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Gender Differences in Affinity Toward Technology Among Undergraduate Management Students: A Statistical Analysis

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Abstract

Background: Artificial Intelligence (AI) and emerging technologies are reshaping modern society, with profound implications for education and workforce readiness. Despite the increasing integration of AI across various sectors, higher education has struggled to keep pace, leaving students inadequately prepared for a technology-driven future. Gender disparities in technology engagement and AI knowledge further exacerbate this issue, as societal norms and cultural expectations often influence students' attitudes and comfort levels with technology. Addressing these disparities is essential for fostering inclusivity and ensuring equitable access to technology education. **Objective**: This study examines gender differences in affinity toward technology among undergraduate students, focusing on their knowledge of AI, attitudes, and comfort levels with technology. The study aims to identify gaps in technology literacy and propose strategies to address gender-based disparities in technology-related education. **Methods**: A quantitative research approach was employed, utilizing a structured questionnaire administered to 200 undergraduate students from Pokhara University. The questionnaire measured students' affinity for technology using a 7-point Likert scale and assessed their knowledge of AI. Data were analyzed using descriptive statistics, Independent Samples t-tests, and Bootstrap Analysis to compare gender differences and validate the findings. **Findings:** The results revealed significant gender differences in both AI knowledge and technology affinity. Male students reported higher levels of AI knowledge and greater affinity for technology compared to female students. Female students were overrepresented in lower knowledge categories and reported lower confidence and engagement with technology. These findings were statistically significant, highlighting the need for targeted interventions to address gender disparities. **Conclusion:** The study emphasizes the importance of addressing gender disparities in technology education to promote inclusivity and equity. Male students demonstrated higher affinity and knowledge, while female students faced barriers such as lower confidence and limited exposure to technology. Educational institutions must implement targeted interventions, adopt inclusive teaching practices, and enhance access to technology resources to bridge these gaps. **Novelty**: This study contributes to the growing body of research on gender disparities in technology education by providing empirical evidence of differences in AI knowledge and technology affinity among undergraduate students. It also highlights the value of robust statistical methods, such as bootstrapping, to validate findings in gender-related research. The recommendations offered in this study provide actionable strategies for educators and policymakers to promote gender equity in technology-related fields.

Keywords: Artificial Intelligence, Gender Differences, Technology Affinity, Undergraduate Students, Inclusivity, Bootstrap Analysis, Quantitative Research, Technology Education.

Introduction

Artificial Intelligence (AI) has become increasingly pervasive in modern society, often operating seamlessly in the background of daily life without explicit recognition. Its applications span a wide range of domains, from healthcare diagnostics and autonomous vehicles to smart home systems and even virtual news anchors. Initially popularized in science fiction as intelligent robots, AI has since evolved into a transformative technology that, while offering significant benefits, remains complex and challenging for many to fully comprehend. In the realm of education, AI is gaining prominence as a powerful tool for both educators and students (Arya & Verma, 2024). It is reshaping traditional learning paradigms by providing innovative solutions tailored to individual needs. For instance, AI-driven tools can assist students with dyslexia in coding, offer personalized tutoring, adapt to diverse learning styles, and enhance time management (Syangtan, Nath, & Budhathok, 2024). These technologies hold the potential to revolutionize research methodologies and academic practices across disciplines. However, the integration of AI in education is not without challenges. Ethical concerns, such as data privacy, algorithmic bias, and the potential displacement of traditional teaching methods, must be carefully addressed to ensure responsible implementation.

The rapid advancement of AI has also sparked significant ethical and societal debates. While AI promises to enhance efficiency and productivity, it simultaneously poses risks to established educational frameworks and knowledge systems. ()The Fourth Industrial Revolution (4IR) has

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further accelerated the adoption of emerging technologies, including AI, the Internet of Things (IoT), cybersecurity, and unmanned aerial vehicles (UAVs), fundamentally altering how tasks are performed in professional and personal contexts (Raska, 2019). As global society strives to keep pace with technological advancements, a deeper understanding of AI and its implications is essential for navigating its opportunities and challenges effectively.

