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Attitudes and Perceptions to the Online Education of the Architecture Students

Arch/ EnP. Geraldine Jacela-Paguigan, Ph. D. RM
Faculty, Architecture Department

ABSTRACT: This study examines the online learning experiences of architecture students in Isabela State University, City of Ilagan Campus, highlighting their diverse preferences, engagement levels, and challenges. While the majority of students show a positive attitude toward online learning, key concerns arise regarding the reliance on smartphones for learning, suggesting the need for mobile-friendly platforms. Despite Google Meet's dominance as the primary platform, there is a call for exploring alternative technologies to enrich the learning experience. Gender differences also emerge, with male students showing higher levels of excitement, participation, and satisfaction with self-regulated learning compared to their female counterparts, who exhibit greater variability in their responses. This discrepancy underscores the need for tailored online learning strategies to foster inclusivity. Additionally, while many students appreciate the flexibility of self-regulated learning, a significant portion expresses dissatisfaction, pointing to the necessity of incorporating more structured and interactive elements. The study further emphasizes the importance of creating more opportunities for discussion and participation, as nearly a quarter of students feel restricted in engaging meaningfully during online sessions. Overall, this research provides valuable insights into the challenges and opportunities within online architecture education, offering a foundation for developing more inclusive, engaging, and effective learning environments in the future.

Corresponding Author:
Geraldine Jacela-Paguigan

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INTRODUCTION

Face-to-face interaction has long been considered a cornerstone of studio-based teaching in disciplines like architecture (Blaire, 2006; Kuhn, 2001; Lee, 2006 in Fleischmann, 2019). This traditional method fosters direct engagement between students and instructors, guiding the learning process through active, hands-on experiences. Kolb's experiential learning model, central to studio instruction, emphasizes learning through practice and reflection. However, the COVID-19 pandemic forced educational institutions to rethink the delivery of studio courses, which are inherently social and rely on in-person instruction. As a result, the shift to online education was met with significant resistance, particularly in studio courses (Fleischmann, 2019). Blended learning emerged as a compromise, gaining widespread adoption. Despite initial skepticism among studio educators, many institutions transitioned to fully online studio teaching during the pandemic, relying on digital tools and the internet to deliver content. Online learning environments typically include both synchronous (real-time) and asynchronous (self-paced) modes (Dhawan, 2020). Synchronous learning allows immediate feedback and engagement, while asynchronous learning enables flexible access to course materials.

Ullah, Khan, and Khan (2017) identified several factors influencing students' attitudes towards online learning, based on the Technology Acceptance Model (TAM), which examines how students interact with educational technologies. Key factors include familiarity with computers and the internet, the ease of using online platforms, students' technological competence, and the perceived usability of online learning (Chu, 2010; Aixia, 2011 in Ullah et al., 2017). Their study found that computer-mediated instruction is beneficial, especially for coursework that requires a deep understanding, though clear guidance is needed to foster a positive online learning experience. Selvi (2010) also explored the factors driving online learning, such as teaching methods, the role of instructors, learner engagement, technical infrastructure, and time management.

In the context of this study, architecture students valued the autonomy and flexibility that online learning offered, reflecting a readiness to take on greater responsibility for their learning when appropriately motivated. The teaching and learning strategies in studio courses, particularly in the architecture program, are shaped by three key pillars: (1) teaching and learning strategies, including studio management; (2) assigned tasks, including task complexity and deadlines; and (3) communication strategies, such as feedback mechanisms (Soliman, 2017). These elements, which are integral to traditional studio instruction, are also applicable to online

learning environments. Bender and Vredevoogd (2006) highlighted the historical significance of face-to-face pedagogy in the studio setting, emphasizing its unique, interactive learning environment.

Significance of the Study

This study is significant for academic institutions implementing online education, especially those offering architecture programs or other disciplines requiring studio-based learning. The findings can help identify the challenges faced by male and female students in online learning and provide valuable insights for the development of policies, guidelines, and strategies aimed at enhancing online education delivery. This research could contribute to improving the overall quality and effectiveness of online learning, particularly in studio-based courses like architecture.

