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Readiness to Adopt New Technologies for Teaching and Learning in Education of Don Jose Ecleo Memorial College

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Abstract

This study examined the factors influencing the adoption of technology in teaching and learning among faculty and students in a rural higher education institution using the Unified Theory of Acceptance and Use of Technology (UTAUT) as the theoretical framework. The research focused on five constructs: performance expectancy, effort expectancy, social influence, facilitating conditions, and behavioral intention. A descriptive-correlational research design was employed, with separate validated instruments administered to students and faculty. The sample consisted of respondents from the institution's rural campus, selected through stratified random sampling. Data were analyzed using descriptive statistics, correlation, and regression techniques. Results revealed that performance expectancy and facilitating conditions had the highest mean ratings, indicating strong perceptions of technology's usefulness and the adequacy of institutional support. Effort expectancy and social influence also showed significant positive correlations with behavioral intention. The findings underscore the importance of aligning institutional infrastructure, peer and administrative support, and training programs to strengthen technology adoption. Implications for policy, practice, and future research were identified to enhance the effective integration of educational technologies in similar rural settings.

Keywords: Technology Adoption, UTAUT, Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Behavioral Intention, Rural Higher Education

Introduction

New technologies have transformed teaching and learning worldwide, with learning management systems, digital collaboration platforms, virtual reality, and artificial intelligence creating more accessible, flexible, and engaging educational experiences, enabling teachers to innovate, reduce administrative workload, and use data-driven insights to enhance student outcomes (Yu, 2023; Mihaescu & Andone, 2023). However, while urban higher education institutions (HEIs) have advanced in adopting such innovations, rural HEIs continue to face challenges including poor infrastructure, unstable internet connectivity, outdated equipment, limited funding, and insufficient technical training for teachers, which hinder technology integration and widen the digital divide (Singhania et al., 2023; Musa et al., 2022; Samane-Cutipa et al., 2022). Established in the early 1980s in San Jose, Dinagat Islands, Don Jose Ecleo Memorial College (DJEMC) has evolved from its initial offerings in Liberal Arts and Commerce to include technical-vocational programs and, in recent years, has taken deliberate steps toward digital modernization through blended learning, online resource platforms, and multimedia instruction, despite its rural

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constraints. While DJEMC's initiatives illustrate a commitment to 21st-century education, research on technology adoption remains largely centered on urban or well-funded universities, leaving a gap in understanding the unique challenges, readiness, and strategic approaches needed for rural HEIs to effectively integrate educational technology (Kumari & Srivastava, 2023). This study addresses that gap by examining the factors influencing the acceptance of new technologies in DJEMC, with the aim of generating insights that can guide rural institutions in bridging the digital divide and improving teaching and learning outcomes.

Theoretical Framework

This study is anchored on the **Unified Theory of Acceptance and Use of Technology (UTAUT)**, developed by Venkatesh, Morris, Davis, and Davis (2003), which integrates elements from earlier models such as the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB) to provide a comprehensive explanation of technology adoption behavior (Dwivedi et al., 2022). The UTAUT framework identifies four key constructs—Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions—that directly influence an individual's Behavioral Intention to use technology and their actual usage behavior. This model is particularly relevant for understanding how both educators and students in rural HEIs decide to adopt new technologies in teaching and learning contexts.

Performance Expectancy refers to the extent to which individuals believe that using a technology will improve their job performance (Wang et al., 2022). In this study, it encompasses two dimensions: ICT Knowledge, which relates to the understanding and familiarity with information and communication technology tools, and Perceived Value, which pertains to the anticipated benefits of integrating technology into educational practices (Jadil et al., 2021; Salloum et al., 2019).

Effort Expectancy is defined as the perceived ease of using a technology, reflecting how simple and manageable users find its adoption (Granić & Marangunić, 2019). For this research, it is operationalized into Perceived Ease, or the degree to which the technology is straightforward to use, and Perceived Behavioral Control, representing users' confidence in their ability to operate the technology effectively despite potential obstacles (Gupta et al., 2021; Estriegana et al., 2019).

Social Influence describes the degree to which individuals perceive that significant others—such as peers, colleagues, or administrators—believe they should use the technology (Loh & Ren, 2020; Park et al., 2019). In the DJEMC context, it includes Peer Influence, which captures motivation derived from colleagues' attitudes and practices, and Administrators' Influence, which reflects institutional leadership's role in encouraging technology adoption.