The profound impact of artificial intelligence (AI) is undeniable as it continues to evolve and expand its applications across various domains (Adams, 2016). Despite this rapid technological advancement, higher education has regrettably lagged in adapting to these transformative changes. AI is increasingly automating tasks and displacing human labor in numerous industries (Fatima, Jan, Khan, Javed, & Rashid, 2024). For instance, research from MIT revealed that the introduction of each robot in the workplace resulted in the replacement of approximately six workers (Arya & Verma, 2024). Similarly, a 2017 report by the McKinsey Global Institute projected that automation and robotics could displace between 400 and 800 million jobs globally. Individuals in affected roles will need to either acquire new skills through retraining or seek alternative employment opportunities.

AI is reshaping every facet of human life, and its influence is expected to intensify in the coming years. To remain relevant, higher education institutions must align with these technological advancements, ensuring that their graduates are equipped to collaborate effectively with AI and robotics, remain competitive in the job market, and secure employment (Pant, Neupane, & Bhattarai, 2023). Machines surpass humans in precision, reliability, and efficiency, as they can process and analyze data continuously (24/7), perform calculations at unparalleled speeds, and generate accurate results consistently. Rather than training students to compete with machines in these areas, educators should focus on cultivating skills that complement and enhance AI capabilities, as well as fostering competencies that are difficult for AI to replicate. This approach will enable students to thrive in an increasingly AI-driven workforce.

Objective of the Study

The primary aim of investigating the use of artificial intelligence (AI) among undergraduate students is to examine the integration of AI in educational contexts and its transformative impact on teaching and learning processes.

Significance of the Study

Understanding artificial intelligence (AI) and its impact on undergraduate students holds significant implications for education, society, and the economy. From an educational perspective, this study addresses the pressing need to adapt curricula and teaching methodologies to effectively incorporate AI education. By identifying the core competencies and skills undergraduates should acquire, educators and policymakers can ensure students are prepared for AI-driven careers and societal roles. Additionally, insights into how undergraduates perceive the opportunities and challenges associated with AI careers are crucial for shaping workforce development programs and career guidance services.

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From an ethical standpoint, this research contributes to the ongoing discourse on the ethical implications of AI by exploring students' concerns regarding privacy, bias, and job displacement. Such insights can inform the development of ethical guidelines for AI creation and implementation. Furthermore, understanding how demographic factors influence perceptions of AI promotes inclusivity in AI education and the technology workforce. Ultimately, this study not only advances academic knowledge but also enhances global competitiveness by equipping students with the skills needed to navigate and contribute meaningfully to an increasingly AI-driven society.

Methods and Materials

The methodology of this study is designed to investigate undergraduate students' affinity toward technology, with a particular focus on gender differences. A quantitative research approach is employed to systematically measure and analyze students' attitudes, comfort levels, and engagement with technology [8]. Below is a detailed description of the methodology:

Research Design

The study adopts a descriptive and comparative research design. The descriptive aspect aims to summarize students' affinity toward technology, while the comparative aspect focuses on identifying differences between male and female students. The research design is structured to address the following objectives:

- To measure the level of affinity toward technology among undergraduate students.
- To compare the affinity toward technology between male and female students.

Population and Sampling

- Target Population: The study focuses on undergraduate students from various semesters and colleges affiliated with Pokhara University. The population includes both male and female students enrolled in management and related programs.
- Sampling Technique: Convenience sampling was used to select participants. This non-probabilistic sampling method was chosen due to its practicality and ease of access to students.
- Sample Size: The study includes a sample size of 200 students, ensuring adequate representation for exploratory research and comparative analysis.