Statement of the Problem

The COVID-19 pandemic has disrupted the traditional learning process across academic institutions. At Isabela State University, the sudden shift from face-to-face education to online learning posed significant challenges for both faculty and students. Architecture, as a discipline that requires hands-on supervision and skill development, was particularly impacted. This study aims to explore the attitudes and perceptions of Architecture students at Isabela State University towards online learning during the pandemic. It seeks to understand the positive and negative aspects of online instruction and how these experiences differ between male and female students. The findings will provide insights into the online learning experience in the Architecture program at ISU and help identify areas for improvement in the delivery of online education.

Objectives of the Study

This study aims to assess the attitudes and perceptions of architecture students towards online education at Isabela State University in the City of Ilagan, Isabela. Specifically, it seeks to:

1. Describe the attitudes and perceptions of architecture students towards online education.
2. Determine which gender group—male or female—is most affected by online education.
3. Analyze whether there are significant differences in the survey results based on gender.

METHODOLOGY

A convenient and purposive sampling method was used to survey 135 architecture students at Isabela State University in the City of Ilagan, Isabela. The survey was conducted online using Google Forms, and a structured questionnaire was designed and pre-tested before data collection. The questionnaire utilized a four-point Likert scale, with 1 representing strong disagreement and 4 representing strong agreement, to measure students' attitudes and perceptions towards online education. The data were analyzed using SPSS Statistics, applying both descriptive statistics and T-test analysis to examine gender differences in responses. In the course of this study, the proponent utilized Artificial Intelligence (AI) technologies to enhance the clarity, coherence, and precision of the statements and content presented in the research. AI tools were employed to improve the language used in the data analysis discussions, ensuring that the research adheres to high standards of academic writing and effectively communicates its findings. The use of AI in this process facilitated a more structured and refined approach, contributing to the overall quality and comprehensibility of the study.

Table 1. Profile of the Respondents

Questions	Description	N	%
1. What is your Year Level?	1st year	14	10%
	2nd year	36	27%
	3rd year	12	9%
	4th year	56	41%
	5th	17	13%
2. What is your Gender?	Male	74	55%
	Female	61	45%
3. What is the most common Learning gadget you use for online Learning?	Cellphone	96	71%
	Laptop	38	28%
	Desktop	1	1%
4. What are the studio courses you are currently enrolled?	Architectural Design	126	93%
	Visual Techniques	5	4%
	Building Technology	4	3%

5. What is your age?	18 years old and below	6	4%
	19 to 20 years old	42	31%
	21 years and above	87	64%
6. What is the online Platform used in the delivery of instruction instruction/ learning?	Tele-Education	22	16%
	Google Meet	59	44%
	Zoom	29	21%
	Messenger	25	19%
		135	

Table 1 provides an overview of the respondent profiles in this study, detailing their year level, gender, preferred learning gadgets, studio course enrollment, age, and the online platforms used for instruction. Here's a breakdown and interpretation of the data:

1. Year Level

The majority of respondents are 4th-year students, comprising 41% (56 students) of the total sample. This suggests that the study may have been more focused on students who are closer to completing their academic program. The 2nd-year students represent 27% (36 students) of the respondents, while 1st-year students account for 10% (14 students). The 5th-year students, which likely represent those in the final stages of their architectural education, make up 13% (17 students). The 3rd-year students are the least represented, with only 9% (12 students). This could indicate a potential gap in participation from mid-level students in the program.

2. Gender

The gender distribution shows a fairly balanced representation, with 55% (74 students) male respondents and 45% (61 students) female respondents. This indicates a relatively equal distribution of male and female students in the study, which could allow for a balanced analysis of gender-based perceptions and attitudes toward online learning.