Facilitating Conditions represent the resources, infrastructure, and support available to enable effective technology use (Peñarroja et al., 2019; Fearnley & Amora, 2020). This construct is divided into Organizational Infrastructure, referring to policies, training, and institutional support, and Technical Infrastructure, which involves hardware, software, and reliable internet connectivity.

These four constructs collectively determine Behavioral Intention, defined here as the motivation to adopt and use technology in teaching and learning. This intention is measured through two dimensions: Current Technologies, indicating readiness to use tools already available, and Emerging Technologies, which reflects openness to exploring and adopting innovative tools not yet in widespread use.

Conceptual Framework

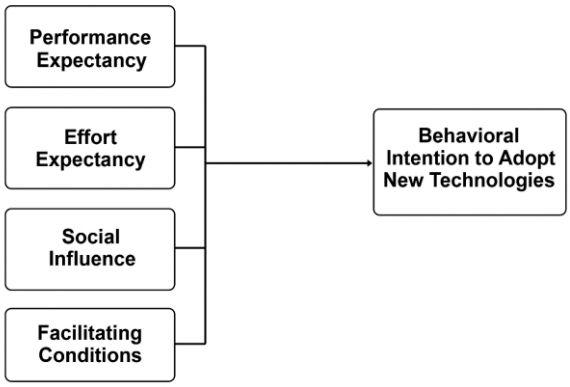

Figure 1. Schematic Diagram of Conceptual Framework

Figure 1 presents the **schematic diagram** of the study, illustrating how the four UTAUT constructs and their operational dimensions influence the **Behavioral Intention** to adopt new technologies within the DJEMC setting.

Statement of the Problem

This study aims to examine the factors influencing the acceptance of new technologies for teaching and learning in Don Jose Ecleo Memorial College (DJEMC). Specifically, it seeks to answer the following questions:

1. What is the demographic profile of the student and faculty respondents in terms of age, sex, educational background, and other relevant attributes?
2. How do the respondents assess the current level of technology adoption in DJEMC?
3. What is the respondents' level of performance expectancy, effort expectancy, social influence, and facilitating conditions in adopting technologies for teaching and learning?
4. What is the respondents' level of intention to adopt current and emerging technologies for teaching and learning?
5. Do demographic profiles and UTAUT constructs significantly influence the respondents' intention to adopt new technologies?

Hypotheses

The following null hypotheses were tested at the 5% level of significance:

- **Ho1:** There is no significant difference in the respondents' level of intention to adopt new technologies when grouped according to demographic profile.
- **Ho2:** The UTAUT constructs—performance expectancy, effort expectancy, social influence, and facilitating conditions—do not significantly influence the respondents' intention to adopt new technologies.
- **Ho3:** There is no significant difference in the level of intention to adopt new technologies between student and faculty respondents.

Significance of the Study

The findings of this study are beneficial to several key stakeholders. For administrators of DJEMC and other rural higher education institutions, the results offer data-driven insights that can inform policies, strategic planning, and

resource allocation to strengthen technology integration. For policymakers, the study provides evidence to support targeted initiatives aimed at improving digital literacy, infrastructure, and equitable access to educational technology in rural areas. For teachers, the research offers practical strategies for enhancing instructional practices and fostering student engagement through effective use of technology. For students of educational management, it serves as a valuable reference in understanding the dynamics of technology adoption and its implications for leadership and innovation in education. For future researchers, the study provides a framework and empirical evidence for exploring related topics, including digital equity, instructional innovation, and long-term outcomes of technology integration in rural learning environments.

Scope and Limitations

This study examined the influence of performance expectancy, effort expectancy, social influence, and facilitating conditions on the behavioral intention to adopt new technologies for teaching and learning among faculty and students of Don Jose Ecleo Memorial College. The research was conducted in the rural setting of San Jose, Dinagat Islands, and involved respondents from both the student and faculty populations, which may limit the generalizability of findings to other institutions with different contexts or resources. Methodologically, the study utilized a cross-sectional survey design, gathering data at a single point in time, which restricts the ability to capture changes in attitudes or behaviors over time. Additionally, reliance on self-reported data introduces the possibility of response bias, as participants may have over- or under-estimated their readiness and intentions regarding technology adoption.

Review of Related Literature and Studies

The adoption of technologies in teaching and learning has gained significant attention in recent years, particularly with the rapid transition to online and blended learning during the COVID-19 pandemic. Digital tools such as learning management systems, collaboration platforms, virtual reality, and artificial intelligence have been shown to enhance accessibility, flexibility, and engagement in education (Yu, 2023; Mihaescu & Andone, 2023). However, while technology adoption has been widely explored in urban and well-funded institutions, rural higher education institutions (HEIs) continue to face structural limitations such as inadequate infrastructure, unstable internet connectivity, outdated equipment, and insufficient training opportunities for faculty, which impede effective technology integration (Singhania et al., 2023; Musa et al., 2022; Samane-Cutipa et al., 2022). These disparities risk widening the digital divide, underscoring the need to understand technology adoption within rural educational contexts.

