

Exploring Gender-Based Disparities in the E-learning Journey: An In-Depth Analysis of Student Experiences

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ABSTRACT

E-learning has become the primary solution to ensure continuous education amid the COVID-19 pandemic. This approach relies on digital devices and emphasizes enhanced internet access for teachers and learners, given that the internet serves as the main conduit for information. This study aimed to examine how college students' gender influences their experience with e-learning in SOCECON 10-The Contemporary World, a general education course offered at Xavier University-Ateneo de Cagayan. The research methodology employed a descriptive and quantitative research design to collect participant data. The survey questionnaire was developed based on the Demand-Driven Learning Model (DDLML) and employed a 4-point Likert scale. The questionnaire's validity was confirmed using Cronbach's Alpha. Cochran's formula was applied to determine a sample size of 251 participants, selected through stratified random sampling. The findings revealed notable variations in students' e-learning experiences based on gender, encompassing content, delivery, service, and outcome. Overall, the male students had a better e-learning experience.

Keywords: E-learning, DDLML, Likert scale, education, experience

INTRODUCTION

The perpetual theme within academia has always revolved around the evolution of delivering high-quality education. This dynamic presents both a challenge and an opportunity for educational institutions to adapt. Among the recent advancements, the emergence of e-learning stands out. E-learning, a term coined from electronic learning, encompasses using electronic tools to facilitate the exchange of knowledge (Alkharang & Ghinea, 2013). These tools encompass digital devices (such as computers, mobile phones, televisions, etc.) and leverage the internet's extensive accessibility for educators and learners, as it serves as the primary conduit for information. E-learning can be experienced synchronously or asynchronously, bridging vast geographical gaps and accommodating differing time constraints (Meyen et al., 2002). Notably, e-learning has evolved as a proactive solution to address the challenges in education spurred by the constant and revolutionary shifts in information and communication technology (ICT) and the consequences of global crises, such as the self-isolation necessitated by the COVID-19 pandemic.

In contrast with conventional learning methods, e-learning permits lessons to be accessed at one's convenience and from any location, causing a shift in the role of teachers from mere knowledge providers to guides in the learning journey (Oye et al., 2010). Moreover, e-learning cultivates adaptability and self-reliance in learners. According to the results of the research by Elfaki et al. (2019), e-learning leads to notable enhancements in learners' academic achievements and overall learning experience.

The e-learning experience tends to differ among learners. According to Gilbert et al. (2007), learners derive contentment from e-learning due to its ability to effectively blend theoretical concepts with practical applications. They appreciate how the modules broaden their perspectives and experiences, facilitate interactive discussions, and offer access to many resources. Conversely, the study also unveils certain aspects of dissatisfaction, such as platform issues, the currency of study materials, and challenges related to

time management.

Amid the pandemic, Xavier University – Ateneo de Cagayan has embraced e-learning as an instructional approach. According to OVPHEd Memorandum 1920-48, the university has incorporated its existing XU eLearn platform and introduced the HUB for Transformative Teaching and Learning. This addition aims to support educators and students in adapting to the intricacies of this new learning method (Dalagan, 2020). The university conducts regular quarterly evaluations of courses to gauge students' experiences with e-learning. However, these evaluations need to investigate the impact of socioeconomic factors on students' e-learning encounters. As a result, this research study seeks to bridge the current knowledge gaps surrounding e-learning. It aims to explore the correlation between individuals' engagement in e-learning and their gender.

Gender disparities have consistently been considered when examining the dynamics of learning processes. According to González-Gómez et al. (2012), male students often excel in solving spatial problems, while their female counterparts tend to possess more vital verbal skills. These distinctions imply that educators should incorporate gender considerations when developing their lessons and courses. In a separate investigation by Ong and Lai (2006), men demonstrate greater confidence, motivation, and computer proficiency when engaging in e-learning. Men's choices in utilizing e-learning appear to be guided by their evaluation of its value. In contrast, women's decisions are more influenced by their confidence in handling the technology and the simplicity of its use. The researchers aim to investigate whether gender plays a substantial role in influencing the perceived quality of e-learning.

Research Question

This study assesses whether a significant difference exists in the e-learning experience of selected students enrolled in SOCECON 10 – The Contemporary World at Xavier University – Ateneo de Cagayan during the second semester of the school year 2021-2022. Specifically, it seeks to address the following question: Is there a significant difference in the e-learning experience of students when grouped according to gender?

LITERATURE REVIEW

To examine the potential influence of gender on the e-learning experience within the context of SOCECON 10 – The Contemporary World among Xavier University – Ateneo de Cagayan students, the researchers have aligned their study with an established pedagogical framework known as the Demand-Driven Learning Model (DDLm). This framework's fundamental components are designed to assess the various requirements of learners within a rapidly evolving technological landscape. The DDLm represents a theoretical construct that sets a high standard for excellence in web-based learning (WBL) programs (MacDonald et al., 2001). The framework has emerged as a response to the imperative need for a new WBL model capable of addressing specific challenges (such as inadequate technical skills, lack of preparedness in program planning, and reduced instructional quality) faced by educators and learners amid the rapid evolution of the technological sphere. Attributes, including defensibility, flexibility, interactivity, convenience, and collaboration, guided the model's development. As a result of fulfilling these criteria, the DDLm was conceptualized, offering a robust structure that caters to learners' demands while accommodating instructors' needs.