3. Most Common Learning Gadget

The overwhelming majority of respondents (71%, 96 students) use **cellphones** for online learning. This suggests that most students rely on mobile devices for their educational activities, which may reflect the accessibility and convenience of smartphones for learning, especially in a pandemic setting. **Laptops** are the second most commonly used gadget, with 28% (38 students) reporting using them for online learning. This indicates that while laptops are a popular choice for more serious academic tasks, smartphones are the preferred device for a majority of students. Only 1% (1 student) of respondents use a **desktop** computer, which might indicate a limited access to desktop devices or a preference for mobile options that are more flexible in terms of location and usage.

4. Studio Courses Enrolled

The majority of students (93%, 126 students) are currently enrolled in **Architectural Design**, which is likely the core studio course for architecture students. This aligns with the fact that architectural design is a central focus of architecture programs and directly correlates to the hands-on nature of the field. A small number of students are enrolled in **Visual Techniques** (4%, 5 students) and **Building Technology** (3%, 4 students).

5. Age

The age distribution of respondents shows that the majority of students are 21 years old or above (64%, 87 students). This reflects the typical age range of students in higher education programs, particularly in an architecture program that may require additional years of study compared to other fields. A smaller group of students are aged 19 to 20 years (31%, 42 students), and only 4% (6 students) are 18 years old or younger. This age profile suggests that most students are at least in their early twenties, with many in the latter stages of their university education.

6. Online Platform Used for Instruction

The most popular online platform for instruction is **Google Meet**, with 44% (59 students) of respondents using it for learning. This may reflect the platform's user-friendly interface and reliable connection for virtual classes. **Zoom** is used by 21% (29 students), and **Messenger** is used by 19% (25 students). These platforms may be more commonly used for smaller group discussions or as supplementary tools for communication. A smaller percentage of students (16%, 22 students) use **Tele-Education**, which is an online platform developed by IT faculty of the campus. The results might indicate it is less commonly used platform compared to the other options.

Table 2. Responses according to Gender

What is your Gender?		I feel excited to attend the online class	I feel contented to read the lessons in the self-regulated learning module of the course	I feel eager to accomplish the learning tasks required by the course	There is freedom of discussion and learning in the online modality	I am encouraged to participate in class through various communication media
Male	Mean	2.93	2.76	3	2.97	3.11
	N	74	74	74	74	74
Female	Mean	2.72	2.52	2.85	2.9	2.9
	N	61	61	61	61	61
	Std. Deviation	0.839	0.868	0.833	0.851	0.889
	Sum	166	154	174	177	177
Total	Mean	2.84	2.65	2.93	2.94	3.01
	N	135	135	135	135	135

Table 2 presents a comparison of male and female students' responses to various statements about their experiences with online learning in the Architecture program at Isabela State University. The table includes mean values for each group, standard deviations, and the overall sum of responses for each question. The data provides insights into gender-based differences in attitudes and perceptions toward online learning.

1. I feel excited to attend the online class.

The mean response for male students is **2.93**, which is higher than the female students' mean of **2.72**. This suggests that male students, on average, are slightly more excited to attend online classes than female students. Female students have a lower mean score of **2.72**, indicating that while they are still somewhat excited, their enthusiasm for attending online classes is slightly lower than their male counterparts. **Standard Deviation**: The standard deviation for both male (**0.839**) and female (**0.868**) students is relatively similar, indicating a similar level of variability in responses within each gender group. The variability shows that while some students are excited, others may feel less enthusiastic. Male students are more excited than female students about attending online classes, but the difference is not large. Both genders show a moderate level of excitement.

2. I feel contented to read the lessons in the self-regulated learning module of the course.

The mean for male students is **2.76**, which is higher than the female students' mean of **2.52**. This suggests that male students are more content with reading lessons in the self-regulated learning module compared to female students. Female students, with a mean score of **2.52**, show a slightly lower level of contentment, indicating that they may find self-regulated learning less satisfying or perhaps more challenging than male students. **Standard Deviation**: The standard deviations are **0.868** for male students and **0.839** for female students. The close values indicate similar variation in responses for both groups, suggesting that both genders have similar levels of contentment or dissatisfaction with this method of learning. While male students are generally more content with self-regulated learning, both genders report relatively low levels of contentment, indicating room for improvement in how the modules are structured or presented.