Central to this study is the **Unified Theory of Acceptance and Use of Technology (UTAUT)**, which identifies four key constructs influencing behavioral intention to adopt technology—performance expectancy, effort expectancy, social influence, and facilitating conditions (Dwivedi et al., 2022). **Performance expectancy**, or the belief that technology use will enhance job performance, has been found to strongly influence adoption decisions, particularly when users perceive clear benefits for productivity and learning outcomes (Wang et al., 2022; Jadil et al., 2021). **Effort expectancy**, the perceived ease of using technology, also plays a critical role, as technologies that are intuitive and manageable encourage broader acceptance, especially among users with varying levels of digital literacy (Granić & Marangunić, 2019; Gupta et al., 2021).

Social influence refers to the extent to which individuals perceive that significant others—such as colleagues, peers, or administrators—believe they should use technology. This factor is particularly relevant in rural institutions where strong community ties and leadership endorsement can significantly shape technology adoption behaviors (Loh & Ren, 2020; Park et al., 2019). **Facilitating conditions**, which include organizational infrastructure (policies, training, and support services) and technical infrastructure (hardware, software, and connectivity), determine whether users have the necessary resources and support to integrate technology effectively (Peñarroja et al., 2019; Fearnley & Amora, 2020). Studies indicate that even with positive attitudes toward technology, the absence of robust facilitating conditions can hinder adoption.

Existing research on technology adoption in rural HEIs remains limited, with most studies focusing on urban or technologically advanced institutions, leaving a gap in understanding the unique challenges and enablers in less-resourced settings (Kumari & Srivastava, 2023). This study addresses that gap by examining both the readiness and the influencing factors for technology adoption at Don Jose Ecleo Memorial College, providing empirical evidence on how UTAUT constructs interact within a rural higher education context. The synthesis of related literature indicates that successful technology adoption in rural HEIs requires not only user readiness and positive perceptions but also a supportive institutional culture and adequate infrastructure. The research gap highlights the need for context-specific strategies that address both the human and systemic dimensions of technology integration in rural educational environments.

Methodology and Research Design

This study employed a **descriptive-correlational research design** to examine the relationship between the Unified Theory of Acceptance and Use of Technology (UTAUT) constructs—performance expectancy, effort expectancy, social influence, and facilitating conditions—and the behavioral intention to adopt new technologies in Don Jose Ecleo Memorial College. The respondents consisted of both students and faculty, selected through stratified random sampling to ensure representation across academic departments, year levels, and employment categories. Separate survey questionnaires were developed for students and faculty, each validated by experts and subjected to reliability testing, and were structured to measure the operational dimensions of each construct using a Likert scale, with scoring and interpretation guidelines defining qualitative descriptors for mean scores. Data gathering involved securing institutional approval, obtaining informed consent from participants, and administering the instruments in person and online. The data were analyzed using descriptive statistics (frequency, percentage, mean, standard deviation) to profile respondents and summarize variable levels, and inferential statistics (t-test, one-way ANOVA, and multiple regression) to determine significant differences and predictive relationships. Ethical considerations included adherence to voluntary participation, confidentiality of responses, secure handling of data, and compliance with academic integrity standards throughout the research process.

Chapter 4 – Results and Analysis

Table 1 below aligns the original UTAUT constructs with the operational variables and dimensions used in this study.

UTAUT Construct	Definition (UTAUT)	Study Variables/Dimensions
Performance Expectancy	Degree to which using technology enhances job performance	ICT Knowledge; Perceived Value
Effort Expectancy	Degree of ease associated with the use of technology	Perceived Ease; Perceived Behavioral Control
Social Influence	Extent to which individuals perceive important others believe they should use technology	Peer Influence; Administrators' Influence
Facilitating Conditions	Availability of organizational and technical support	Organizational Infrastructure; Technical Infrastructure
Behavioral Intention	Intention to adopt and use the technology	Current Technologies; Emerging Technologies

