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Analysis of Digital Competency among Male and Female Teachers of Higher Education

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Abstract- The study underscores the importance of fostering a culture of lifelong learning among educators and students. Digital competency is not a static skill but a dynamic process that requires continuous updating and adaptation. Higher education institutions should promote a growth mindset, encouraging faculty to embrace new challenges, seek professional development opportunities, and stay curious about emerging technologies. By cultivating a culture of lifelong learning, institutions can create resilient, adaptable educators who are well-equipped to navigate the complexities of a digital world.

Keywords- Digital Competence, Higher Education, ICT, Teachers, Digital Tool.

I. Introduction

The rapid digitalisation of education systems worldwide has highlighted a critical need for educators to acquire essential competencies that facilitate the effective integration of technology into teaching and learning practices. This transformation is particularly evident in higher education, where the widespread implementation of ICT solutions is significantly improving access, quality, and innovation. To equip faculty for success in technology-rich classrooms, it is vital to foster a thorough understanding of the theoretical frameworks that shape digital competencies, drive transformative change, and guide professional development initiatives. This section explores key theories related to competence development, technology adoption, learning mechanisms, and teaching styles in the context of teaching; competence encompasses subject matter expertise, pedagogical know-how, classroom management, and assessment abilities crucial for facilitating learning. Competence development theories posit that proficiencies evolve through stages and are contingent on personal as well as environmental factors.

Digital competency is a multifaceted skill set that encompasses various components essential for thriving in the modern digital world. From information literacy and communication to safety, ethics, and adaptability, these elements collectively empower individuals to use technology responsibly and effectively. As technology continues to evolve, cultivating digital competency is not just a choice but a necessity for personal, educational, and professional success. By embracing lifelong learning and promoting ethical behaviour, individuals can contribute to a more inclusive, secure, and innovative digital society.

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Thermotical Prospectives

1. Significance of Digital Competency

Digital competency, often referred to as digital literacy or digital skills, has become a cornerstone of modern society. In an age where technology permeates every aspect of life—work, education, healthcare, entertainment, and communication—the ability to effectively navigate and utilise digital tools is not just a convenience but a necessity. Digital competency encompasses a wide range of skills, including the ability to use devices and software, critically assess online information, collaborate in virtual environments, ensure online safety, and create digital content. Its significance lies in the transformative impact it has on individuals, organisations, and societies, enabling them to thrive in the digital age.

One of the most profound implicationns of digital competency is its role in enhancing employability. In today's job market, digital skills are a prerequisite for most roles, regardless of the industry. From basic proficiency in using office software to advanced capabilities like coding, data analysis, and digital marketing, the demand for digitally competent professionals is at an all-time high. Employers value individuals who can adapt to new technologies, solve problems efficiently, and contribute to innovation. Moreover, digital competency allows workers to upskill and reskill, ensuring they remain relevant in a rapidly evolving job landscape. This is particularly critical in a world where automation and artificial intelligence are transforming traditional roles, necessitating new ways of thinking and working.

Education is another domain where digital competency plays a pivotal role. The integration of technology into classrooms has revolutionised teaching and learning processes, making education more accessible, engaging, and personalised. Students equipped with digital skills can access vast resources online, collaborate with peers globally, and develop critical thinking by evaluating diverse perspectives. For educators, digital competency enables the design of innovative teaching methodologies, such as flipped classrooms and blended learning models, which cater to varied learning styles. Furthermore, during crises like the COVID-19 pandemic, digital literacy proved indispensable as remote learning became the norm, highlighting the necessity of bridging digital divides to ensure equitable access to education.

Digital competency also fosters social inclusion by bridging gaps in communication, knowledge, and opportunities. In an increasingly connected world, individuals with digital skills can participate fully in civic and social activities. From accessing government services online to engaging in social movements through digital platforms, the ability to use technology empowers people to have a voice and make an impact. For marginalised communities, digital literacy can serve as a tool for breaking barriers and offering access to education, healthcare, and economic opportunities that were previously out of reach. However, achieving this requires addressing disparities in access to technology and internet connectivity, which remain significant challenges in many parts of the world.

The importance of digital competency extends to personal development and well-being. In everyday life, digital skills enable individuals to manage finances, shop online, stay informed, and maintain social connections. With the growing prevalence of digital health technologies, such as telemedicine and fitness apps, digital literacy is essential for monitoring health and making informed decisions. At the same time, critical awareness of online risks, such as misinformation, cyberbullying, and identity theft, is integral to ensuring a safe and positive digital experience. Digital competency thus includes not only technical skills but also ethical and emotional intelligence, allowing individuals to navigate the digital world responsibly and confidently.

For organisations, digital competency is a key driver of productivity and innovation. Businesses that embrace digital transformation can streamline operations, reach broader audiences, and adapt to market trends more effectively. Employees with digital skills contribute to this transformation by leveraging technology to optimise workflows, analyse data, and enhance customer experiences. Furthermore, organisations that prioritise digital upskilling foster a culture of continuous learning and adaptability, which is crucial for staying competitive in dynamic markets. Governments and public institutions, too, benefit from digital literacy, as it enables efficient delivery of services, improved transparency, and greater citizen engagement.

From a societal perspective, digital competency is vital for fostering economic growth and addressing global challenges. In the digital economy, nations with a digitally skilled workforce are better positioned to innovate, attract investment, and drive development. For instance, industries like e-commerce, fintech, and artificial intelligence rely heavily on a foundation of digital skills to thrive. Moreover, digital literacy is crucial for addressing pressing issues such as climate change, public health crises, and social inequality. By leveraging technology, societies can develop solutions to complex problems, enhance collaboration across borders, and build more sustainable and inclusive futures.

However, the journey toward universal digital competency is not without obstacles. Digital divides—stemming from disparities in access to technology, education, and resources—pose significant barriers. While urban areas often enjoy high-speed internet and cutting-edge devices, rural and underserved regions may lack basic connectivity. Addressing these disparities requires a multifaceted approach, including investments in infrastructure, affordable access to technology, and targeted educational initiatives. Additionally, promoting digital literacy involves more than teaching technical skills; it requires fostering critical thinking, creativity, and ethical awareness to ensure technology is used for positive purposes.

Another challenge lies in keeping pace with the rapid evolution of technology. The digital landscape is constantly changing, with new tools, platforms, and threats emerging regularly. As a result, digital competency is not a static skill set but a lifelong learning process. Educational institutions, employers, and governments must collaborate to create opportunities for continuous learning, ensuring individuals and organisations can adapt to new technologies and remain resilient in the face of change. In conclusion, digital competency is a cornerstone of modern life, enabling individuals, organisations, and societies to navigate and thrive in a technology-driven world. Its significance spans diverse domains, from enhancing employability and transforming education to promoting social inclusion and driving economic growth. While challenges like digital divides and the rapid pace of technological change persist, addressing these issues through collaborative efforts and strategic investments can unlock the full potential of digital literacy. By fostering a digitally competent population, we can build a more inclusive, innovative, and resilient future where technology serves as a tool for empowerment and progress.

Implications of Digital Competency

Digital competency refers to the knowledge, skills, and attitudes required to effectively and responsibly use digital technologies for various purposes, such as communication, problem-solving, information retrieval, and creation. In today's rapidly evolving digital age, the implications of digital competency span across individual, societal, and global levels, influencing education, the workplace, social interactions, and cultural developments. This essay explores these implications in detail, highlighting how digital competency shapes our world and what challenges it presents.