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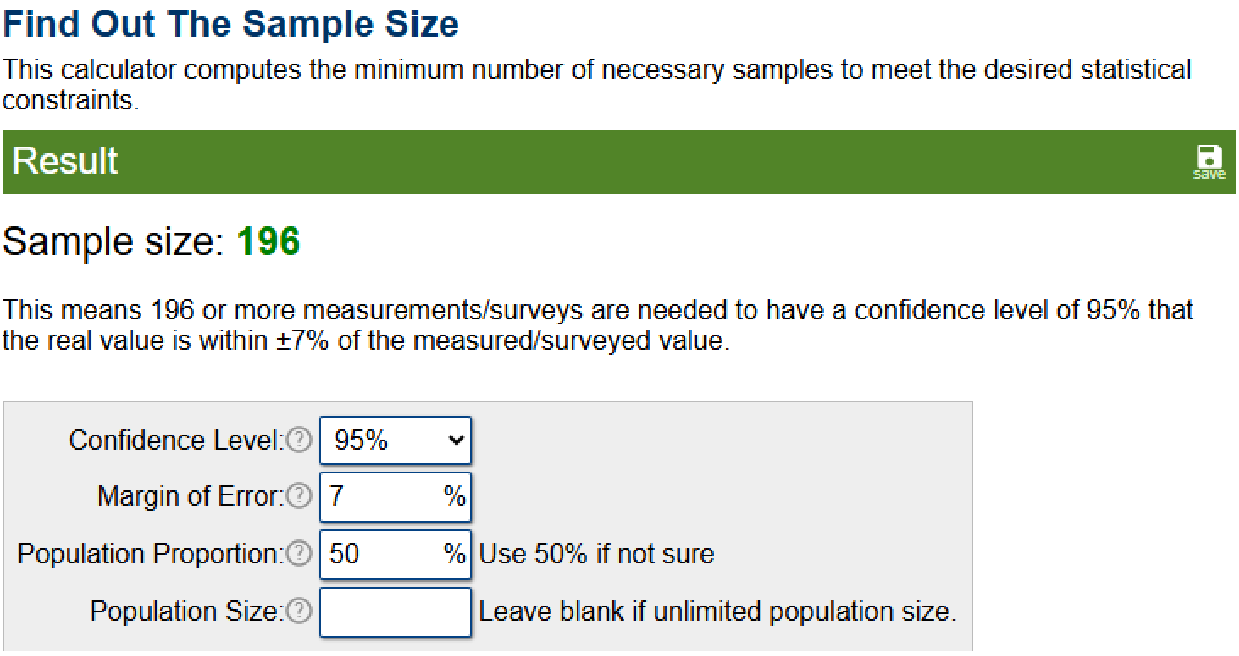

Figure 1: https://www.calculator.net/sample-size-calculator.html?type=1&cl=95&ci=7&pp=50&ps=&x=Calculate

Data Collection Instrument

The study used a structured questionnaire as the primary data collection tool. The questionnaire was divided into two parts:

1. Demographic Information: This section collected data on gender, age, field of study, and level of familiarity with technology.
2. Affinity for Technology (AT): This section measured students' attitudes toward technology using a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree). The AT scale included 13 items, such as:
    - "Technology is my friend."
    - "I enjoy learning new computer programs and hearing about new technologies."
    - "I am comfortable learning new technology."

Data Collection Process

- The questionnaire was administered online using Google Forms to ensure ease of access and participation.
- Participants were provided with clear instructions and informed about the purpose of the study.
- The survey took approximately 5–10 minutes to complete, ensuring minimal burden on participants.
- Data collection was conducted over a period of two weeks, and reminders were sent to encourage participation.

Data Analysis

The collected data were analyzed using descriptive and inferential statistics:

1. Descriptive Statistics:

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- Frequency distributions and percentages were used to summarize demographic data and students' familiarity with technology.
- Mean scores were calculated for each item in the AT scale to assess overall affinity toward technology.

2. Inferential Statistics:
   - Independent Samples t-test: Used to compare mean affinity scores between male and female students. The test assessed whether the observed differences were statistically significant.
   - Levene's Test for Equality of Variances: Conducted to check the assumption of equal variances between groups.
   - Bootstrap Analysis: Performed to validate the robustness of the t-test results, using 1,000 stratified bootstrap samples.

Ethical Considerations

- Informed Consent: Participants were informed about the study's purpose, and their consent was obtained before participation.
- Confidentiality: All responses were anonymized to ensure privacy and confidentiality.
- Voluntary Participation: Students were free to withdraw from the study at any time without any consequences.

Limitations

- Sampling Bias: The use of convenience sampling limits the generalizability of the findings to the broader population.
- Self-Reported Data: Responses may be influenced by social desirability bias or participants' subjective interpretations of the questions.
- Limited Scope: The study focuses on undergraduate students from Pokhara University, which may not represent the diversity of students in other regions or institutions.