The study's dependent variables encompass the three learner demands outlined in the DDLm (content, delivery, and service) and the corresponding learner outcomes. These factors collectively ascertain the extent of the e-learning experience reported by the respondents. As detailed by MacDonald et al. (2001), the model comprises five fundamental components: structure, content, delivery, service, and learner outcomes, which together establish a quality standard. Notably, the quality standard itself needs to be treated as a distinct component, given that evaluating the course's content, delivery, and service encompasses an evaluation of the structural standard.

The initial component, known as comprehensive content, encompasses all essential information that learners need to grasp, presented in a manner that aligns with their comprehension level. This content should also possess authenticity, a quality substantiated by research, as MacDonald et al. (2001) noted. Authenticity must carry pertinence to the learning context and originate from experts within the respective field. Additionally, content supported by research should undergo validation by the academic community itself, thereby reinforcing its credibility.

The second component, delivery, underscores the significance of interactivity within the web-based tools employed in e-learning. As highlighted by MacDonald et al. (2001), the user interface of these programs should be crafted to facilitate smooth navigation. Delivery tools must guarantee unimpeded information flow between learners, instructors, and the content. Furthermore, integrating these tools should be mindful of constraints like bandwidth limitations and challenges arising from differing time zones.

As MacDonald et al. (2001) outlined, service encompasses furnishing essential learning resources alongside administrative and technical assistance. These resources enable learners to acquire diverse concept viewpoints, fostering self-awareness throughout their learning journey. Administrative and technical personnel should possess qualifications that align with learners' optimal interests. Their responsiveness to learners' needs and queries is paramount, and facilities designed to aid learning should remain readily accessible at all times.

MacDonald et al. (2001) state that learner outcomes are directed at alleviating costs and the challenges associated with employability. Quality-standard web-based learning (WBL) programs can mitigate financial risks, unemployment, the need to relocate for education, and the associated travel expenses. Such programs could give learners new, relevant skills and knowledge, rendering them valuable assets for employers. Within the context of this study, the definition of outcomes will be adapted to the respondents. Instead, it will assess the extent and caliber of knowledge respondents acquire from the course's content, delivery, and service within the eLearn framework.

As the impacts of online learning gain prominence, various demographic factors, including gender, have garnered attention. It has been observed that females exhibit higher levels of persistence and commitment, leading to an increased likelihood of academic achievement. Moreover, females demonstrate more robust self-regulation than males, resulting in notably improved learning outcomes for the former (Alghamdi et al., 2020). However, a distinct research study contradicted this notion, indicating that no substantial correlation exists between gender and students' satisfaction with online learning. Consequently, discernible disparities in learning outcomes between the two genders failed to materialize (Harvey et al., 2017). Conversely, Yu (2021) suggested a contrary perspective, asserting a significant and robust correlation between students' gender and online learning outcomes. Additionally, educational levels were significantly and strongly linked to online learning outcomes.

RESEARCH METHODOLOGY

The research employed a descriptive methodology coupled with a quantitative research design to collect information and examine the impact of gender on the e-learning experience within SOCECON 10 – The Contemporary World among a select group of Xavier University – Ateneo de Cagayan students during the second semester of the school year 2021-2022. Descriptive research is a comprehensive exploration focused on a particular population or a specific problem. This approach involves describing and summarizing the population using the characteristics of the sample, thereby yielding the study's outcomes. On the other hand, quantitative research involves accumulating and presenting numerical data through a sequence of analyses and interpretations. This method facilitates the quantification of the e-learning experience among respondents. Survey questionnaires and a 4-point Likert scale were employed to perform the study. These

tools were selected for their convenience in quantifying respondents' e-learning experiences.

Participants

The research study employed the stratified random sampling technique. The decision to adopt this approach was motivated by its ability to encompass essential population characteristics within the selected respondents. This method generates samples from distinct strata in proportion to the overall population, and the creation of these strata considers relevant variables to ensure impartiality in the outcomes.

To be included in the study, a respondent had to fulfill the following inclusion criteria: being a student of Xavier University – Ateneo de Cagayan who enrolled in the course SOCECON 10 – The Contemporary World during the second semester of the school year 2021-2022. The research explores their e-learning experience with consideration for their gender. Consequently, the gathered data were categorized into distinct subgroups or strata. These strata are then juxtaposed to facilitate a more efficient assessment of the entire population.

