Uses of Meta Technology among Higher Education Students

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In higher education, this is clear when some students can afford tools like VR headsets, AI learning platforms, or fast internet, while others cannot. Differences in income and infrastructure make it hard for some students to fully participate in technology-enhanced learning. Students from low-income families, rural areas, or developing countries often struggle to access the technology needed for academic success. Although meta-technology aims to make education more accessible, its benefits are often limited to students with the financial resources or those living in areas with strong digital infrastructure. This prevents meta-technology from reaching its full potential for everyone and can increase inequality instead of reducing it.

Another challenge is the rapid growth of technology. Tools like AI and VR hold great promise, but they are advancing faster than schools and universities can keep up. Many teachers are not trained to use these technologies effectively, and students may lack the digital skills needed to navigate them. This creates a gap between what the technology can do and how well it is used in classrooms. Keeping up with new technology is also difficult due to the need for significant investment in infrastructure and training. Using meta-technology in education requires more than just buying new software or hardware—it also involves continuous support, updates, and training. For many institutions, especially in developing countries or those with limited budgets, keeping up with these demands is challenging. This leads to a gap between what technology can offer and what is possible in practice.

Meta-technology is a modern concept that goes beyond individual technologies, referring to the broader systems, frameworks, and processes that allow various technologies to grow, connect, and improve. Unlike specific tools like phones, software, or machines that focus on particular tasks, meta-technology works at a higher level. In essence, it's the "technology of technology,"

Meta-technology refers to the systems and processes that support other technologies.

It helps different tools and technologies connect and work together.

Examples include the augmented reality and artificial intelligence, which provide the foundation for many applications.

Meta-technology also introduces new teaching challenges. The traditional role of teachers as the main source of knowledge is changing as AI can provide personalized learning, VR offers immersive experiences, and cloud platforms provide vast amounts of information. This shift raises important questions about the role of teachers in a tech-driven classroom. Meta-technology challenges traditional ways of testing students. In a digital classroom, where students may use AI for assignments or simulations to learn practical skills, standard tests may not accurately reflect their understanding. This forces educators to rethink how they assess students and track their progress.

Engaging and motivating students is another reason why meta-technology is important in higher education. Traditional classrooms often struggle to engage students, especially those used to interactive and visually rich environments. Meta-technology, such as VR and AR, offers more immersive and engaging learning experiences. Research shows that students using meta-technology are often more motivated and engaged. For example, VR can make abstract concepts more understandable by allowing students to explore scientific ideas or historical events in ways that textbooks cannot. AI-driven platforms can also keep students engaged by offering

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personalized challenges based on their learning pace. However, relying too much on technology can also lead to distractions and shorter attention spans. Students might become overly dependent on technology, expecting it to provide answers without critically engaging with the material. This raises concerns about finding a balance between using technology to enhance learning and ensuring that students still develop essential thinking skills. The challenges of using meta-technology in higher education are complex and stem from several factors. These include the transition to digital learning, unequal access to technology, rapid technological advancements, and ethical concerns around privacy. While meta-technology has great potential to improve education, addressing these challenges is crucial to make sure its benefits reach all students and improve learning outcomes.

Research Questions-

What is the use of meta technology between male and female students of higher education students?

What is the use of meta technology between undergraduate and postgraduate students?

What is the use of meta technology between professional and non-professional courses?

Objectives-

To compare the uses of meta technology between male and female students of higher education students.

To compare the uses of meta technology between undergraduate and postgraduate students.

To compare the uses of meta technology between professional and non-professional courses.

Hypotheses-

There is a significant difference in the use of meta technology between male and female students.

There is a significant difference in the use of meta technology between undergraduate and postgraduate students.

There is a significant difference in the use of meta technology between professional and non-professional courses.

On the basis of reviews, it is clear that, the production of new knowledge is generally dependent on previous knowledge, proving that the literature reviews are the practice papers that ensure the success of a researcher by giving several kinds of research designs, sampling techniques, statistical procedures, questionnaires and process of presenting, analysing and interpreting data from the research problem. The reviews done by the researcher shows that the path of meta technology therefore, researcher intends to study the challenges faced by the student, teachers etc. literature review is not just a descriptive test of the material available or a set of summaries; it is a laborious task but very essential if the research process is to be successful. It has been observed that very few researches have been conducted on meta-technology and higher education students. In India most of the research concentrated mainly on the meta technology. Thus, the researcher felt a need to conduct research on uses of meta-technology among higher education students.