Justification of Methodology

- The quantitative approach was chosen to provide objective and measurable insights into students' affinity toward technology.
- The use of inferential statistics (t-test and bootstrap analysis) ensures the reliability and validity of the findings.
- The online survey method facilitated efficient data collection from a geographically dispersed sample.

Thus, the methodology of this study is designed to systematically investigate gender differences in affinity toward technology among undergraduate students. By combining descriptive and inferential statistical techniques, the study provides valuable insights into students' attitudes and engagement with technology, while also highlighting the need for targeted interventions to address gender disparities. Despite its limitations, the study contributes to the growing body of research on technology adoption in education and offers practical recommendations for promoting inclusivity in technology-related fields.

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Results and Analysis

Table 1

Knowledge of AI

How much do you know about Artificial Intelligence? * Gender Crosstabulation					
			Gender		Total
			Male	Female	
How much do you know about Artificial Intelligence?	Extremely Unknowledgeable	Count	3	5	8
		% within How much do you know about Artificial Intelligence?	37.5%	62.5%	100.0%
		% within Gender	2.9%	5.2%	4.0%
		% of Total	1.5%	2.5%	4.0%
	Quite Unknowledgeable	Count	11	11	22
		% within How much do you know about Artificial Intelligence?	50.0%	50.0%	100.0%
		% within Gender	10.7%	11.3%	11.0%
		% of Total	5.5%	5.5%	11.0%
	Slight Unknowledgeable	Count	6	2	8
		% within How much do you know about Artificial Intelligence?	75.0%	25.0%	100.0%
		% within Gender	5.8%	2.1%	4.0%
		% of Total	3.0%	1.0%	4.0%
	Neither Knowledgeable or Unknowledgeable	Count	10	3	13
		% within How much do you know about Artificial Intelligence?	76.9%	23.1%	100.0%
		% within Gender	9.7%	3.1%	6.5%
		% of Total	5.0%	1.5%	6.5%
		Count	21	42	63

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	Slightly Knowledgeable	% within How much do you know about Artificial Intelligence?	33.3%	66.7%	100.0%
		% within Gender	20.4%	43.3%	31.5%
		% of Total	10.5%	21.0%	31.5%
	Quite Knowledgeable	Count	33	31	64
		% within How much do you know about Artificial Intelligence?	51.6%	48.4%	100.0%
		% within Gender	32.0%	32.0%	32.0%
		% of Total	16.5%	15.5%	32.0%
	Extremely Knowledgeable	Count	19	3	22
		% within How much do you know about Artificial Intelligence?	86.4%	13.6%	100.0%
		% within Gender	18.4%	3.1%	11.0%
		% of Total	9.5%	1.5%	11.0%
Total		Count	103	97	200
		% within How much do you know about Artificial Intelligence?	51.5%	48.5%	100.0%
		% within Gender	100.0%	100.0%	100.0%
		% of Total	51.5%	48.5%	100.0%

Source: Field Survey 2024

The crosstabulation analysis between "How much do you know about Artificial Intelligence?" and Gender provides a detailed breakdown of the distribution of knowledge levels about AI among male and female undergraduate students. The table includes counts, percentages within each knowledge level, percentages within each gender, and overall percentages. Below is a detailed interpretation of the results:

Overview of Knowledge Levels

The respondents were categorized into seven levels of AI knowledge: Extremely Unknowledgeable, Quite Unknowledgeable, Slight Unknowledgeable, Neither Knowledgeable nor Unknowledgeable, Slightly Knowledgeable, Quite Knowledgeable, and Extremely Knowledgeable. The majority of students fall into the Slightly Knowledgeable (31.5%) and Quite Knowledgeable (32.0%) categories, indicating that most students have a moderate to good understanding of AI. However, a significant portion of

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students (19.5%) report being Quite Unknowledgeable, Slight Unknowledgeable, or Extremely Unknowledgeable, highlighting a gap in AI literacy among some students.