Digital competency has revolutionised the education sector, reshaping how knowledge is delivered, acquired, and assessed. In modern classrooms, teachers and students alike rely on digital tools such as e-books, interactive whiteboards, learning management systems, and virtual reality simulations. These technologies facilitate personalised learning experiences, allowing educators to tailor lessons to individual needs and learning styles. For instance, platforms like Khan Academy and Coursera enable students to access high-quality educational content from anywhere in the world, bridging gaps in access to resources. Moreover, digital competency empowers learners to critically evaluate online information. In an era where misinformation spreads rapidly, the ability to discern credible sources from unreliable ones is essential. Students equipped with digital literacy skills can navigate the vast sea of online data, developing critical thinking and research abilities. However, the digital divide—a disparity in access to technology—remains a significant challenge, potentially exacerbating educational inequalities between different socioeconomic groups.

Digital competency profoundly influences social interactions and cultural developments. Social media platforms, for example, have become central to how people connect, share ideas, and participate in communities. While these platforms offer opportunities for global communication and cultural exchange, they also pose challenges related to privacy, cyberbullying, and echo chambers that reinforce biased perspectives. Culturally, digital technologies facilitate the preservation and dissemination of heritage and traditions.

Virtual museums, digital archives, and online storytelling platforms enable communities to share their history and culture with a global audience. At the same time, the digital age has given rise to new forms of expression, such as digital art, memes, and video blogging, enriching the cultural landscape. The implications of digital competency also extend to political engagement and activism. Digital platforms empower citizens to voice their opinions, mobilise for causes, and hold authorities accountable. Movements like #BlackLivesMatter and Fridays for Future demonstrate the power of digitally competent individuals to drive social change. However, the misuse of digital platforms for spreading propaganda, hate speech, and fake news underscores the need for ethical digital practices.

On an individual level, digital competency enhances personal development by enabling access to diverse resources and opportunities. People can pursue online courses, join virtual communities, and explore creative outlets, fostering self-improvement and lifelong learning. Digital tools also support mental health and well-being through applications that offer mindfulness exercises, therapy sessions, and health tracking. However, excessive reliance on digital technologies can lead to negative consequences, such as screen addiction, reduced face-to-face interactions, and a diminished ability to focus. Striking a balance between digital and offline activities is crucial for maintaining overall well-being. Moreover, digital competency involves understanding digital etiquette and ethical responsibilities, such as respecting intellectual property and protecting one's digital footprint.

Globally, digital competency plays a pivotal role in addressing pressing challenges and advancing sustainable development. For instance, digital technologies support efforts to combat climate change through tools like satellite monitoring, predictive analytics, and renewable energy management systems. Similarly, digital platforms facilitate global collaboration in research, innovation, and problem-solving. In healthcare, digital competency enables telemedicine and electronic health records. Ensuring equitable access to digital tools and skills remains a critical priority to prevent widening the gap between developed and developing nations.

The implications of digital competency are far-reaching, influencing every aspect of modern life. From education and the workplace to social interactions and global challenges, digital competency empowers individuals and societies to thrive in a technology-driven world. While it presents challenges such as inequality, ethical dilemmas, and rapid technological change, these can be addressed through collective efforts to promote inclusivity, responsibility, and continuous learning. By embracing digital competency, we can unlock its full potential to create a more connected, innovative, and equitable world.

Status of Digital Literacy Among Faculty

For teachers, it encompasses technical fluency in using ICT tools as well as integration into instructional designs and administrative tasks (Ng, 2012). Global surveys have reported varying technology proficiency among higher education faculty contingent on demographic, infrastructural, and attitudinal factors.

In Australia, a large-scale study found over 80% of university teachers used basic tools like presentations, videos, and email, but innovative adoption was limited (Buchanan et al., 2013). Significant differences based on age, gender, and discipline were also noted in skills and usage. Institutional policies, technology access, and peer usage predicted integration instead of pure competence. Bennett & Bennett (2003) also stated that support structures like training and incentives, rather than mere availability, shaped actual technology-enabled pedagogy.

Investigations in Turkey highlighted young male faculty in technical subjects as most technology proficient, while arts, language, and aged teachers faced challenges (Karatas, 2014; Yukselturk& Bulut, 2009). Findings emphasised that tailored development initiatives addressing unique needs and attitudes can promote capability building. In Hungary, Koltói et al. (2019) concluded that the majority of faculty possessed basic digital skills, but innovative instructional usage was inadequate for 21st-century learner needs. Infrastructural barriers, lack of institutional vision, and training opportunities were cited as gaps impeding integration.

In the Indian context, Raman &Pappula (2020) indicated moderate technology usage confined mainly to presentations and administrative tasks rather than transformative adoption to elevate learning efficacy. Reluctance to change, limited infrastructure, and the absence of technology policies were noted as roadblocks that called for concerted efforts to upskill faculty, especially in rural settings (MHRD, 2016). Investigations also noted variances in digital proficiency based on age, teaching experience, exposure to formal training, and subjects handled (Shah &Empunthu, 2018). Thus, tailored, context-specific policies aligned to needs can boost digital literacy amongst diverse faculty groups.

While basic digital skills are moderately developed, effective technology integration into teaching-learning practices remains inadequate in most higher education systems. Comprehensive initiatives addressing access, infrastructure, competencies, attitudes, and leadership are advocated in the literature for mainstreaming usage and optimising affordances. Sustained efforts focused on instructional technologies rather than generically improving proficiency can transform academic practices.

Digital Divide in Education

Inequities in digitalisation can exacerbate existing disparities in opportunities and outcomes, especially in the education sector (Vignare, 2007). Key aspects like infrastructure availability, technology integration, faculty preparedness, and student support determine the nature of dividends accruing from technological interventions.

In the case of higher education, differences arise from the uneven penetration of digital platforms and tools across regions and universities (Salemink et al., 2017). Rural institutions especially struggle with bottlenecks like poor internet, budget constraints, limited devices, and a lack of technical teams, impeding large-scale adoption (Kumar & Daniel, 2019). Consequently, students from lower-income backgrounds or remote areas frequently encounter barriers to leveraging online programs (Galperin et al., 2019). Further outcome gaps have widened since the pandemic-induced shift, as affordances available via virtual platforms typically map economic privilege.

Faculty readiness and attitudes additionally shape the success of technology-enabled education. Studies have revealed lower perceptions of digital skills and self-efficacy among women and older adults, which affects progressive application (Koh & Abbas, 2015). Even with supportive infrastructure, individual hesitations limit transformation. Targeted interventions that accommodate diversity in experience, outlook, and competencies through training and exemplars can hence overcome intrinsic impediments (Kopcha, 2012). Collaborative networks for mutual mentoring are also advocated for sustainable change (Gunn et al., 2020).

Bridging these digital discrepancies calls for coordinated efforts and equitable resource allocation, amplifying access of disadvantaged groups to avenues for upgrading technology capabilities and specialised support, and fostering perseverant usage (Renzo, 2021). Government and institutional policies must thus consciously embed principles of inclusion and collective development in technology implementation roadmaps focused on learner empowerment.

Government Initiatives and Reforms Related to Digital Skills

The Government of India has recognised technology integration as crucial for improving access, inclusion, and excellence in the education system. Key policy documents emphasise developing digital infrastructure, upskilling faculty and administrators, and preparing students to thrive in connected ecosystems (Kasinathan, 2021).