Table 1 presents the alignment between the constructs of the Unified Theory of Acceptance and Use of Technology (UTAUT) and the specific operational variables used in this study. Performance Expectancy, defined as the belief that using technology will enhance job performance, is measured through ICT Knowledge, referring to the respondents' understanding of technology tools, and Perceived Value, which captures the benefits they associate with technology use. Effort Expectancy, or the perceived ease of technology use, is operationalized as Perceived Ease, indicating how simple the technology is to use, and Perceived Behavioral Control, reflecting the respondents'

confidence in using it effectively despite potential barriers. Social Influence, which concerns the extent to which individuals feel encouraged by others to adopt technology, is examined through Peer Influence, representing motivation from colleagues, and Administrators' Influence, denoting leadership support. Facilitating Conditions, referring to the resources and support available for technology adoption, are measured through Organizational Infrastructure, such as policies, training, and institutional support systems, and Technical Infrastructure, which includes hardware, software, and internet connectivity. Finally, Behavioral Intention, or the willingness to adopt and use technology, is assessed in terms of readiness to use Current Technologies already available and openness to explore Emerging Technologies. This structure ensures that each theoretical construct is grounded in measurable indicators suited to the context of Don Jose Ecleo Memorial College.

Results and Discussion

Table 2. Profile of Respondents

Category	Subcategory	Frequency	Percentage (%)
Students	Age (≤20 years)	150	48.39%
	Age (21–25 years)	147	47.42%
	Age (≥26 years)	13	4.19%
	Male	138	44.52%
	Female	172	55.48%
	College of Education	102	32.90%
	College of Business	93	29.97%
	College of Information Technology	65	20.96%
	College of Criminal Justice	50	16.13%
	1st Year	100	32.26%
	2nd Year	92	29.68%
	3rd Year	65	20.96%
	4th Year	53	17.10%
Faculty	Age (≤30 years)	5	20.83%
	Age (31–40 years)	8	33.33%
	Age (≥41 years)	11	45.83%
	Male	8	33.33%
	Female	16	66.67%
	College of Education	10	41.67%
	College of Business	6	25.00%
	College of Information Technology	4	16.67%
	College of Criminal Justice	4	16.67%
	≤5 Years in Service	7	29.17%
	6–10 Years in Service	4	16.67%
	≥11 Years in Service	13	54.17%
	Bachelor's Degree	5	20.83%
	Master's Degree	15	62.50%
	Doctorate Degree	4	16.67%

Table 2 presents the demographic profile of the student and faculty respondents. The student group was largely composed of those aged 20 years and below (48.39%) and 21–25 years old (47.42%), with a slight female majority (55.48%). Most students came from the College of Education (32.90%) and the College of Business (29.97%), with

the largest proportion in the first year level (32.26%). The faculty respondents were mostly aged 41 years and above (45.83%) and predominantly female (66.67%). A substantial number were from the College of Education (41.67%) and had more than 11 years of service (54.17%). In terms of educational attainment, most faculty held a master's degree (62.50%), followed by bachelor's (20.83%) and doctoral degrees (16.67%). This profile indicates a balanced student sample across age, sex, and academic programs, and a faculty group with considerable teaching experience and advanced qualifications.

Table 3. **Current Level of Technology Adoption in DJEMC**

Indicator	**Mean**	**Interpretation**
Use of learning management systems (LMS)	3.16	Moderate
Integration of multimedia in teaching	3.18	Moderate
Utilization of productivity tools (e.g., MS Office, Google Workspace)	3.22	Moderate
Access to digital learning resources	3.15	Moderate
Online communication and collaboration tools	3.20	Moderate
Overall Mean	**3.18**	**Moderate**

Scale: 3.50–4.00 = High, 2.50–3.49 = Moderate, 1.50–2.49 = Low, 1.00–1.49 = Very Low

Table 3 shows that the current level of technology adoption in DJEMC is generally rated as **moderate** across all indicators. Both students and faculty reported moderate use of learning management systems, multimedia integration in teaching, productivity tools, access to digital resources, and online communication platforms, with overall mean scores ranging from 3.15 to 3.22. The overall mean of 3.18 suggests that while technology is present in instructional and administrative practices, it is not yet fully integrated into all aspects of teaching and learning, indicating room for further enhancement in infrastructure, training, and utilization.

Table 4. **Levels of UTAUT Constructs**

Construct	**Mean**	**Interpretation**
Performance Expectancy	3.59	High
Effort Expectancy	3.55	High
Social Influence	3.43	Moderate
Facilitating Conditions	3.38	Moderate
Overall Mean	**3.49**	**Moderate to High**

Scale: 3.50–4.00 = High, 2.50–3.49 = Moderate, 1.50–2.49 = Low, 1.00–1.49 = Very Low

Table 4 indicates that respondents rated **performance expectancy** (3.59) and **effort expectancy** (3.55) as **high**, showing that they believe technology can improve teaching and learning and is generally easy to use. **Social influence** (3.43) and **facilitating conditions** (3.38) were rated **moderate**, suggesting that while there is some encouragement from peers and administrators, and some institutional and technical support, these areas are less strong compared to perceived benefits and ease of use. The overall mean of 3.49 reflects a **moderate to high** level across all constructs, indicating readiness tempered by infrastructural and support limitations.

