 2014; and Engin and Donanci, 2014).

ADU’s General Education program offers Technical Communication (ENG-305) to undergraduate engineering students as a pre-requisite core course. As ADU’s College of Engineering has been seeking ABET accreditation for a number of its undergraduate programs, this course had to be revamped to prepare undergraduate engineering students with the technical communication skills that would enable them to be lifelong and self-directed learners; traits sought after by the ABET accreditation (ABET, 2010). Re-designed to be project-based and focused on researching contemporary topics related to the different fields of engineering majors, the new version of the course as introduced in (Spring 2014-2015) is based on group problem-driven learning. However, a traditional classroom does not lend itself to a group based active learning environment because class time is dominated by lecturing and limited classroom interactions. A more suitable method of instruction necessary to meet the learning outcomes of engineering education should include aspects of importance to the engineering profession: inter-disciplinary, group projects tackling real-world problems, and being self-directed. (Hmelo-Silver, 2004; Smith, et al., 2005).

Introducing a Hybrid-Flipped classroom approach to teach Technical Communication enables undergraduate engineering students to capitalize on the facilitator’s assistance, peer, and collaborative group projects to solve problems situated in a real-world context. Effective technical communication is required of the student or professional engineer throughout his or her career. Technical writing that communicates well depends upon being clear, concise, well organized, visually intelligible, and grammatically correct. Students find this course demanding since they need to gain linguistic, communicative, and teamwork skills and apply them in real-life professional and workplace contexts. How to facilitate this acquisition and help learners improve their technical communication skills presents a major challenge to faculty teaching technical communication. Studies investigating the flipped model are mostly concerned with students’ experience. Little attention is dedicated to whether learning outcomes are enhanced by flipping.

Purpose of the Study

Engineering students confront many technical communication challenges in the usual ‘one-size-fits-all’ learning environment (Pearson, 2013). With the abundance of information and educational technology platforms, changing the methods of teaching is vital since online learning allows more individualized and modeled learning. The adoption of the Hybrid-Flipped classroom approach as part of blended learning is found to transform the learning experience and move it from inside the restricted
brick and mortar to almost anywhere while allowing the learner freedom in relation to time and content. It empowers students with the motivation and skills needed to enrich their learning and give them the opportunity to be active learners where they are more involved in their own learning. (Zappe et al., 2009). The Hybrid-Flipped classroom approach does not aim to replace existing student-centered methods. It, however, attempts to provide teachers with a new approach to teaching Technical Communication to undergraduate engineering students.

**Significance of the study**

This study uses an action research approach to examine the effect of flipping classroom instruction on undergraduate engineering students’ achievement in the technical communication course. Its significance lies in meeting three goals:

- Contribute to the existing literature on the flipped model and its application in undergraduate courses within the context of UAE’s higher education.
- Encourage the use of the flipped instruction in English language classes as a possible method of addressing the technical writing difficulties that undergraduate engineering students face.
- Provide a teaching method that could enhance students’ motivation and autonomy and address individual needs.

The key factor behind this research study is related to the increased need of transforming the educational approach in a highly technological environment, and to equip engineering students with better technical communication abilities in a limited period of time. The Hybrid-Flipped approach might be potentially more motivating and promising for today’s millennial learners.

**Research Questions of the study**

The present study aims at answering the following research questions:

1. Does the Flipped Classroom Model that is merged with inquiry-based learning maximize the engineering students’ attainment of the course learning outcomes?
2. How does the Flipped Classroom model that is merged with inquiry-based learning boost the students’ active learning in the group project research?

