

Experiential Learning Activities in an IT Course

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Author Biography

ChongWoo Park is an Associate Professor of Management Information Systems in the Hull College of Business at Augusta University. His research work has been published in quality journals including *Decision Sciences*, *Journal of the Association for Information Systems*, *IEEE Transactions on Engineering Management*, *Journal of Computer Information Systems*, *Computers in Human Behaviors*, and *Decision Sciences Journal of Innovative Education*. He has received Augusta University Scholarship of Teaching and Learning Award (2019), Hull College Faculty Research Award for Excellence (2019), AU Education Innovation Award (2018), AU Scholarly Activity Award (2016-2017, 2017-2018), and IACIS Best Research Paper Award (2013).

Augusta University has initiated experiential learning programs to implement the quality enhancement plan (QEP) – Learning by Doing – since 2015. As part of the QEP, the education innovation fund was established to support teaching faculty who wish to pursue experiential learning opportunities in the classroom. When I was assigned to teach a database management systems (DBMS) course for Information Technology (IT) and Management Information Systems (MIS) majors, I was looking for how to bring the most up-to-date IT and database experiences into the classroom. Augusta University’s education innovation fund gave my students experiential learning opportunities to have hands-on experience in cloud computing technology and the enterprise DBMS used in the IT industry and large businesses.

Goal of Activities

While educators have had broad discussions on experiential learning activities and applications such as study abroad, service-learning, project-based learning, and internships (Kuh, 2008), there has been less discussion on specific experiential learning activities that can be plugged into the curriculum of an IT course of interest (e.g., experiential learning activities in a database course or a programming course). Thus, I had to develop such activities from scratch when planning to implement experiential learning in my DBMS course. The goal of the experiential learning activities I developed was to allow students to have experiential learning in the IT course and to understand the impact of experiential learning on student learning outcomes in the IT curriculum.

Description of Activities

I first defined the five areas of experiential learning in the IT course—communication, leadership, professionalism, problem solving, and teamwork—based on Augusta University’s QEP (Augusta University, 2016). In order to implement the five areas of experiential learning, I developed two major experiential learning activities in the database management systems course. One was the group project of database design and development based on real-world business problems. The other was access to enterprise database systems such as MS SQL Server through the cloud computing environment. By engaging in these two experiential learning activities, students were expected to have experiential learning in the five areas.

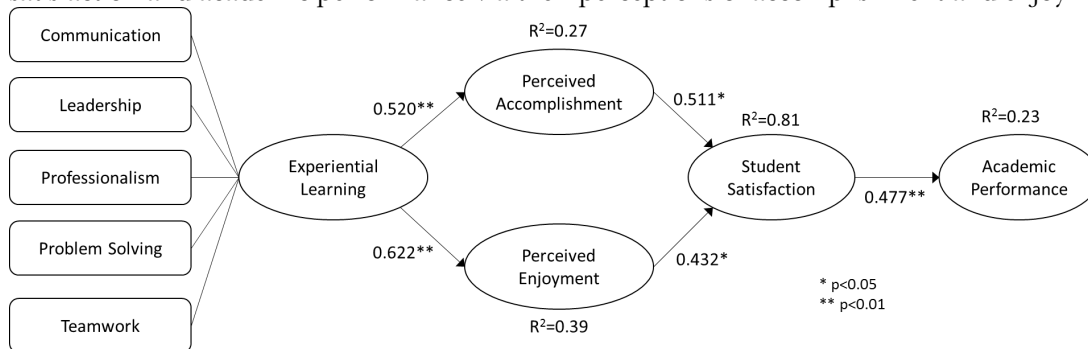
For the communication, teamwork, and leadership areas, students were asked to 1) form a team of three or four for the group project, 2) review real-world business problems with different data management cases of a bookstore, consulting firm, and dining club as a team, and 3) come up with and choose one as their group project case. In order to form teams, students were first categorized by the instructor into one of three groups based on previously demonstrated strengths in different skill sets. The students were unaware of the criteria that had them assigned to each group. Students then formed teams by including at least one member from each different group in order to balance the skills of each team.

While conducting this group project, each member in each team had an opportunity to take a leadership role for at least one part of the project (e.g., functional dependency diagram, entity relationship diagram, data dictionary, SQL, business questions, progress report, final report, and oral presentation), and each team was also required to submit progress reports for each part of the project.

The problem-solving area included working on and providing the database solution for each business case as a team. Funded by the education innovation award, students in this course had free access to Microsoft Azure, a leading cloud computing service, including MS SQL Server and other database tools. This access to the enterprise database systems in the cloud computing service brought a professional experience to this class (i.e., experiential learning in the professionalism area). It also contributed to the problem-solving and teamwork experiences because students were required to implement their database solutions in MS SQL Server in cloud for their individual assignments and group project.

Reflection and Student Feedback

Upon completion of the activities, I conducted a survey to examine the effects of experiential learning in this course with the following theoretical model. The results show that the five areas of experiential learning contributed to the students' overall experiential learning, which leads to accomplishment, enjoyment, satisfaction, and ultimately academic performance in the IT course. All paths in the model are statistically significant either at the levels of $p < 0.05$ or $p < 0.01$ for two-tailed tests, showing that experiential learning contributes to students' perceptions of accomplishment and enjoyment in the course, which ultimately leads to their satisfaction and academic performance. In addition, the explanatory powers of the model with the R^2 values show that experiential learning accounts for 27% and 39% of the variance in perceived accomplishment and enjoyment, both of which explains 81% and 23% of the variance in student satisfaction and academic performance, respectively. Thus, these R^2 values are sufficiently high to make interpretation of all paths meaningful, indicating that experiential learning has a reasonable power to explain students' satisfaction and academic performance via their perceptions of accomplishment and enjoyment.



In addition, 88% of students reported that they were satisfied with their learning experience in this class and 92% of students believed that they had professional IT experience in this class. The student feedback below indicates that students appreciated the five components of experiential learning implemented in this course, especially highlighting the professionalism and problem-solving components by doing the teamwork and using the cutting-edge technologies as a valuable learning experience. The overall survey results provide me with the grounds to continue to develop and implement experiential learning in the IT courses for students' better learning experience.

Below are representative excerpts from student feedback on "What are the most valuable learning experiences in this course?" at the end of the semester:

- *Learning to collaborate!*

- *I appreciate how Dr. Park was able to help us understand how to effectively utilize MS Access and MS SQL Server in real world applications. This course definitely taught some new skills that I can use for both personal and professional use.*
- *SQL knowledge, SQL server was nice to use instead of strictly access since access is not widely used by larger businesses*
- *Working in SQL Server and seeing how the code is applied. Being able to see work is a huge help -- many classes tend to just throw out information but applying the content is difficult. I don't think that's how it should be. When we go into the workforce, we learn skills that are almost separate from that which we learn.*
- *I think the team project was the most valuable, because it combined everything we learned in class and made you use all the skills you had learned throughout the semester. Also, it gave you the experience of working in a group which is always important.*
- *Everyone has their own level of expertise. I enjoyed working through the VM with the SQL server. The hands work helped me understand the material, versus sitting and reading through the powerpoints.*
- *The final project, giving us the opportunity to develop and build a database based on a simple prompt, was the most valuable learning experience and a great way to practically apply what we learned throughout the semester.*

References

- Augusta University (2016). *Quality Enhancement Plan: Learning by Doing*. Augusta, GA: Augusta University.
- Kuh, G. D. (2008). *High educational impact practices: What they are, who has access to them and why they matter*. Washington, DC: Association of American Colleges and Universities.