Efforts are underway in public institutions to automate functions, install enterprise solutions, and offer online programs, mainstreaming technology affordances. Financial aid also assists rural /remote colleges in upgrading infrastructure, periodically narrowing disparities.

Centrally funded schemes further aim to build educators' technology capacities through training in areas like e-learning tools, instructional designs, development of e-content, standards, and quality evaluation (MHRD, 2020). Workshops, hands-on sessions, and access to reference e-resources offer continued assistance in fostering application in academics and administration. Still, preparedness levels display wide variance (Bhaskaran &Govindarajalu, 2021). Customisation addressing unique contexts and positive nudges for progressive adoption are warranted for pervasive change (Davis et al., 2022).

More recently, the pandemic response has expanded digitalisation through policies supporting blended learning, digital content creation, and competency evaluation frameworks (Kasinathan, 2021). Partnerships with ed-tech providers have enabled rapid adaptation. Guidance documents also showcase technology-enabled best practices for continued enhancement post-pandemic (UGC, 2020). Still, holistic realisation calls for cooperation from all stakeholders in collectively steering the digital transformation.

Digital Competency in Higher Education

As per Calvani et al. (2009), digital competence in teachers encompasses technical-procedural skills and cognitive-ethical capabilities that shape effective application in pedagogic contexts. Building technological capacities along with instructional skills is vital for a transformative teaching-learning environment, as echoed by Rahimi et al. (2015).

In higher education, technology proficiency influences not only adoption decisions but also innovation of tools, pedagogies, and learning designs leveraging emerging technologies (Tømte et al., 2019). Educators require a range of competencies - from basic operational skills to high-level abilities- to design digital solutions that integrate technology successfully (Krumsvik, 2014). Researchers have identified a lack of technology-focused training and support, challenging faculty preparedness to respond to 21st-century imperatives (Kalloo & Mohan, 2012).

As per Gay (2016), limited access and infrastructure often impede meaningful technology integration, while attitudes and beliefs significantly shape teachers' practices. Thus, there is a need for the sustained development of digital competence to improve self-efficacy. Institutional policies rarely mandate technology skill upgradation, resulting in ad hoc efforts and exacerbating disparities across disciplines (Hatlevik, 2017). Targeted interventions that accommodate diversity and nurture networks for sharing best practices are advocated as potential remedies.

Integrating technology effectively also requires dynamic curricula, learner-focused methods, and Continuous evaluation (Prasojo et al., 2019). Mishra & Deepak (2018) have highlighted inadequate teacher skills in exploiting technology for instruction as a key barrier, emphasising integrated development of technological-pedagogical competencies. Bryndum (2020) further called for whole-institutional approaches guided by a comprehensive digital strategy aligned with learning objectives. Such concerted initiatives can enhance sustainable uptake, leveraging the latest affordances. While literature identifies positive links between educators' digital literacy and student outcomes, including engagement, performance, and satisfaction, few have examined specific competencies (Willermark, 2018). Scaled surveys assessing the efficacy of faculty training programs are also limited. Thus, evidence-based policymaking suffers owing to a lack of connection between real competencies and application in academic contexts (Prasojo et al., 2021). Contextual investigations can inform targeted capacity-building, marching ground realities.

Technology integration in higher education necessitates comprehensive policies and programs supporting the continuous development of multifaceted digital competence among faculty. Beyond the availability of infrastructure, institutional efforts must address skills, attitudes, and culture for improved teaching and administration. Structure collaborations, pedagogical innovation networks, and regular assessment of training impacts can drive sustainable change.

Role of Digital Technology in Education

Today, technology is ubiquitous, and using technological tools in pedagogical practices has become increasingly important. The role of technology integration in education is not just to make students digitally competent but also to enhance the learning process (Morgan, 2018). Advancing technology in the field of instructional aids has shown enhanced learning and teaching experiences. According to Kalolo (2019), technology-enhanced learning contributes to improvement in education quality. Interactive technologies in education stimulate engagement and motivation to learn and provide ease of access to the world of information (Mbaeze & Ukwueze, 2020).

These not only assist individual as well as collaborative learning but also aid student assessment by generating actionable insights. As opined by Scott (2016), technology plays a pivotal role in constructing knowledge, learning about learning, and developing learning-to-learn skills. It increases engagement, authenticity, and personalisation of the learning process. Social aspects of digital learning also enable continuous communication between instructors and learners (Chen et al., 2019). As per Zawacki-Richter et al. (2020), online technology allows increased flexibility, saves costs, and reaches diverse learners, accelerating the quality of higher education.

Several studies note that effective technology integration must move from traditional teacher-directed pedagogy to student-centred approaches that foster critical thinking, self-expression, and creativity.

(Fu, 2013; Ghavifekr & Rosdy, 2015). Hsu (2016) stated that technology-supported education leads to knowledge growth and application only when accompanied by well-designed instructional strategies. Effective use of technology is therefore reliant on teachers' pedagogical competencies along with the ability to engender digitally enriched active learning (Angeli &Valanides, 2020).

In a rapidly evolving environment, there is continuous pressure to develop technology-based instructional designs and dynamic curricula and promote learning anytime, anywhere (Brun & Hinostroza, 2014). Studies indicate that sustained use of emerging technologies, in tandem with active pedagogies that promote problem-solving, communication, collaboration, and critical thinking, enhances academic outcomes (Harper & Milman, 2016). In effect, technology opens new pathways for flexible learning tailored to diverse generational needs. However, these are contingent upon well-trained and continually supported faculty with a progressive outlook as they shape adoption and application within institutions (Rupp et al., 2019). Hence, nurturing digital proficiency and promoting technology-enabled engagement becomes a key role in teacher preparation initiatives and ongoing professional development programs (Martin et al., 2019).

Operational Definitions of Key Terms

Digital Competency

Digital competency refers to the ability to use digital tools and technologies effectively to perform tasks, solve problems, and communicate in a digitally-driven world. This includes a broad range of skills, from basic knowledge of using computers and software to more advanced skills like digital literacy, and navigating complex online platforms.

Higher Education Teachers

Higher education teachers play a vital role in shaping the intellectual and professional capabilities of students, preparing them for the challenges of the real world. Unlike educators in primary and secondary schools, their responsibilities extend beyond teaching to include research, curriculum development, and mentoring. They facilitate deep learning by encouraging critical thinking, fostering innovation, and promoting intellectual curiosity. Higher education teachers use advanced teaching methodologies, such as case studies, group discussions, and problem-solving exercises, to engage students in active learning. They also emphasise the application of theoretical knowledge in real-life scenarios, bridging the gap between academia and industry.

Research Objectives

1. To study Digital Competency between Male and Female Teachers of Higher Education.
2. To study Digital Competency between Urban and Rural Locality Teachers of Higher Education.
3. To study Digital Competency between Science and Arts Group Teachers of Higher Education.

4. To study Digital Competency between Self-Finance and Aided Teachers of Higher Education.

Hypothesis

By the research questions and objectives, we proposed the following research hypotheses:

1. There is no significant difference in Digital Competency between Male and Female Teachers of Higher Education.
2. There is no significant difference in Digital Competency between Urban and Rural Locality Teachers of Higher Education.
3. There is no significant difference in Digital Competency between Science and Arts Group Teachers of Higher Education.
4. There is no significant difference in Digital Competency between self-finance and Aided Teachers of Higher Education.

• Delimitations of the study

The present research work has certain delimitations.

- The study is delimited to only the Degree colleges affiliated with MJP Rohilkhand University, Bareilly.
- The study is delimited to only 600 Higher Education Teachers affiliated with MJPRU Bareilly.