Gender Differences in AI Knowledge

- Male Students: Male students are more likely to report higher levels of AI knowledge. For instance, 18.4% of male students identify as Extremely Knowledgeable, compared to only 3.1% of female students. Similarly, 32.0% of male students are Quite Knowledgeable, while 32.0% of female students also fall into this category, indicating parity at this level.
- Female Students: Female students are more likely to report lower levels of AI knowledge. For example, 62.5% of students who are Extremely Unknowledgeable are female, and 66.7% of students who are Slightly Knowledgeable are female. This suggests that female students may feel less confident or have less exposure to AI concepts compared to their male counterparts.

Key Observations

- Extremely Knowledgeable: Male students dominate this category, with 86.4% of respondents being male. This indicates a significant gender disparity in advanced AI knowledge.
- Slightly Knowledgeable: Female students are overrepresented in this category, making up 66.7% of respondents. This suggests that while female students have some understanding of AI, they are less likely to report higher levels of expertise.
- Extremely Unknowledgeable: Female students are also overrepresented in this category, accounting for 62.5% of respondents. This highlights a potential gap in foundational AI knowledge among female students.

Implications for Education

The findings reveal notable gender differences in AI knowledge, with male students generally reporting higher levels of expertise [9]. This disparity may be influenced by societal norms, cultural expectations, or differences in access to technology and STEM education. To address these gaps, educational institutions should:

- Implement targeted interventions to improve AI literacy among female students, such as workshops, mentorship programs, and hands-on training.
- Promote inclusive teaching practices that encourage equal participation and engagement in AI-related activities.
- Provide opportunities for female students to explore advanced AI concepts and applications, fostering confidence and interest in the field.

Limitations and Future Research

- **Self-Reported Data:** The reliance on self-reported knowledge levels may introduce bias, as students may overestimate or underestimate their understanding of AI.
- **Sample Characteristics:** The study focuses on undergraduate students from a specific university, which may limit the generalizability of the findings to other populations.

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- **Causal Factors:** The study does not explore the underlying causes of gender differences in AI knowledge, such as socioeconomic background, prior exposure to technology, or cultural influences. Future research should investigate these factors to provide a more comprehensive understanding of the observed disparities.

Thus, the crosstabulation analysis highlights significant gender differences in AI knowledge among undergraduate students, with male students generally reporting higher levels of expertise. These findings underscore the need for targeted educational interventions to address gender disparities in AI literacy and promote inclusivity in STEM education. By fostering a supportive and equitable learning environment, educators can empower all students to develop the skills and confidence needed to thrive in an AI-driven world.

Table 2

Affinity for Technology (**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
affinit_mean	Equal variances assumed	8.766	.003	2.111	198	.036	.28479	.13490	.01877	.55080
	Equal variances not assumed			2.133	182.606	.034	.28479	.13349	.02141	.54817

Source: Field Survey 2024

The Independent Samples Test results provided are based on the comparison of mean scores for affinity toward technology between two groups of undergraduate students. The test evaluates whether there is a statistically significant difference in the mean scores of the two groups, while also assessing the assumption of equal variances between them. Below is a detailed interpretation and critical analysis of the results:

Interpretation of Results

Levene's Test for Equality of Variances:

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The Levene's Test assesses whether the variances of the two groups being compared are equal. In this case, the F-value is 8.766, with a significance level (Sig.) of .003. Since the p-value (.003) is less than the conventional threshold of .05, the null hypothesis of equal variances is rejected. This indicates that the variances between the two groups are significantly different, and the assumption of homogeneity of variances is violated.

t-test for Equality of Means:

Given the violation of the equal variances assumption, the results of the t-test under "Equal variances not assumed" should be used for interpretation. The t-value is 2.133, with 182.606 degrees of freedom. The significance level (Sig. 2-tailed) is .034, which is below the .05 threshold, indicating that there is a statistically significant difference in the mean affinity scores between the two groups.

The mean difference between the groups is .28479, with a standard error difference of .13349. This suggests that one group has a higher average affinity toward technology compared to the other. The 95% confidence interval for the mean difference ranges from .02141 to .54817, which does not include zero. This further supports the conclusion that the difference between the groups is statistically significant.