**Research Method**

The project used an action research approach to improve the in-class instructional design in a way that maximizes opportunities of deeper learning among students. The course is only 13 weeks with both theory and practice content interrelated and paired. This course was redesigned by the College of Engineering curriculum committee in coordination with University College which offers the course. The aim was to equip undergraduate engineering junior students with effective technical communication skills. The course is practical-based and the enrollment is capped at 30 in all sections. The flipped classes used a Hybrid-Flipped learning approach where students watch 7-20 minutes long online lectures designed and delivered by their instructor as homework and/or watch the videos and animations offered by the multimedia library of the course’s smart e-book (Technical Communication Today by Richard Johnson-Sheehan 2015). This e-book facilitates student-centered learning as students are encouraged to be autonomous self-directed learners taking charge of their own
learning path. The instructor-created online lectures are 6 in total. Each online lecture is designed to be interactive and engaging. Learners don’t just listen. They are guided to what is important, their deep learning is induced, and their understanding is self-assessed via concept-checking questions followed by feedback. Hence, first exposure to the new material is completed before they come to class. When they attend the next class, they are prepared to apply what they’ve learned guided by the instructor. The assimilation of knowledge gained is formatively assessed through discussion, problem solving, and application.

To complete this phase, students go through an online timed comprehension self-test that counts for their participation. Then students complete their assignments and practice in the class with the instructor as a guide on the side. Aspects of student-centered blended learning phases were merged with inquiry-based learning to aid students in exploring the course’s concepts in general and those necessary for them to complete their group research projects in particular. To do this, a third instructional tool was utilized in this Hybrid-Flipped classroom which is the Bb Discussion feature. It is used to formatively assess students’ understanding and the quality of the assimilated knowledge gained. It is used in the class or out of the class to create an interactive environment. Students give instant peer-feedback or get prompt instructor’s feedback.

Data was collected from short interviews held with a focus group consisting of 10 randomly chosen female undergraduate engineering students. Those students were enrolled with the second cohort taking the course in its new version (Fall 2015-2016) where the 2nd Hybrid-Flipped classroom process model was used. The key questions with which the focus group were addressed with revolved around their experience in the flipped class in terms of learning and applying the concepts taught. In addition, the course file comprehensive review evidence of learning outcomes (LOs) attainment in (Spring 2014-2015) is reflected upon in comparison with that of (Fall 2015-2016) and a reflective journal was conducted by the course instructor-the researcher. The course has the following seven course learning outcomes:

LO1: recognize different types of technical documents and their characteristics;
LO2: apply effective verbal and visual technical writing techniques to promote usability and organization of different types of technical document;
LO3: develop and apply effective communication techniques in career search;
LO4: develop effective technical writing skills as applied to major project reports on contemporary topics;
LO5: document planning procedures and timeline throughout project progress;
LO6: develop ethically and persuasively a range of writing processes to respond to different technical contexts and audiences;
LO7: demonstrate ability to work in multidisciplinary teams.
According to the substantial body of current research on student-centered strategies, active learning has been associated with the following characteristics:

- **Improved student academic performance** which can be measured by the course comprehensive review results - an analysis adopted in ADU to be included in the course file. It has both quantitative and qualitative measures of LO attainment.
- **Increased student engagement and better attitude to learning** and this can be measured by the group project dynamics, Bb discussion boards, focus group short interviews, and the instructor’s reflections.
- **Deep learning** and this can be measured by students’ ability to retrieve information and apply it in the bigger context and look for meaning in their learning.

Hence, a boost in active learning in the flipped classroom model is examined within the scope of these themes

1st Hybrid-Flipped Process Model

In the 1st Hybrid-Flipped Process Model adopted in (Spring 2014-2015), the students’ experience with the flipped classroom consisted of two steps, as illustrated in Figure 1. In the first step, students watch an online lecture as homework before class. This step is designed to provide students with outside the class first exposure to new material. The second step engaged the students in active learning in class. During this stage students worked on their contemporary engineering group project topics revolving around real-world problems. Class time is prearranged for hands-on activities with the teacher being a guide on the side. Group problem-driven learning activities plus formative feedback encouraged active learning and triggered higher-order thinking skills.

![Figure 1. 1st Hybrid-Flipped Process Model](image-url)
2nd Hybrid-Flipped Process Model

The 2nd Flipped Process Model adopted in (Fall 2015-2016) included three major steps as illustrated in Figure 2. The first step involved in-class learning activities focusing on exploration of concepts where students would perform hands-on activities designed to investigate the concept, and included discussion on various probabilities with the intention to lead to an understanding of the concept. The course’s smart e-book was effectively used at this stage since it provided the instructor with animations and videos designed to aid first exposure. The second and third steps were similar to the students’ learning steps in the 1st Hybrid-Flipped Process Model, which was to preview an online lecture, followed by concept application in class. In the case of students who did not watch the online lecture before class, they were asked to watch it at the beginning of the lesson and, after watching it, resume class to take part in the active learning phase of the course.