The population was higher education students of the University of Allahabad in Prayagraj. A sample of 150 students was taken from students enrolled in undergraduate and postgraduate in both general and professional courses by stratified random technique.

The tools played an important role in any of the research studies as they were beneficial in collecting and analyzing the data for drawing significant conclusion. Here, the researcher used “self-constructed tool. The data from present study was collected from the higher education students of University of Allahabad.

The researcher was applied the t-test for the data analysis.

Ho (1)-There is no significant difference in the use of meta technology between male and female student of higher education students.

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Table-4.1-t-test for uses of meta technology between male and female students of higher education students.

Variable	N	Mean	Std. deviation	Standard Error	t ratio	Sig.
Male	70	33.89	4.148	0.496	0.690	Not significant
Female	80	34.35	4.066	0.455		

*at 0.05 level

As noticed in the above table, the calculated value of t-test i.e., .496 is less than the table value 1.96 at .05 level of significance, therefore null hypothesis "There is no significance difference in the uses of meta technology between male and female students" is **not rejected**

The mean score of male students is 33.89 which is less than mean score of female teachers i.e., which shows that female uses more meta technology than male.

Ho (2) - There is no significant difference in the use of meta technology between undergraduate and postgraduate students.

Table 4.2- t-test for uses of meta technology between undergraduate and postgraduate students.

Course type	N	Mean	Std. Deviation	Std. Error Mean	t ratio	Sig.
Undergraduate	80	34.63	3.895	.436	1.569	Not significant
Postgraduate	70	33.57	4.275	.511		

*at 0.05 level

As noticed in the above table, the calculated value of t-test i.e., 1.579 is less than the table value 1.96 at .05 level of significance, therefore null hypothesis "There is no significance difference in the uses of meta technology between undergraduate and postgraduate course" is **not rejected**.

The mean score of undergraduate course students is 34.63 which is greater than mean score of postgraduate course students i.e., 33.57, which shows that undergraduate course students use more meta technology than postgraduate course students.

Ho (3) - There is no significant difference between the uses of meta technology between professional and non-professional courses.

Table 4.3 t-test for uses of meta technology between professional and non-professional courses.

Field type	N	Mean	Std. Deviation	Std. Error Mean	t ratio	Sig.
Professional	75	33.97	4.211	.486	.477	Not significant
Non- Professional	75	34.29	4.003	.462		

*at 0.05 level

As noticed in the above table, the calculated value of t-test i.e., .477 is less than the table value 1.96 at .05 level of significance, therefore null hypothesis "There is no significance difference in the uses of meta technology between Professional and non-Professional field students" is **not rejected**.

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The mean score of professional field students is 33.97 which is less than mean score non-professional field students i.e., 34.29 which shows that Professional field students use more meta technology than non-Professional field students.

Major Findings-

There is no significant difference in the use of meta technology between male and female student of higher education students.

There is no significant difference in the use of meta technology between undergraduate and postgraduate students.

There is no significant difference between the uses of meta technology between professional and non-professional courses.

DISCUSSION

The findings of the study revealed that there is no significant difference in the use of meta-technology between male and female students of higher education. This suggests that gender does not play a major role in influencing how students engage with meta-technology. Both male and female students seem to have similar access to, familiarity with, and attitudes toward the use of such technologies in their academic and personal activities. This result aligns with recent research trends, which indicate that the digital gender gap is narrowing among younger, educated populations due to increased exposure to technology from an early age.

Similarly, the study found no significant difference in the use of meta-technology between undergraduate and postgraduate students. This indicates that the level of education (undergraduate vs postgraduate) does not significantly affect how students utilize meta-technological tools. One possible explanation for this result could be the widespread integration of technology in all levels of higher education. Today, both undergraduate and postgraduate curricula heavily incorporate digital tools, e-learning platforms, virtual reality experiences, and collaborative software, which might have contributed to the similar usage patterns observed.

Additionally, there was no significant difference in the use of meta-technology between students enrolled in professional courses (such as engineering, medicine, or law) and those in non-professional courses (such as humanities or social sciences). This finding suggests that regardless of the field of study, students equally recognize the importance of meta-technology for academic and professional development. It also highlights the growing interdisciplinary role of technology across various domains, making digital literacy a core skill needed by all students, irrespective of their specialization.

Overall, these results emphasize the universal nature of meta-technology adoption among higher education students. Factors such as gender, level of study, and type of course do not significantly influence usage patterns, suggesting a broad acceptance and normalization of technology in modern academic environments. It highlights the success of initiatives aimed at promoting digital inclusion and underscores the need for continued support to maintain equal access and opportunities for all students.

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