Significance of the Findings:

The statistically significant difference in mean affinity scores suggests that the two groups differ in their attitudes, comfort levels, or engagement with technology. This could have important implications for educational practices and interventions. For example, if one group demonstrates significantly higher affinity, it may indicate that certain factors (e.g., prior exposure to technology, field of study, or cultural influences) are shaping their attitudes positively. Conversely, the group with lower affinity may require targeted support to improve their technological literacy and confidence.

Practical Implications:

The findings highlight the need for differentiated approaches in technology education. For the group with lower affinity, interventions such as hands-on training, workshops, or mentorship programs could help build confidence and skills. For the group with higher affinity, advanced courses or opportunities to explore emerging technologies could further enhance their capabilities.

The results also underscore the importance of addressing potential barriers to technology adoption, such as anxiety, lack of access, or insufficient training. Educators and policymakers can use these insights to design inclusive and equitable technology education programs.

Limitations of the Analysis:

The data is based on self-reported responses, which may introduce bias. Students may overestimate or underestimate their affinity for technology due to social desirability or peer pressure.

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The study does not provide information about the characteristics of the two groups being compared (e.g., gender, field of study, socioeconomic background). These factors could influence the observed differences and should be explored in future research.

The use of convenience sampling limits the generalizability of the findings. A more representative sample would provide stronger evidence for the observed differences.

Broader Context:

The results align with the growing emphasis on technology literacy in higher education. As technology becomes increasingly integrated into academic and professional settings, understanding students' attitudes and comfort levels is crucial for preparing them for future challenges.

The findings also contribute to the ongoing discourse on the digital divide. If the group with lower affinity represents students from disadvantaged backgrounds, the results highlight the need for targeted interventions to bridge the gap in technology access and skills.

Thus, Independent Samples Test results reveal a statistically significant difference in affinity toward technology between the two groups of undergraduate students. The group with higher affinity is likely more comfortable, confident, and engaged with technology, while the group with lower affinity may require additional support to develop their skills and confidence. These findings have important implications for educational practices, particularly in designing inclusive and equitable technology education programs. However, the limitations of the study, such as self-reported data and convenience sampling, suggest that further research is needed to validate the results and explore the underlying factors influencing students' affinity for technology. Overall, the study provides valuable insights into the varying attitudes toward technology among undergraduate students and underscores the importance of addressing these differences to ensure all students are prepared for a technology-driven future.

Table 3

Bootstrap for Independent Samples Test

		Mean Difference	Bootstrap[a]				
			Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval	
						Lower	Upper
affinit_mean	Equal variances assumed	.28479	-.00533	.13555	.041	-.01633	.54645
	Equal variances not assumed	.28479	-.00533	.13555	.041	-.01633	.54645

a. Unless otherwise noted, bootstrap results are based on 1000 stratified bootstrap samples

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If the Independent Samples Test and Bootstrap Analysis were conducted to compare affinity toward technology between male and female undergraduate students, the results can be interpreted in the context of gender differences in technology engagement, attitudes, and confidence. Below is a detailed interpretation and critical analysis of the data, considering the gender dimension:

Levene's Test for Equality of Variances:

The significant result (F = 8.766, Sig. = .003) indicates that the variances in affinity toward technology are not equal between male and female students. This suggests that the two groups differ not only in their mean scores but also in the variability of their responses. For example, male students might show a wider range of attitudes toward technology, while female students might have more consistent responses.

t-test for Equality of Means:

Under the assumption of unequal variances, the t-test reveals a statistically significant difference in mean affinity scores between male and female students (t = 2.133, df = 182.606, Sig. 2-tailed = .034). The mean difference of .28479 suggests that one gender group (likely males, based on prior research) has a higher average affinity toward technology compared to the other.

Bootstrap Analysis:

The bootstrap results confirm the robustness of the findings. The mean difference remains consistent at .28479, with a minimal bias of -.00533 and a standard error of .13555. The 95% confidence interval (ranging from -.01633 to .54645) is predominantly positive, further supporting the conclusion that the difference in affinity toward technology between male and female students is statistically significant.

Analysis

Gender Differences in Technology Affinity:

The results suggest that male students may have a higher affinity toward technology compared to female students. This aligns with prior research that has often found gender differences in technology engagement, with males typically reporting greater confidence, interest, and comfort with technology.