Figure 2. 2nd Hybrid-Flipped Process Model

In the second model there are two stages of priming or exposure (one in-class and the other out-of-class)—both are inquiry-based. This is where the second model diverges from the well-known flipped pattern manifested in the 1st Hybrid-Flipped Process Model. The 2nd Hybrid Flipped Process Model has proved more useful for the undergraduate engineering students as their expectation and focus deemed them unready for the responsibility and independence demanded to engage with flipped instruction without the scaffolding and support of double priming.
Important Findings and Discussion

The analysis of the qualitative data was based on the determined themes that indicate active learning. These themes fall within the framework of the study’s research questions- how the Hybrid-Flipped classroom improved the students’ attainment of the course learning outcomes, and whether the inquiry-based learning used to revisit the 1st Hybrid-Flipped Process Model boosted the students’ active learning.

- The findings verified that the Hybrid-Flipped classrooms transformed and remodeled the lecture classes into student-centered active-learning classes.
- Adopting inquiry-based activities in the Hybrid-Flipped classes proved successful since it resulted in engaging students in higher-order thinking skills that are necessary for boosting the engineering students’ academic performance.

The students’ attainment of CLOs during Fall 2015-2016 (2nd Hybrid-Flipped Process Model + Inquiry-based learning) are overall higher than those of the CLOs during Spring 2014- 2015 (1st Hybrid-Flipped Process Model). CLOs attainment in 1st Flipped Model vs. 2nd Flipped Model are illustrated in Table 1 and Table 2 respectively.

<table>
<thead>
<tr>
<th>CLO</th>
<th>Fall 2015-2016 class average of CLO attainment</th>
<th>CLO</th>
<th>Spring 2014-2015 class average of CLO attainment</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO1</td>
<td>81%</td>
<td>LO1</td>
<td>74%</td>
</tr>
<tr>
<td>LO2</td>
<td>83%</td>
<td>LO2</td>
<td>83%</td>
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<tr>
<td>LO3</td>
<td>83%</td>
<td>LO3</td>
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<td>LO4</td>
<td>89%</td>
<td>LO4</td>
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<tr>
<td>LO5</td>
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<td>75%</td>
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<tr>
<td>LO6</td>
<td>89%</td>
<td>LO6</td>
<td>82%</td>
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<tr>
<td>LO7</td>
<td>93%</td>
<td>LO7</td>
<td>91%</td>
</tr>
</tbody>
</table>

Table 1  
Table 2

Table 2 shows that student performance and success in meeting the CLOs has increased in all the LOs with the exception of LO3. The slight decrease in percentage can be attributed to the fact that LO3 in (Fall 2015-2016) was assessed by incorporating a co-curricular assignment but a number of students failed to attend and thus lost marks. However, in relation to the first theme of active learning, the results shown in Table 2 prove that the 2nd Hybrid-Flipped Model Process which incorporated a double dose of concept exposure via inquiry-based learning further boosted the active learning of the undergraduate engineering students.
In analysis of the second theme- increased student engagement and better attitude to learning, the instructor’s reflections on group project dynamics, Bb discussion boards and the qualitative feedback the focus group provided were overall positive. The focus group were asked the same two open-ended questions that are used in ADU’s student evaluation of teaching survey (SET). Here are the students’ quoted answers for the two questions that were used during the short interviews:

**What do you like most about the course?**

6 out of 10 students from the focus group stated the following:

1. “The way the instructor gives material and syllabus given is very flexible.”
2. “It is perfectly organized. Topic is introduced, then video at home for more on the topic, then Bb discussion or laptop work.”
3. “The teaching environment, timely feedback, and ease of communication gives students opportunities to learn better.”
4. “The way of teaching is so good that it made me want to come to class.”
5. “The course is fun and grabs my attention.”
6. “The professor provides videos about everything which is needed while I revise that’s the most interesting part.”