II. Review of Literature

Studies Conducted In India

- **Srivastava Shipra, Dangwal Kiran Lata (2021).** Digital Competence: Where Do the Higher Education Teachers Stand? This paper was published in the Universal Journal of Educational Research; she describes how Higher education is becoming more digitalised through the use of digital tools and technology for assessment, teaching-learning, and educational administration. Research as well as extension initiatives. Therefore, the study examines the degree of digital competency among 450 instructors in higher education and determines their proficiency in various characteristics of digital proficiency. Results showed that in the study's higher education instructors, just 8.44% of respondents had an intermediate level of digital competency. Teachers in higher education possess a high degree of proficiency in using digital tools.
- **Gupta and Singh (2019)** researched “The competency of teacher educators and student teachers towards E-learning tools.” The Teacher Education Institutions (TEIs) offering B.Ed. The researchers chose programmers in Delhi-NCR using the cluster sampling approach. The study included a sample of 129 teacher educators and 1,268 student teachers. The competency scale that the researchers created to evaluate the competence of teacher educators and student teachers served as the study tool. Using percentage analysis, the data was quantitatively examined. The study's results showed that the dimensions of basic computer proficiency, basic online competency, advanced computer competency, and advanced internet competency are where teacher educators excel. According to the study's findings, very little advanced internet competency—which is also thought to constitute the usage of eLearning tools—is present.

- **Rajeswaran (2019)** worked on "Lack of digital competence: the hump in a university-English for specific purpose-classroom." Data for the study were acquired through informal interviews, questionnaires, and observation. Twenty teachers and the first 35 years of engineering students (B. Tech courses) in the age range of 18 to 20 comprised the remaining 120 respondents. The study found that although the students are theoretically capable of using mobile learning, they still require instructor supervision to manage their distractions and focus their learning.
- **Agrawal and Mittal (2018),** in their research paper 'Multidisciplinary Higher Education, Research, Dynamics and Concepts: Opportunities and Challenges for Sustainable Development,' have analysed the role of ICT in higher education, particularly the twenty-first-century educational scenario. According to them, ICT is considered to be a change agent for education. With the help of ICT, several teaching-learning-related applications of ICT like audio-visual aids, CDs, Computers, Electronic boards, Agrawal and Mittal think that these applications help enhance the inner abilities of the learners, develop and manage the content matter, and cater to the educational needs of learners and teachers, which are widely spread through teaching with less investment. The paper concludes that it is only with the help of ICT that real educational quality improvement can be achieved.
- **P. Mathupandi R. Annadurai (2018)** A study of Teaching competency among B.Ed. Training. The purpose of the study was to determine the level of teaching proficiency among B.Ed. Trainees in a few Tamil Nadu districts. A sample of 1050 B.Ed. Trainees were chosen using cluster sampling techniques. The findings indicated that there is no noteworthy disparity in B.Ed. Trainees' preparation based on gender and teaching competency. Student location, family type, marital status, place of residence, college location, type of Internet, browsing habits, college type, and a smartphone with an internet connection in their mobile, WhatsApp, and Facebook accounts. However, regarding their email as a medium of instruction ID, there are no appreciable differences in the B.Ed. Trainees' presentations of their teaching competencies based on their gender, location, family type, residence, college type, browsing habits, internet, and smartphone with an internet connection in their WhatsApp account, Facebook account, and mobile device. However, there is a notable distinction in instruction. Competency: B.Ed. Trainees' presentation about their marital status, medium of instruction, and email address.
- **Hussain et al. (2017)** pointed out that the digitisation of management or governance processes may play an equally effective role in universities in their article on the practice of e-governance in Indian higher education. E-governance has been partially adopted at certain institutions, particularly in the admissions and exam divisions. The institutional readiness and general climate in the Indian affiliated institutions are favourable for the implementation of e-governance at various levels. As a tool for contributing to processes of good governance and accountability and as a method to collaborate, share resources, co-produce, co-act, and engage in activities that benefit all, digital inclusion in higher education is urgently needed.

Studies Conducted Abroad

Castaño Muñoz, J., Pokropek, A., &WeikertGarcía, L. (2022): This study investigated the usage of the SELFIE diagnostic tool for evaluating schools' digital capacity among over 400 institutions across Spain. They found prioritisation of SELFIE tied to principal digital competence levels, suggesting top-down leadership as an important implementation factor influencing adoption.

- **Artacho et al. (2021)** conducted a study on ―teachers' perceptions of digital competence at the lifelong learning stage‖. One hundred forty instructors were selected for the study's sample using the convenience sampling approach. The findings indicated that instructors are performing at a poor level. The research also identified the significance of age, teacher preparation, and school type in furthering the development of digital competency abilities.
- **Kozuh et al. (2021)** worked on the fourth industrial revolution and the digital competencies of teachers. Changes in teacher basic education and professional progress are necessary for the fourth industrial revolution's new era. Serbia is a developing nation with technologically undeveloped educational institutions, and its progress towards digitalisation is still insufficient to catch up to the advanced Western nations. Scaling and the descriptive approach were employed. During the academic year 2019– 20, the study was carried out in the Republic of Serbia with a sample of 500 respondents. There were two phases of the research.
- **Artacho (2020)** focused on teacher training in lifelong learning and the importance of digital competence in the encouragement of teaching innovation. A quantitative and transversal work design with a cross-cutting technique was employed. Teachers from different public lifelong learning institutions in the autonomous community of Andalusia, Spain, made up the majority of the population. Techniques for stratified random sampling were used. One hundred forty-two teachers from various schools in Andalusia, Spain, comprised the sample. The tool made use of an ad hoc questionnaire based on already-existing digital teacher competency factors. The Likert-type instrument scale has 10 answer possibilities, with one meaning "never" and 10 meaning "always." In the first quarter of 2019, data was gathered utilising a Google form. The study's findings showed that the teaching community had a poor degree of digital competency.

- **Guillén-Gámez, F. D., & Mayorga-Fernández, M. J. (2020):** This research used regression modelling to identify predictors of Spanish university faculty's self-reported competence and usage patterns across various digital technologies like the LMS, office software, web conferencing tools, and social networks grounded in the Dig -Comp framework.
- **Diaconu, M., Racovita, L. D., Carbonero Muñoz, D., & Faubert, S. J. (2020):** This study investigated barriers social work faculty face regarding technology integration for instruction and research, which inhibit efforts to bolster student abilities in online service delivery. Findings reflected institutional obstacles around access, along with negative attitudes, low motivation, and conflicts with traditional pedagogies requiring targeted interventions.
- **Ardiç, Ö., & Çiftçi, H. (2019):** This study examined the ICT competencies and training needs of English language instructors in Turkey about factors like gender, teaching institution, and years of experience. The findings showed variation in competencies across instructor groups, with higher confidence for basic ICT skills compared to advanced integration abilities. Females expressed lower confidence despite equal access.