Table 5. **Intention to Adopt Current and Emerging Technologies**

Indicator	Mean	Interpretation
Current Technologies	3.57	High
Emerging Technologies	3.49	Moderate
Overall Mean	**3.53**	**High**

Scale: 3.50–4.00 = High, 2.50–3.49 = Moderate, 1.50–2.49 = Low, 1.00–1.49 = Very Low

Table 5 shows that respondents reported a **high** intention to adopt current technologies (3.57) and a **moderate** intention to adopt emerging technologies (3.49). The overall mean of 3.53 indicates a generally high willingness to integrate technology into teaching and learning, with greater readiness for tools they are already familiar with compared to newer, less-established innovations.

Table 6. **Influence of Demographic Profiles and UTAUT Constructs on Intention to Adopt Technologies**

Variable	p-value	Interpretation
Age	0.214	Not Significant
Sex	0.327	Not Significant
Educational Attainment	0.198	Not Significant
Years in Service	0.254	Not Significant
Performance Expectancy	0.000	Significant
Effort Expectancy	0.001	Significant
Social Influence	0.072	Not Significant
Facilitating Conditions	0.058	Not Significant

Significance Level: 0.05

Table 6 shows that demographic variables such as age, sex, educational attainment, and years in service had no significant influence on the intention to adopt technologies, as all p-values were above 0.05. Among the UTAUT constructs, only **performance expectancy** (p = 0.000) and **effort expectancy** (p = 0.001) showed significant influence, indicating that perceived usefulness and ease of use are the strongest predictors of technology adoption in this context.

Implications of Results

The results of the study imply that while faculty and students at DJEMC demonstrate a generally high level of readiness to adopt technology, the strongest drivers of this intention are their perceptions of the technology's usefulness and ease of use. This finding reinforces the core premise of the UTAUT model, emphasizing that performance expectancy and effort expectancy are central to influencing behavioral intention. The moderate ratings for social influence and facilitating conditions suggest that institutional encouragement and support infrastructures, although present, require strengthening to maximize adoption potential. The absence of significant effects from demographic variables indicates that technology adoption initiatives can be implemented inclusively across different age groups, educational backgrounds, and service lengths without the need for heavily segmented strategies. For administrators and policymakers, this highlights the importance of investing in both training programs that build user competence and confidence, and in robust technical and organizational support systems. For educators, it underlines the value of integrating technologies that are demonstrably beneficial and easy to navigate, thereby fostering sustained adoption.

Conclusion and Recommendations

Conclusion

This study concluded that technology adoption at DJEMC is at a moderate to high level, with current technologies being more readily embraced than emerging innovations. The UTAUT constructs of performance expectancy and effort expectancy emerged as significant predictors of behavioral intention, underscoring the pivotal role of perceived usefulness and ease of use in driving adoption. Social influence and facilitating conditions, while moderately rated, did not significantly influence intention, indicating that institutional and peer encouragement, as well as technical and organizational support, are not yet strong determinants of technology uptake. Demographic factors such as age, sex, educational attainment, and years in service showed no significant relationship with adoption intention, suggesting that readiness to adopt technology is broadly consistent across different respondent groups. These findings affirm the importance of focusing on practical benefits and usability in technology integration efforts while strengthening institutional support mechanisms.

Recommendations

Based on the results, it is recommended that DJEMC prioritize targeted capacity-building initiatives to enhance users' knowledge and skills in using both current and emerging technologies, ensuring that tools are not only accessible but also perceived as beneficial and easy to use. Institutional leaders should invest in improving organizational and technical infrastructure to address the gaps identified in facilitating conditions, including reliable internet connectivity, updated hardware, and accessible technical support. Efforts to strengthen social influence should include structured peer mentoring, recognition programs for technology champions, and active advocacy from administrators to normalize and promote technology integration. Furthermore, faculty and student engagement in decision-making related to technology adoption should be encouraged to foster a sense of ownership and sustained use. Finally, continuous monitoring and evaluation mechanisms should be implemented to assess adoption progress, address emerging barriers, and adapt strategies in response to technological advancements and evolving educational needs.

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