3. I feel eager to accomplish the learning tasks required by the course.

The mean score for male students is **3.00**, suggesting that male students, on average, are eager to accomplish the tasks required by the course. This score falls between "somewhat eager" and "eager," indicating a positive attitude toward task completion.

Female students have a slightly lower mean of **2.85**, which also falls between "somewhat eager" and "eager," but is still lower than the male students' eagerness. This indicates that female students are somewhat less motivated to complete learning tasks than male students. The standard deviation for male students is **0.833**, while for female students it is **0.851**. The close standard deviations indicate similar variation in eagerness within both gender groups. The results indicates that male students tend to feel more eager to complete their learning tasks than female students, but both genders show a generally positive attitude towards task completion, with female students being slightly less motivated.

4. There is a freedom of discussion and learning in the online modality.

The mean score for male students is **2.97**, which is slightly higher than the female students' mean of **2.90**. This indicates that male students feel there is slightly more freedom for discussion and learning in the online modality compared to female students. Female students have a mean score of **2.90**, which suggests that they also feel there is a reasonable level of freedom for discussion and learning, but their perception is slightly less favorable than that of male students. The standard deviations are **0.851** for male students and **0.868** for female students. The relatively similar standard deviations suggest that both genders have similar variability in their perceptions of freedom in online learning, but there is slightly more variation in the female group. Both male and female

students feel that there is some degree of freedom in the online modality, but male students perceive this freedom slightly more positively than female students.

5. I am encouraged to participate in class through various communication media.

The mean score for male students is **3.11**, the highest among all the statements in this table, indicating that male students feel strongly encouraged to participate through various communication media. This suggests that the communication methods used in the course are effective in motivating male students to engage. Female students have a mean of **2.90**, which is lower than the male students' mean but still indicates that they feel somewhat encouraged to participate. The difference between genders suggests that female students feel slightly less motivated or supported in their participation compared to male students. The standard deviation for male students is **0.889**, while for female students it is **0.868**, indicating a similar level of variability within each gender group, though male students show a bit more variability in their responses. Male students report feeling more encouraged to participate in online classes than female students. This could reflect differences in how the course encourages participation or how students of different genders perceive these efforts.

Table 3. Group Statistics

Group Statistics

	gender	N	Mean	Std. Deviation	Std. Error Mean
Responses	1	74	2.9541	.57103	.06638
	2	61	2.7803	.71991	.09218

Table 3 presents the group statistics for the responses according to **gender**, summarizing key descriptive statistics for both male and female students.

1. **Number of Respondents (N):**

Male Students (Group 1): There are **74 male students** (N = 74) who participated in the survey. **Female Students (Group 2)**: There are **61 female students** (N = 61) who participated in the survey.This indicates that the male group is slightly larger than the female group, which is common in many surveys, but the difference in group sizes is not large enough to heavily impact the results.

2. Mean:

Male Students (Group 1): The **mean score** for male students is **2.9541**. This mean is an average of all the responses from male students on the particular question being measured in the survey (likely related to their attitude or perception of online learning). A mean score closer to **3** suggests a moderately positive response, indicating that male students, on average, report a favorable or at least neutral opinion on the subject matter of the survey. **Female Students (Group 2)**: The **mean score** for female students is **2.7803**. This mean is slightly lower than the male group's mean, indicating that female students, on average, express a less favorable attitude or perception than male students. However, the mean is still above 2.5, suggesting that female students also show a generally positive or neutral response, though not as strong as the male students' responses.

3. Standard Deviation (Std. Deviation):

Male Students (Group 1): The **standard deviation** for male students is **0.57103**. This indicates that the responses from male students are relatively close to the mean, with moderate variability in the data. The smaller standard deviation suggests that male students' responses are more consistent in comparison to the female group, implying that most male students share a similar attitude toward the online learning experience. **Female Students (Group 2)**: The **standard deviation** for female students is **0.71991**, which is higher than the male students' standard deviation. This indicates that there is more variability in female students' responses, meaning that their perceptions and attitudes toward online learning are more diverse. Some female students may have very positive attitudes, while others may have negative or neutral views, leading to a wider spread in their responses.