- **Barendsen, E., & Bruggink, M. (2019):** This report discussed the need to move beyond basic digital literacy towards advanced computational thinking abilities in the Dutch education system to fully leverage the potential of technology for learning activities. It highlighted implications for teacher skills and pre-service education.
- **Education and Training Foundation (2019):** This guide put forth the Digital Teaching Professional Framework adopted in the UK, outlining expected digital knowledge, skills, and attributes across five areas – teaching, workload, management, analytical, and student support capabilities – for different instructor proficiency levels to support training initiatives.
- **European Union (2018):** This policy brief describes key competencies citizens require for personal development, social inclusion, active civic participation, and employment, with digital competence highlighted as a transversal skillset enabling advancement across other areas. Explicit integration into lifelong education is presented as imperative.
- **Gudmundsdottir and Hatlevik (2018)** performed research on newly qualified teachers' professional digital competence and its implications for teacher education. Teachers' professional digital competence is becoming more and more crucial in the classroom as digital resources and media become an integral component of teachers' day-to-day work. The project investigates how initial teacher education (ITE) prepares newly trained teachers to use information and communication technology (ICT). Norwegian student teachers receive their training in classrooms where the curriculum calls for the development of students' digital abilities. The study's findings were used based on responses to a national survey given to recently certified instructors. The study's initial phase involved calling school administrators countrywide to get the names of their newly eligible students and related e-mail addresses. Only 925 of the 1016 total samples were valid. TNS Gallup collected the data between early November 2013 and mid-December 2013. The second phase was sending a questionnaire to the 925 newly certified instructors' email addresses exclusively. According to the study's findings, more than 80% of the instructors believed that ICT was beneficial.
- **Guillen-Gamez et al. (2018)** carried out their research on the actual use of digital competence in the practicum of an education degree. The sample is not probability-based. One hundred sixty-six prospective instructors made up the sample, and 108 of them completed the 39 items on the questionnaire. An introductory part of generic questions, including age, gender, degree of motivation in teaching practice, and level of perceived digital proficiency, was also included in the questionnaire. The Likert scale has five points. After the academic year 2016–17, the tool was utilised for a single class period. The study's findings revealed that there are no discernible disparities in the age groups of prospective tech users when it comes to their actual usage of their digital competence during their practicum for their education degree.
- **Kuzminshka (2018)** stated the ' digital competence of the students and teachers in Ukraine: measurement, analysis, and development prospects.' The research was a cross-sectional study. The population consisted of workers, teachers, and higher education students from a variety of disciplines, including math and informatics, humanitarian specialisations, rights and law, and medical and veterinary science, among others. One hundred ninety-three instructors and pupils from Ukrainian

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educational institutions made up the sample. The degree of digital proficiency among the instructors and pupils was above average. The availability of technical means, gender, and age do not significantly differ from one another.

A central theme is the lack of consensus around conceptual clarity and measurement approaches for digital competence despite strong advocacy regarding its importance (Gallardo-Echenique et al., 2015). Terms like technology integration skills, computer literacy, and information literacy are often used interchangeably, denoting overlapping facets. Proposed models also operationalize components differently, but in detail study about higher education in the Rohilkhand region are not available.

III. Research Methodology

A quantitative technique has been adopted for the current study. The survey approach under the "Descriptive Method of Research" is employed to carry out the present study after taking the study's goals into account.

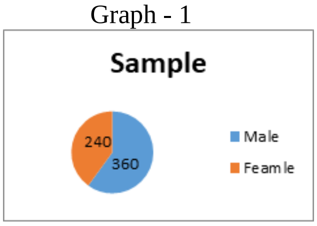
Population
MJPRU University, located in Uttar Pradesh (U.P.), has been chosen. In research, a population is a collection of people who share at least one trait that sets them apart from other groups. The current study's population is heterogeneous, meaning that every item in the population shares a different attribute. All the 5,670 Teachers of Self-finance Colleges and 1232 Teachers of Aided and Government colleges affiliated with MJPRU Bareilly, U.P. (MJP2023) make up the study's population.

Procedure of Sample Selection
A sample size of 600 teachers would be selected using a two-stage stratified random sampling technique, with proportionate allocation based on institutional type, gender, locality, and disciplinary streams. Such a sampling approach ensures representative coverage of the diverse subgroups within the population, enabling meaningful comparisons and generalizations. The data collection and analysis procedures would be designed to maximize reliability, validity, and adherence to ethical norms. The findings would have significant implications for faculty development policies, digital literacy programs, and pedagogical innovations in the higher education landscape of the Rohilkhand region.

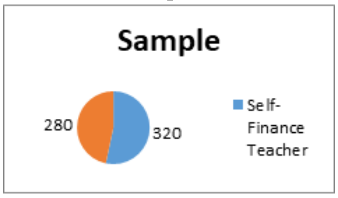
Table -1

Male	Female	Self-Finance Teacher	Aided Teachers	Urban Teacher	Rural Teacher	Science Teacher	Art Teacher
360	240	320	280	340	260	350	250

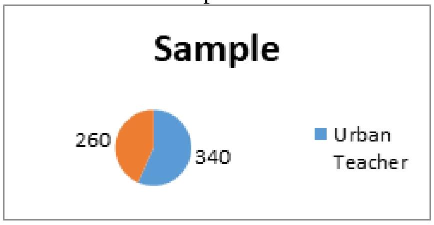
Graph - 1



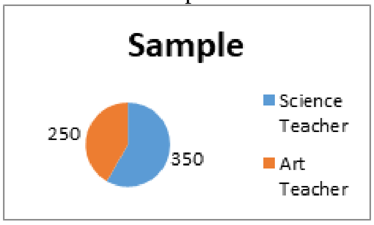
Graph - 2

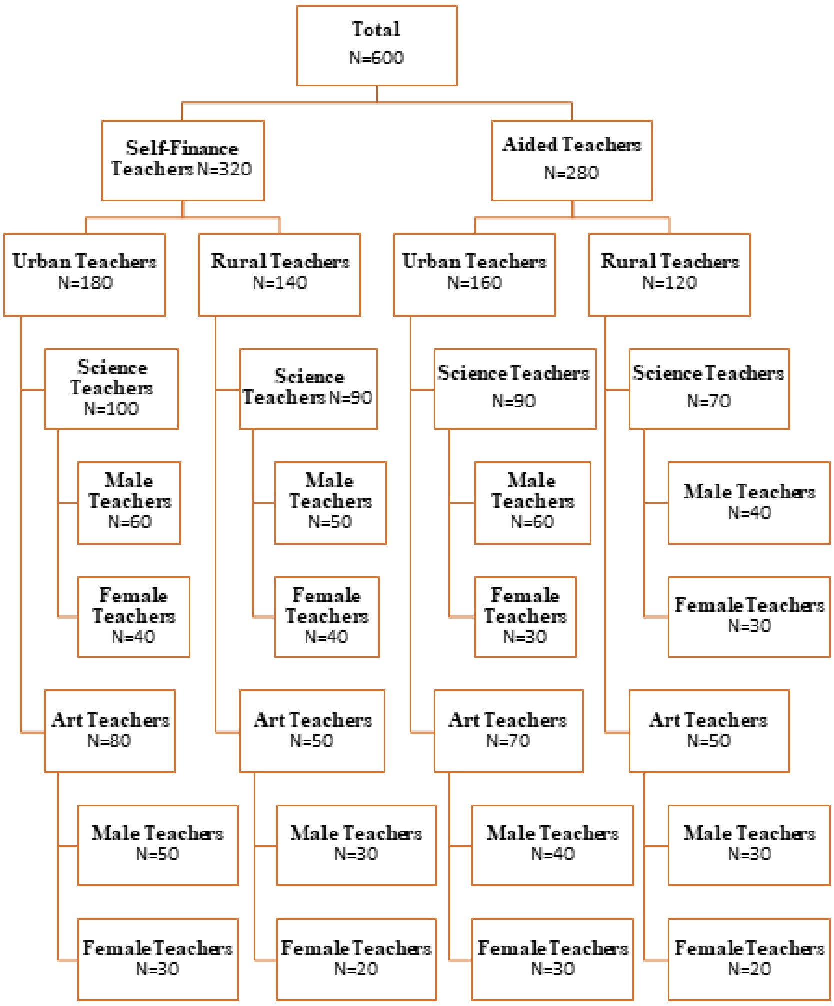


Graph -3



Graph – 4





Variables of Study

Variables of study are key elements in research that can change or vary. They are the building blocks of a study and are used to measure or assess outcomes and relationships within the research. Variables are categorized into different types based on their roles and characteristics:

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Independent Variable

The variable is manipulated or controlled by the researcher to observe its effect on the dependent variable.