When answering the same question, 4 out of the 10 respondents highlighted the importance of being involved in the in-class and online video tasks since this has an impact on their learning.

1. “The interactive lectures were good but you don’t learn just by watching. For the class work I had to be active and working together to solve the worksheets made it all make sense to me.”
2. “The questions in the teacher’s videos were easy to answer. I like the class think, pair, share activities because it completed my learning.”
3. “I can listen to the video anytime. Once I listened to it while I was getting dressed. I felt ready before taking part in the discussion on Bb and doing the group project work.”
4. “The interactive lectures were not just to listen to. It pushes you to search for stuff that are useful for getting the group report done.”

**What is one way to improve the course?**

All the students from the focus group stated their satisfaction yet recommended the following:

1. “increase online classes instead of face to face”
2. “have videos for the theory separate from the ones for practice, not together”
These results indicate that the Hybrid-Flipped classroom provided students with the opportunity to become active learners, engaged, and motivated to do the group problem-driven activities which foster inquiry-learning and build teamwork skills.

Inquiry-based learning fosters deep learning, which is the third theme salient to active learning. A common agreement among the respondents was on the usefulness of the interactive lectures and the in-class activities in enabling them to apply what they have learned to the most demanding assessment in the course - the group project research. All the respondents agreed here that the interactive lectures and the in-class activities ranging from the Bb group Discussion, the e-book’s animations used to give them an overview of the homework videos, and the in-class group activities enabled them to connect the taught topics to the real world. In one of the interactive lectures, the concept of writing a research question and creating a hypothesis was introduced after an in-class preview on starting empirical research. In relation to how students found this useful, 3 respondents mentioned the following:

“The interactive lecture helped me see many examples of what makes research questions good ones; writing the right question that we did not have a ready-made answer to was the challenge, but we did it, and the teacher liked it”

“Too broad or not deep enough is not how I wanted my group research question to be. We got it in the end with the guidance of the instructor, online search, and group discussions.”

“In class, my group discussed our chosen topic and brainstormed to find an angle worth exploring. After watching the online lecture, we had to group again in class and write the research question and come up with a hypothesis to test. What made it easier is the interactive lecture we all watched because there were many examples. We started then searching online on the topic of sustainable buildings in the UAE. After that we agreed on what we wanted to investigate.”

In fact, the quality of the group research projects completed in the flipped classroom were generally higher when the 2nd Flipped Classroom Process Model was adopted. This is evidenced by the increase in the attainment of the two relevant CLOs: 4 and 6, which proves also that the revisited flipped model further boosts active learning. Ultimately, this raises the potential of producing well-written and better presented capstone projects.

Other important findings drawn from the researcher’s journal notes about the benefits of the in-class activities that were designed to complement the flipped classes via inquiry-based learning included the following:

- The team-building process was smoother as the group discussions linked to the online lectures developed the students’ soft skills, including communication, planning, resolving conflicts, coordination, and leadership.
- Bb discussions helped attract the majority of students into the learning process. Both strong and struggling students were more engaged as they experienced a fun and stimulating hub of meaningful learning that boosted their self-efficacy.
Conclusion

The exploratory adventure that students had while learning in a flipped model classroom with guided inquiry-based activities was a success in terms of boosting their active learning. Teacher-student interaction was maximized. Student engagement was boosted. Higher-order thinking was stimulated even further with the aid of group problem-driven learning that was enriched with problem-solving quests. Individualized learning was promoted. The study provides an insight into a flipped classroom experience in Abu Dhabi, UAE context. This study supports the view that the flipped classroom has much to offer the process of learning in higher educational institutions; however, the results it draws need to be further generalized using a quantitative method of research. The Hybrid-Flipped approach does not control the corners of the 21st-century classroom. The learning is not just limited to the classroom but extends beyond its walls as the use of technology overcomes the limitations of space and time; enabling learners to be self-directed and self-paced.
References


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