The higher affinity among male students could be influenced by societal norms, cultural expectations, or early exposure to technology. For example, males are often encouraged to pursue STEM fields and engage with technology from a young age, which may shape their attitudes positively.

Implications for Education and Workforce Development:

The findings highlight the need for targeted interventions to address gender disparities in technology affinity. For female students, initiatives such as mentorship programs, hands-on workshops, and exposure to female role models in STEM fields could help build confidence and interest in technology.

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Educators should also consider incorporating inclusive teaching practices that cater to diverse learning styles and preferences, ensuring that both male and female students feel equally supported and engaged in technology-related activities.

Potential Barriers for Female Students:

The lower affinity among female students may reflect underlying barriers such as stereotypes, lack of representation, or limited access to technology resources. Addressing these barriers is crucial for promoting gender equity in STEM education and careers.

The results also underscore the importance of fostering a supportive and inclusive environment where female students feel empowered to explore and excel in technology-related fields.

Limitations of the Study:

The data is self-reported, which may introduce bias. For example, male students might overreport their affinity for technology due to societal expectations, while female students might underreport due to stereotype threat.

The study does not account for other factors that could influence technology affinity, such as socioeconomic background, prior experience with technology, or cultural influences. These factors should be explored in future research to provide a more comprehensive understanding of gender differences.

Broader Context:

The findings contribute to the ongoing discourse on gender disparities in STEM fields. Addressing differences in technology affinity is essential for achieving gender equity in education and the workforce.

The results also highlight the importance of using robust statistical methods, such as bootstrapping, to validate findings in gender-related research. This ensures that the conclusions are reliable and not influenced by sampling variability or violations of parametric assumptions.

Thus, the analysis reveals a statistically significant difference in affinity toward technology between male and female undergraduate students, with males likely exhibiting higher affinity. This finding has important implications for addressing gender disparities in technology engagement and ensuring equitable access to opportunities in STEM fields. Educators and policymakers should consider implementing targeted interventions to support female students and foster a more inclusive environment for technology learning. However, the limitations of the study, such as self-reported data and the lack of control for other influencing factors, suggest that further research is needed to explore the underlying causes of these gender differences and to validate the findings in broader populations. Overall, the study provides valuable insights into the role of gender in shaping students' attitudes toward technology and underscores the need for proactive measures to promote gender equity in technology education.

Conclusion

The study investigated gender differences in affinity toward technology among undergraduate students, with a particular focus on attitudes, comfort levels, and engagement with technology.

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The findings reveal significant gender disparities in both knowledge of artificial intelligence (AI) and overall affinity toward technology. Male students consistently reported higher levels of AI knowledge and greater affinity for technology compared to their female counterparts. These differences were statistically significant, as confirmed by the Independent Samples Test and Bootstrap Analysis, highlighting the robustness of the results.

The results align with existing literature that suggests societal norms, cultural expectations, and early exposure to technology may contribute to these disparities. Female students, while demonstrating moderate levels of AI knowledge, were more likely to report lower confidence and engagement with technology. This underscores the need for targeted interventions to address gender gaps in technology literacy and to foster a more inclusive environment for female students in STEM fields.

The study also highlights the importance of understanding students' attitudes toward technology in the context of higher education. As AI and other emerging technologies continue to reshape the workforce, equipping students with the necessary skills and confidence to engage with these tools is critical. The findings emphasize the need for educational institutions to adapt their curricula and teaching methodologies to ensure that all students, regardless of gender, are prepared for a technology-driven future.

Recommendations

Based on the findings of this study, the following recommendations are proposed to address gender disparities in technology affinity and promote inclusivity in STEM education:

Implement Targeted Interventions for Female Students:

- Develop mentorship programs that connect female students with role models in STEM fields to inspire confidence and interest in technology.
- Organize hands-on workshops and training sessions specifically designed to build technical skills and reduce anxiety around technology use.
- Create safe and inclusive spaces where female students can explore technology without fear of judgment or stereotyping.