Male and Female Teacher
Art and Science Teachers
Rural and Urban Teachers

Dependent Variable

The variable that is measured or observed in response to changes in the independent variable.
Digital Competency

Research Tools

Digital Competency: - Shipra Srivastava and Kiran Lata Dangwal (Published by NPC Agra)

IV. Data Collection

For the present study, Analysis of Digital Competency among Male and Female Teachers of Higher Education, the primary method of data collection is through the administration of questionnaires to the selected sample of 600 college teachers in the Rohilkhand region. Questionnaires are a popular and efficient means of collecting large amounts of structured data from diverse respondents in a standardized and replicable manner (Gillham, 2008). They allow for the quantification of variables, comparison of groups, and testing of hypotheses using statistical techniques.

Analysis and Interpretation of Data

How data is interpreted can significantly impact the conclusions drawn from a study. Therefore, researchers must approach the interpretation process with caution, ensuring that they are not overgeneralizing or making unwarranted claims based on the data. Interpretation should be grounded in the data itself, with researchers offering explanations that are supported by evidence rather than speculation.

The analysis and interpretation of data are essential components of the research process. While analysis involves the systematic examination of data to identify patterns, relationships, and trends, interpretation focuses on making sense of these findings in the context of the research question. Both stages require skill, attention to detail, and a solid understanding of the methods and tools available to researchers. By combining rigorous analysis with thoughtful interpretation, researchers can generate meaningful insights that contribute to knowledge, inform decisions, and guide future research. Through this process, data is transformed from raw numbers or observations into valuable information that advances understanding in various fields.

Table 4.1
Digital Competency between Male and Female Teachers of Higher Education as determined by mean, standard deviation, and T-value

Teachers	N	Mean	S.D.	t-value	Table Value of ‘t’

Male	360	37.43	8.79	0.98	No Significant
Female	240	36.72	8.82		

Interpretation: -
Table 4.1 Male teachers' mean of 37.43 and a standard deviation of 8.79. Female Teachers' mean was 36.72, and the standard deviation was 8.82. The t-value of both groups is 0.98. The t-value is less than the value of both the significance levels. Digital competency among male and female teachers in higher education refers to the ability to effectively use digital tools and technologies for teaching, learning, and administrative purposes. As the global education landscape continues to evolve, digital competency has become essential for educators, influencing their ability to adapt to modern teaching practices, engage students, and manage their professional duties.

The differences in digital competency between male and female teachers can be attributed to various factors such as access to technology, training opportunities, cultural norms, and individual preferences. Historically, male teachers have often been perceived as more comfortable with technology due to societal stereotypes that associate men with technological proficiency. This belief may have led to greater encouragement and support for male educators to adopt and master digital tools. On the other hand, female teachers, particularly in certain regions, may have faced challenges in acquiring the same level of technological expertise.

These barriers could stem from limited access to digital resources, fewer opportunities for professional development in technology, or cultural expectations that prioritize other roles for women. However, studies suggest that the gap in digital competency between male and female teachers is narrowing as women increasingly engage with technology in educational settings. Female educators have demonstrated strong adaptability and creativity when integrating digital tools into their teaching.

For instance, female teachers are often found to use digital technologies to create interactive and student-centered learning environments, fostering collaboration and engagement. Many women in academia are also actively contributing to the development of online learning platforms and digital pedagogies, showcasing their technological competence and leadership in the digital education sphere. Another factor influencing digital competency is the type of subjects taught. Male teachers are often more prevalent in STEM (Science, Technology, Engineering, and Mathematics) fields, where the use of digital tools is often integral to the curriculum. As a result, male teachers in these disciplines may naturally develop stronger digital competencies.

Female educators, especially in non-STEM fields, may not always have the same exposure to digital technologies in the same capacity. However, this is changing as technology continues to infiltrate all areas of education. Training and professional development also play a crucial role in bridging the gender gap in digital competency. When both male and female teachers have equal access to high-quality training, they are more likely to develop the skills necessary to navigate the digital landscape. Initiatives that focus on empowering female educators, providing mentorship opportunities, and offering tailored digital training can help ensure that all teachers, regardless of gender, are equipped with the tools they need to succeed in the digital age.

Graph 4.1

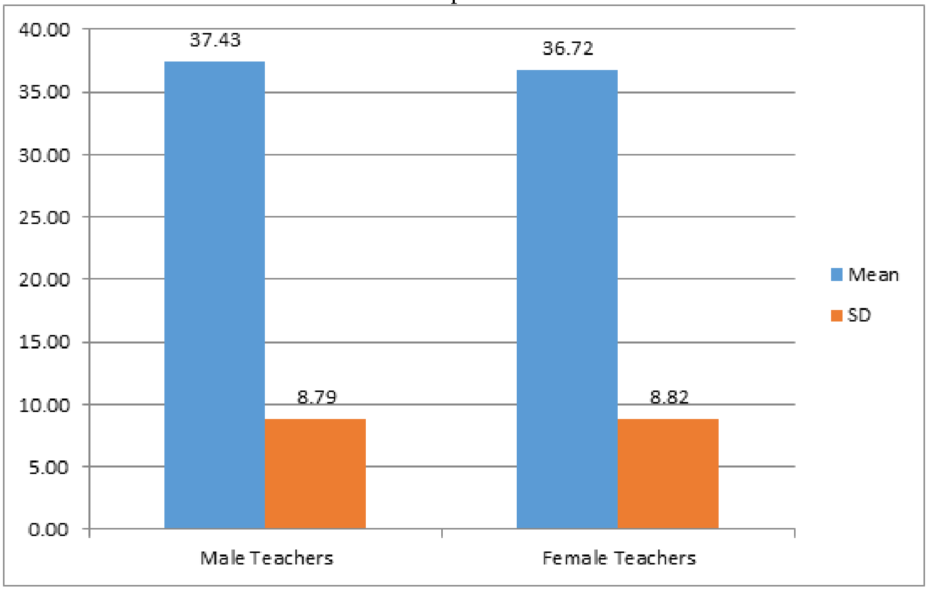

Table 4.2

Digital Competency between Urban and Rural Locality Teachers of Higher Education as determined by Mean, standard deviation, and T-value

Teachers	N	Mean	S.D.	t-value	Table Value of 't'
Urban	340	37.25	8.86	0.48	No Significant
Rural	260	36.90	8.71		

Interpretation: -

Table 4.2 Urban Locality teachers' mean of 37.25 and a standard deviation of 8.86. Rural Locality Teachers' mean of 36.90 and a standard deviation of 8.71. The t-value of both groups is 0.48. The t-value is less than the value of both the significance levels. Digital competency among teachers in higher education is an essential factor in shaping the future of education in both urban and rural areas. As the digital age continues to evolve, educators must be equipped with the necessary skills to integrate technology into their teaching practices effectively.

