Developing Student Skills using Design Thinking

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My first encounter with design thinking:

I was a participant in the yearlong Design Thinking for Educators Program launched by CLT in January 2019. This involved participation in a series of bootcamps and workshops which introduced the participants to the Design Thinking process and how it can be used to solve real-life, authentic problems. The Design Thinking approach is a problem-solving process that requires creativity and a deep understanding of the needs of the user. The problem is identified by interviewing and observing the users, and the solution is user-centered and specific to a particular group of people.

The first problem we were asked to solve as participants in the first bootcamp was how to motivate AUC students to be more passionate about their studies. The group I was working with agreed that redesigning the first year to provide opportunities for more hands-on experience with the different majors would result in students choosing majors they were passionate about, and this would surely result in more motivated learners. Our plan was quite detailed, and we were confident that our ideas would help solve the problem. Then we went out to interview students… It came as quite a shock to us that students, the users, in this case, did not agree with our plan. There were other factors, such as parent expectations and the prospect of a high paying job, which we had not taken into consideration that influenced the decisions of choosing a major other than passion. At that point, we realized the importance of involving the user in the solution to any problem, and it was a stark warning against believing that we, as designers, understand the problem and "know" the solution. This focus on the user is what makes Design Thinking stand out as a problem-solving process, and it also makes it particularly engaging for students.

In collaboration with CLT, a new course based on the design thinking process was introduced in the fall in the Intensive English Program (IEP) of the Department of English Language Instruction (ELI). Applying Design Thinking in the Intensive English Program. The mission of the Intensive English Program (IEP) is to prepare undergraduate students to perform successfully at AUC by developing "their academic English and critical and reflective thinking skills through a content-based learning approach that fosters collaborative and independent learning, commitment to academic integrity, and community engagement." Design thinking (DT) seemed to be the perfect method to achieve the course learning outcomes as, in addition to developing the students' academic English skills, it would also develop their critical thinking, problem-solving, communication, and collaboration skills. (See the image for the main keywords from the course learning outcomes.)

Using the Design Thinking framework, a new course, Project-Based Integrated Skills (PBIS), was launched in fall 2019 in the IEP in thirteen sections. Through this course, students participated in a series of tasks to introduce them to the skills required for successful project work, such as teamwork, communication, and project management, and those required for each of the five stages of the Design Thinking process (empathize, define, ideate, prototype, and test), such as interviewing skills, note-taking, and divergent thinking. Students then worked in groups and followed the design thinking process to choose problems that are important to them, interview students who share these problems and work together to come up with practical solutions which they then tested and refined.

By working in groups, students' communication and collaboration skills were enhanced. By writing reflections on the activities and reports on the projects throughout the course, their reflective and writing skills improved. They created prototypes to represent their solutions, which developed their creative thinking skills. Students presented their solutions through group presentations, and this helped them gain confidence in public speaking. Working on projects also allowed students the opportunity to conduct activities and interviews outside the classroom, integrate into university life, and engage with their AUC community to identify and solve problems faced by other students.

When we shifted to online learning, students continued to meet their group members virtually on Zoom, Houseparty, and other video conferencing apps. Although they were not able to approach other students on campus for an interview or to engage fully with the AUC community, in the spring, I was able to set up cross-class interviews with other IEP students on Zoom and my students were able to collect the information needed for their projects.

Sample projects

The students engaged in a series of projects throughout the semester, beginning with small projects with assigned topics, and progressing towards bigger projects where students chose their own problems to solve.

One group chose to redesign the dorms common room. They interviewed students living in the dorms and identified specific needs and created a physical prototype of the space that provided separate areas for individual and group study, a kitchen and vending machines, and an outdoor area for relaxing.

Other groups chose to find ways to reduce single-use plastic on campus. They interviewed students and vendors on campus and discovered that a significant amount of plastic waste comes from the use of cups and straws. They developed a prototype for paper cups and straws made by folding sheets of paper in Origami style. Another group created a campaign which included a video and a series of posters to raise awareness of the dangers of plastic and encourage students to bring reusable water flasks instead of buying water bottles in order to reduce plastic waste.

Another group created an app to help new students who are confused about which engineering major to declare. To prepare for this they interviewed students, professors, and staff in the Engineering departments to better understand the problem. The app linked to various resources, including the catalog, to clarify the difference between the majors so students can more easily make an informed decision.

Yet another group decided to create a prototype to help visually impaired and physically disabled students get around campus. In preparation for this project, students observed visually impaired students walking on campus, and interviewed several visually impaired and disabled students to understand their needs. The solutions included ramps that are less steep and a path with a special textured surface to indicate that this path gives priority to visually impaired students.

Since shifting to online in the Spring and going fully online this semester, the type of prototype has changed since students can no longer collaborate to create a physical model. Instead, students rely on sketching and using technology to create their prototypes. Examples of digital prototypes include short animated movies, video ads, posters, websites, and digital models.

Assessment and Feedback

Assessment took the form of student-written reflections throughout the course, reports on the different stages of the projects, group presentations, and participation. Rubrics were developed for each component to ensure similar grading across different sections. The teachers of the course meet regularly to share ideas and teaching materials and to discuss grading and assessment tasks.

A survey administered at the end of last fall to the students and teachers of the new course showed very positive feedback. The students said that they enjoyed the course and felt they had learnt valuable skills that they will need to succeed at AUC. In particular, they said they gained the confidence to participate actively in group work (85% strongly agree or agree), they developed their critical thinking and problem-solving skills (80% strongly agree or agree), and they developed their ability to reflect on their performance (81% strongly agree or agree).

They liked the design thinking process, and several students said they applied it in other areas of their lives. The things they enjoyed include working in groups, reflections, and presentations. (See the image for the most common keywords from the student feedback survey.)

Student quotes:

"The PBIS was amazing. Whenever we are crowded with classwork when we start the PBIS it changes the mood of the class from tired to creative. Also, I think one of the most important skills that I gained from the course was the active learning technique."

"This course is based on group projects and by ending the semester I can really say how much I enjoyed it and gained a lot of knowledge and new skills. It was very challenging and you were always motivated by the teacher to work harder and harder…. This course is completely different than any other one. :)"

In terms of recommendations for improvement, some students said they would like more practice writing reflections, managing time, and improving communication skills. These suggestions will be addressed in future semesters.

The teachers enjoyed teaching the course and found that their students participated more actively in the PBIS class activities than in other classes. They observed improvement in their students' communication, team-work, critical thinking, and problem-solving skills. Some teachers said that next time they teach this course, they will pace the activities differently to allow more time for the big projects as some felt they were short of time at the end of the semester.

All in all, this was a very positive experience, and I believe that design thinking is a very useful approach that allows a great deal of creativity and flexibility for teachers and students. It provides the opportunity for students to practice valuable skills while addressing real-life challenges that will help them succeed at AUC and beyond.