4. Standard Error of the Mean (Std. Error Mean):

Male Students (Group 1): The **standard error of the mean** for male students is **0.06638**. The standard error gives an estimate of the precision of the sample mean, indicating that the sample mean is relatively precise with a small margin of error. A smaller standard error means that the sample mean is likely to be close to the true population mean for male students. **Female Students (Group 2)**: The **standard error of the mean** for female students is **0.09218**, which is larger than that for male students. This suggests that the mean for female students is less precise due to the higher standard deviation in the group. This larger standard error indicates more uncertainty about where the true population mean for female students would lie.

Table 4 presents the results of an **Independent Samples t-test** to compare the means of two independent groups (likely male and female students, or other groupings based on the responses) regarding their perceptions or attitudes toward online learning. The test compares the means of two groups and provides information about the significance of any differences. The table includes

results for both **Levene's Test for Equality of Variances** and the **t-test for Equality of Means**, under both assumptions of equal and unequal variances. Here is a detailed analysis of the table:

Summary of Key Findings:

1. **Levene's Test**: Levene's test shows no significant difference in the variances of the two groups (p = 0.145), allowing us to assume equal variances.
2. **t-test Results**: Both the t-test for equal variances assumed (t = 1.564, p = 0.120) and unequal variances assumed (t = 1.529, p = 0.129) show **no significant difference** between the two groups. This suggests that any observed difference in means is due to random chance, not a meaningful or consistent trend.
3. **Mean Difference**: The mean difference of **0.173** is not large enough to be considered practically significant, as it is relatively small and does not lead to statistically significant findings.
4. **Confidence Interval**: The 95% confidence interval (-0.046 to 0.393) includes zero, further confirming that the difference between the two groups is **not statistically significant**.

The results of the independent samples t-test indicate that there is no significant difference between the two groups (e.g., male and female students) in their responses to the survey questions. The slight mean difference of **0.173** is not large enough to be statistically significant, and the confidence interval includes zero, suggesting that the observed difference is not dependable. Therefore, the null hypothesis (that there is no difference between the two groups) is **retained**.

Table 4. Independent Sample Test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Responses	Equal variances assumed	2.151	.145	1.564	133	.120	.173	.111	-.046	.393
	Equal variances not assumed			1.529	113	.129	.173	.113	-.051	.398

CONCLUSION

The findings of this study underscore the importance of understanding the diverse experiences and preferences of architecture students in online learning environments. While the majority of students express a positive attitude towards online learning, with high levels of excitement and eagerness, several areas of concern emerge. The reliance on smartphones for learning highlights the need for mobile-friendly platforms and resources, ensuring that the flexibility of online education is fully leveraged. Despite the predominance of Google Meet as the main platform, a broader exploration of alternative technologies and tools may further enhance the learning experience. Gender differences in engagement and perceptions suggest that male students tend to exhibit more favorable attitudes towards online learning, with higher levels of excitement, participation, and satisfaction with self-regulated learning. Female students, on the other hand, demonstrate a wider variability in their responses, indicating a potential gap in their online learning experiences. Addressing these differences by tailoring online learning strategies could foster a more inclusive environment where both male and female students feel equally engaged and supported. Moreover, while the majority of students appreciate the flexibility of self-regulated learning, a significant portion of the student body expressed dissatisfaction with this mode, indicating the need for more structured and interactive components within the online curriculum. The study also highlights the importance of fostering greater opportunities for discussion and participation, as nearly a quarter of students felt restricted in their ability to engage meaningfully in online sessions. In conclusion, this research provides valuable insights into the online learning experiences of architecture students, offering a foundation for further exploration and development of strategies that enhance engagement, participation, and satisfaction in virtual learning environments. Future educational frameworks should consider both technological tools and pedagogical approaches that can address the diverse needs of students, ensuring a more equitable and effective learning experience for all.

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