The disparity in digital competency between urban and rural locality teachers can have profound implications for the quality of education, the accessibility of resources, and the overall development of students. Urban teachers often benefit from a more developed digital infrastructure, including high-speed internet, access to modern digital tools, and consistent training opportunities. These advantages provide them with the resources to incorporate technology seamlessly into their lessons. Urban schools tend to have more robust professional development programs, often hosted by educational institutions or tech companies, which further enhance teachers' digital skills.

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As a result, urban teachers are better positioned to utilize digital platforms to create interactive and engaging learning experiences. They can incorporate multimedia resources, online collaboration tools, and other educational technologies to meet diverse student needs, fostering an inclusive and modern learning environment. On the other hand, teachers in rural areas face several challenges that hinder their digital competency. Limited access to reliable internet, outdated technological infrastructure, and fewer opportunities for professional development are significant barriers to integrating technology into their teaching practices.

In many rural areas, internet connectivity is either slow or intermittent, making it difficult for teachers to access online resources, engage in virtual classrooms, or keep up with digital trends. Moreover, rural teachers may not have the same exposure to the latest teaching tools and methods, as the focus tends to be on traditional face-to-face learning techniques. Consequently, these teachers may struggle to utilize digital tools effectively, impacting the quality of instruction they can provide to students.

The gap in digital competency between urban and rural teachers has wider implications for educational equity. Students in urban areas often have access to a wider range of digital learning resources, such as online courses, educational apps, and interactive platforms, which enhances their learning experience. In contrast, rural students may face limitations due to their teachers' lack of digital expertise and the lack of access to digital tools. This inequality in digital learning opportunities can contribute to an achievement gap between urban and rural students, perpetuating disparities in educational outcomes.

Graph 4.2

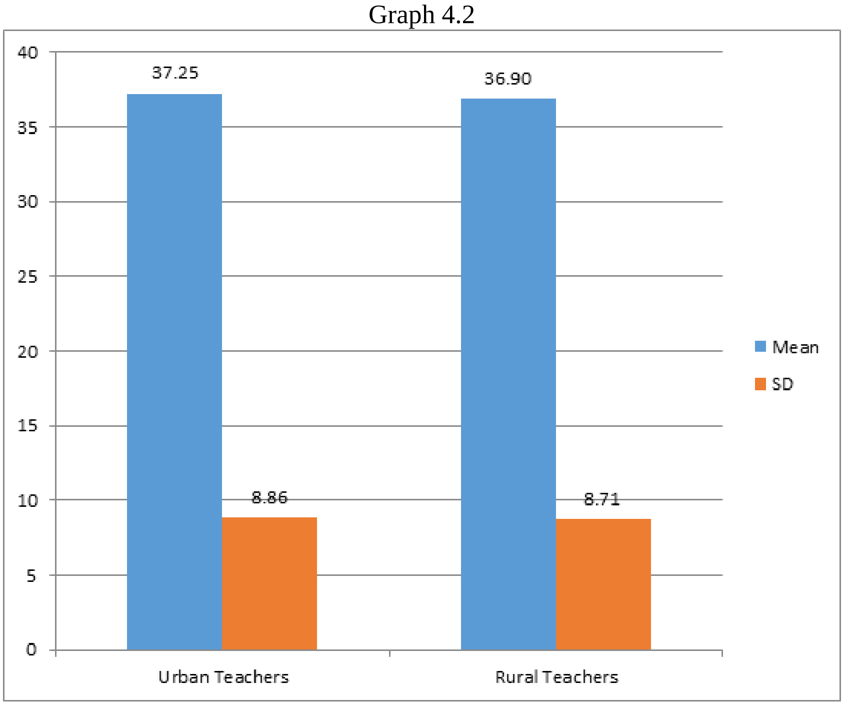

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Table 4.3
Digital Competency between Science and Arts Group Teachers of Higher Education as determined by mean, standard deviation, and T-value

Teachers	N	Mean	S.D.	t-value	Table Value of 't'
Science	350	36.92	8.81	0.08	No Significant
Arts	250	36.86	8.62		

Interpretation: -Table 4.3 Science Group teachers' mean of 36.92 and a standard deviation of 8.81. Arts Group Teachers' Digital Competency means 36.86 and a standard deviation of 8.62. The t-value of both groups is 0.08. The t-value is less than the value of both the significance levels. Digital competency is becoming increasingly important in higher education, especially among teachers in both the science and arts groups. As digital technologies continue to evolve, educators must acquire a range of skills to integrate these tools effectively into their teaching practices.

This competency not only involves understanding the basic technical aspects of digital tools but also the ability to use them in a pedagogically sound manner that enhances learning and teaching. In higher education, where teaching styles and subject matter vary significantly between disciplines like science and the arts, the application of digital competency takes different forms but shares common elements. For science group teachers, digital competency often involves the use of specialized tools and software that support scientific research, data analysis, and simulations.

These educators need to be proficient in tools for data collection, statistical analysis, and creating interactive simulations that facilitate a better understanding of complex scientific concepts. Moreover, they must be adept at using platforms for collaborative research, online labs, and virtual experiments that replicate real-world scientific environments. In this context, digital competency extends beyond basic knowledge of technology to include a deep understanding of how digital tools can advance scientific inquiry and support the development of critical thinking skills in students. In contrast, arts group teachers may focus on digital tools that help in the creative process, such as design software, digital art platforms, and multimedia tools. Their digital competency is likely to include proficiency in software for graphic design, video production, and other forms of digital creativity.

The challenge for arts educators is not just knowing how to use these tools but also understanding how digital technology can inspire new forms of artistic expression and enhance the interpretative and analytical skills of students. For example, art teachers might use digital storytelling, virtual galleries, or collaborative platforms to help students explore creative concepts and share their work with a wider audience. Digital competency, therefore, in the arts requires a balance between technical skill and a conceptual understanding of how digital media can shape and expand artistic practice. While there are differences in how digital competency manifests in the science and arts disciplines, both groups of teachers share a need to embrace digital learning environments that offer flexibility and accessibility. The use of learning management systems (LMS), online courses, and digital communication platforms has become a

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universal requirement. Both science and arts educators need to engage with these systems for administrative tasks, course design, and student engagement

Graph 4.3

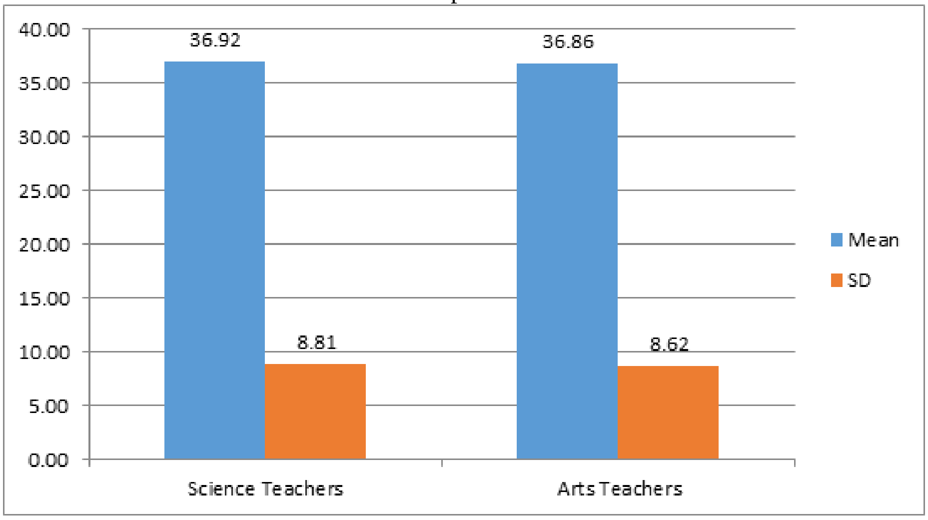

Table 4.4
Digital Competency between Self-Finance and Aided Teachers of Higher Education as determined by mean, standard deviation, and T-value