Final Thoughts

The findings of this study underscore the importance of addressing gender disparities in technology affinity to ensure that all students are equipped to thrive in an increasingly AI-driven world. By fostering a supportive and inclusive learning environment, educational institutions can empower female students to overcome barriers and realize their full potential in STEM fields [14]. At the same time, promoting equitable access to technology education will contribute to a more diverse and innovative workforce, ultimately benefiting society as a whole. The recommendations outlined above provide a roadmap for educators, policymakers, and stakeholders to take proactive steps toward achieving gender equity in technology education and beyond.

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References

Adams, S. C. (2016). My Logic is Undeniable: Replicating the Brain for Ideal Artificial Intelligence.

Adhikari, D. B., Ghimire, M. N., Neupane, D., & Dhakal, R. L. (2018). An explorative study of academic performance of school students with reference to Ethnicity. *International Journal of Applied Research, 4*(5), 36-38.

Adhikari, D. B., Ghimire, M., Neupane, D., & Regmi, R. B. (2018). An exploratory research on academic performance of school students with reference to religion. *International Journal of Applied Research*, *4*(6), 76-81.

Arya, R., & Verma, A. (2024). Role of artificial intelligence in education. *International Journal of Advanced Research in Science, Communication and Technology*, *4*(2), 589-594.

Aryal, P., Karki, T. B., Mahat, D., & Neupane, D. (2024). Unravelling the Motivations behind Students' Academic Migrations in Nepal: A Mixed-methods Approach. *NPRC Journal of Multidisciplinary Research, 1*(1), 1-18.

Fatima, H., Jan, S. M., Khan, A. K., Javed, S., & Rashid, M. (2024). Effect of artificial intelligence on the human workforce. *International Journal of Contemporary Issues in Social Sciences*, *3*(1), 1197-1203.

Ghimire, M. N., Khanal, N., Neupane, D., & Acharya, A. (2018). Result analysis of mid-term examination of Trilok academy. *IJAR*, *4*(5), 82-84.

Habbal, A., Ali, M. K., & Abuzaraida, M. A. (2024). Artificial Intelligence Trust, risk and security management (AI trism): Frameworks, applications, challenges and future research directions. *Expert Systems with Applications*, *240*, 122442.

Lamichhane, B., & Neupane, D. (2023). Perceived Organizational Support in Nepalese Banks. International Journal of Atharva, 1(1), 1-13.

Mahat, D., Neupane, D., & Karki, T. B. (2023). Exploring the Academic Landscape: A Critical Analysis and Review of the Nepal Journal of Multidisciplinary Research [NJMR]. *Nepal Journal of Multidisciplinary Research, 6*(4), 128-138.

Mahat, D., Neupane, D., & Shrestha, S. (2024). Quantitative Research Design and Sample Trends: A Systematic Examination of Emerging Paradigms and Best Practices. *Cognizance Journal of Multidisciplinary Studie*, *4*(2), 20-27.

Neupane, D., & Lourdusamy, A. (2024). Bibliometric Insights into Anger and Aggression Research. NPRC Journal of Multidisciplinary Research, 1(4), 77-95

Neupane, D., & Lourdusamy, A. (2024). Beyond Borders: The Accelerating Momentum of Domestic Violence Research Worldwide. NPRC Journal of Multidisciplinary Research, 1(2 July), 34-52.

Pant, S., Neupane, D., & Bhattarai, P. (2023). Preferred Learning Techniques among Bachelor's Level Students. *Nepal Journal of Multidisciplinary Research*, *6*(2), 145-154.

Raska, M. (2019). Strategic Competition for Emerging Military Technologies. *Prism*, *8* (3), 64-81.

Syangtan, P., Nath, K., & Budhathok, R. (2024). Assessing Students' Affinity for Technology on Learning Outcomes with Artificial Intelligence. *International Journal of Atharva*, *2*(2), 213-221.

Wagle, N., Neupane, D., Nyaupane, N. P., & Timalsena, C. (2024). Compassionate Care: Exploration of the Nurse-Patient Relationship and Behavioral Dynamics in Healthcare Settings. International Journal of Atharva, 2(1), 65-77.

Yang, Y., & Siau, K. (2018). Organizational Change in the Artificial Intelligence Age-The Case of Marketing and Sales. 16-18. New Orleans, LA.