Conversely, individuals are ineligible for participation in the study if any of the subsequent conditions are applicable: participants with physical limitations hindering them from completing the survey questionnaire; individuals who did not provide their signature on the supplied informed consent form, as the study's involvement is entirely voluntary; and participants who did not respond to the questionnaire within the designated timeframe. Moreover, students under the legal age (below 18 years) and those with mental health conditions were also precluded from engaging in the study, as they fall within the category of vulnerable groups.

During the second semester of the school year 2021-2022, 716 students enrolled in SOCECON 10. Applying Cochran's formula, the researchers determined a sample size of 251. This sample was allocated proportionally using ratios, proportions, and percentile distribution based on gender. The distribution of respondents across strata was as follows: 78 males and 173 females.

Ethical Considerations

The participants were duly informed about the strict confidentiality of the gathered information, ensuring that their names remained undisclosed. The data obtained from the participants were maintained in strict confidence, substantiating the necessity for the non-disclosure agreement and the data privacy provision.

RESULTS AND DISCUSSION

This section presents the gathered data, the analysis of research findings, and the interpretation of the statistical results based on the problem being investigated in the study.

Table 1. Percentage per Stratum

Year Level	1st Year	2nd Year	3rd Year
Male (%)	0.42	0.26	0.31
Female (%)	0.58	0.74	0.69
Total Percentage	0.31	0.65	0.04

Table 1 summarizes the characteristics of the respondents in terms of gender, where the majority, or 68.9%, are females and only 31.1% are males. As this study utilized stratified random sampling, the data reveals that there are more females in every stratum, which also shows that there were more females than males

who were enrolled in the course SOCECON 10 – The Contemporary World during the 2nd semester of the school year 2021-2022.

Table 2. T-test results of the respondent’s e-learning experience in content, delivery, service, and outcome when grouped according to gender.

Profile	Qualities of E-learning Experiences (Variables)							
	Content		Delivery		Service		Outcome	
Gender	Mean	p-value	Mean	p-value	Mean	p-value	Mean	p-value
Male	3.49	0.010	3.43	0.002	3.40	0.001	3.41	<0.001
Female	3.36	**	3.24	**	3.19	**	3.13	**

Legend: ns = Not Significant * = Significant ** = Highly Significant

Table 2 displays the t-test outcomes of the e-learning experience of respondents enrolled in the SOCECON 10 – The Contemporary World course. The analysis delves into content, delivery, service, and outcome, all categorized by gender. The t-test was employed for this analysis due to the binary nature of the independent variable, gender, with its two groups being male and female. Concerning content, the mean average for males is 3.49, while 3.36 for females. This distinction implies that males rated the content quality in their e-learning experience higher than females.

Regarding delivery, the findings indicate a mean rating of 3.43 for males compared to 3.24 for females. Similarly, in terms of service, males registered a mean rating of 3.40, surpassing the 3.19 mean rating of females. Lastly, in outcomes, males exhibited a higher mean rating of 3.41, whereas females scored 3.13. The results consistently suggest that males enjoyed a more favorable e-learning experience in SOCECON 10 – The Contemporary World.

A t-test yielded p-values of 0.010 for content, 0.002 for delivery, 0.001 for service, and <0.001 for outcome. In the context of significance levels, a p-value exceeding 0.05 indicates insignificance, a p-value below 0.05 signifies significance, and a p-value under 0.01 denotes high significance. The findings unequivocally demonstrate a remarkably significant difference in the quality of e-learning experience among respondents about content, delivery, service, and outcome when classified by gender. Hence, it can be firmly concluded that the e-learning experience concerning content, delivery, service, and outcome is profoundly and significantly influenced by gender.

The findings presented above contrast the study conducted by Alghamdi et al. (2020), where it was observed that females exhibited more robust self-regulation compared to males, resulting in significantly superior learning outcomes for females. However, these results align with the conclusions of Ong and Lai (2006), who noted that men tend to have higher ratings regarding confidence and self-sufficiency when engaging with e-learning. According to Ong and Lai (2006), men’s choices regarding usage are significantly shaped by their assessment of the value of e-learning, while the ease of use more substantially influences women. This finding indicates that women prefer online learning platforms that are less complex.

CONCLUSION

Significant differences were observed in the quality of the students’ e-learning experiences within the course SOCECON 10 – The Contemporary World when categorized by gender. The results indicate that males enjoyed more favorable e-learning experiences than females. Consequently, it can be firmly concluded that

the e-learning experiences of the respondents about content, delivery, service, and outcome were significantly and substantially influenced by their gender.

RECOMMENDATION

The researchers recommend utilizing the gathered data concerning how gender influences the quality of the e-learning experience for students in SOCECON 10 – The Contemporary World, encompassing content, delivery, service, and outcome aspects. These findings contribute additional supporting evidence, fresh insights, arguments, and viewpoints. Future researchers are anticipated to serve as knowledge resources, aiding the development of more refined research endeavors concerning the impact of gender on e-learning quality. Moreover, this study's framework, design, and methodology can serve as a model for replication across other e-learning courses offered by Xavier University – Ateneo de Cagayan and other academic institutions.

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