Teachers	N	Mean	S.D.	t-value	Table Value of 't'
Self-Finance	320	37.36	8.66	1.18	No Significant
Aided	280	36.53	8.72		

Interpretation: -

Table 4.4 Self-finance teachers' mean of 37.36 and a standard deviation of 8.66. Aided Teachers' mean of 36.53 and a standard deviation of 8.72. The t-value of both groups is 1.18. The t-value is less than the value of both the significance levels. Digital competency in the context of higher education is an essential aspect of teaching and learning, especially in the modern era, where technology plays a pivotal role in shaping the educational experience. This competency can be broadly defined as the ability to use digital tools and resources effectively to enhance teaching, learning, and administrative tasks.

It involves not only technical skills but also a deeper understanding of how technology can be integrated into pedagogical practices, foster collaboration, and engage students in more meaningful ways. When examining the digital competency between self-financed and aided teachers of higher education, it is important to recognize the distinct challenges and opportunities each group faces. Self-financed teachers typically work in institutions that operate on a more independent financial model. These institutions often

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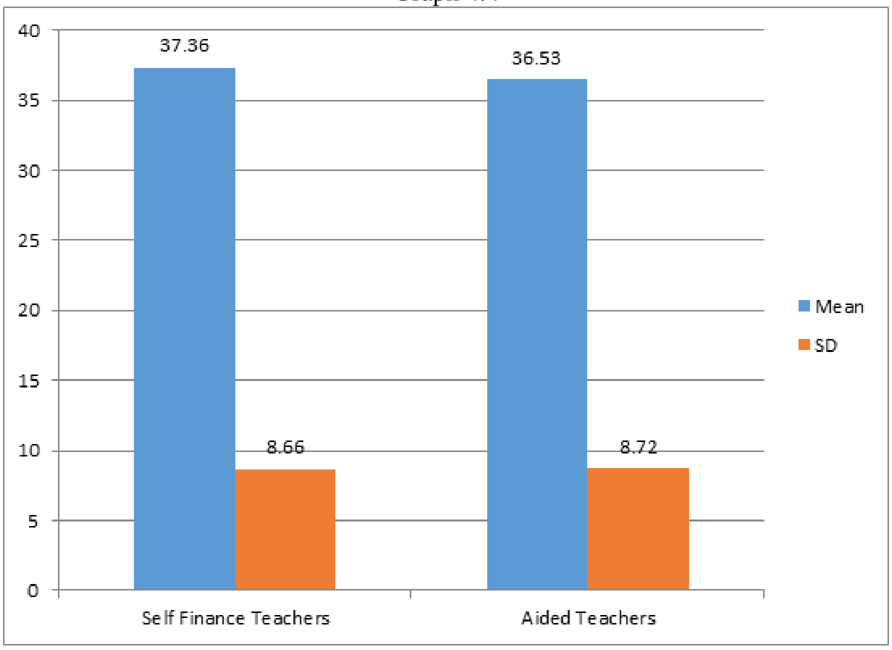
have limited funding for technological upgrades and professional development programs.

As a result, self-financed teachers may face difficulties in accessing the latest digital tools, training, and infrastructure needed to develop and improve their digital competencies. They might have to rely more on their initiative to explore digital resources, attend online courses, or engage with online communities to enhance their skills. Despite these challenges, self-financed teachers are often more adaptable and resourceful, given the need to make the most of available resources. They are also more likely to use digital tools creatively to overcome institutional limitations, such as using open-source software, free online platforms for teaching, or social media to engage students.

On the other hand, aided teachers—those employed at government-funded institutions—often have access to more resources and structured professional development opportunities. These institutions typically receive funding from the government or other public bodies, which may allocate specific budgets for upgrading digital infrastructure, training faculty, and promoting e-learning initiatives. As a result, aided teachers may have better access to modern digital tools and may benefit from institutional support to enhance their digital competency. Aided teachers, however, might benefit from structured institutional frameworks but could find themselves less motivated to embrace unconventional teaching methods due to a more rigid teaching structure. Nonetheless, both groups recognize the importance of digital competence in preparing students for the increasingly digital world, and both groups must strive to bridge any gaps in training, infrastructure, and access to technology.

Graph 4.4



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V. Analysis Of Hypothesis

- **Hypothesis - 1: -**
- In this study, the researcher has studied Table 4.1, which compares the Digital Competency between Male and Female Teachers of Higher Education by showing the mean, standard deviation, and t-value. The t-value of both groups is 0.98. Research indicates that both male and female educators face similar expectations and challenges regarding technology integration in teaching, including adapting to e-learning platforms, leveraging digital tools to enhance student engagement, and staying updated with emerging technological trends.

This parity can be attributed to the standardization of digital skill training during teacher education and ongoing professional development, where gender does not determine access or aptitude. Furthermore, societal shifts toward gender equality and women's increased representation in higher education have created environments where female teachers have equal opportunities to develop and demonstrate digital competencies. Studies show that when exposed to the same technological resources and training, male and female teachers perform comparably in implementing digital tools effectively. It is also worth noting that individual factors such as interest, experience, and willingness to adapt often have a more significant impact on digital competency than gender.

Thus, the perceived parity in digital competency aligns with the broader trend of diminishing gender gaps in professional capabilities, particularly in domains influenced by systematic interventions and equal opportunities. In higher education, where digital pedagogy is a critical component, male and female educators are often equally skilled in leveraging technology to support learning outcomes, emphasizing the irrelevance of gender as a determinant of digital proficiency in this context.

Hypothesis - 2: -

- In this study, the researcher studied Table 4.2, which compares the digital competency between urban and rural locality teachers of higher education by showing the mean, standard deviation, and t-value. The t-value of both groups is 0.48. While urban teachers may have greater access to advanced infrastructure, rural teachers often demonstrate resilience and adaptability in leveraging available resources to develop their digital skills. Programs such as online teacher training modules, e-learning platforms, and digital literacy workshops have enabled educators in both urban and rural settings to acquire similar levels of technological proficiency. Moreover, the push toward digital transformation in education, particularly post-COVID-19, has compelled teachers across localities to upskill and integrate technology into their teaching practices.

Secondly, teacher attitudes and motivation play a critical role in shaping digital competency. Studies suggest that self-driven learning and professional development often compensate for infrastructural disparities. Rural teachers, despite potential limitations, frequently demonstrate a strong commitment to professional growth, seeking out online resources and training to enhance their teaching methods. Urban teachers, while benefiting from advanced technological exposure, face unique challenges such as larger student populations and diverse learning needs, which can limit their time for individual upskilling.

As a result, the levels of digital competency may converge, reflecting not just access but also personal and institutional commitment to professional excellence. Additionally, higher education institutions often implement uniform standards for digital competency, ensuring that educators, regardless of their location, meet similar benchmarks. Centralized training programs, standardized assessments, and collaborative platforms provide opportunities for rural and urban teachers to share knowledge and resources. Peer learning and virtual communities also play a vital role in democratizing access to information and support, further narrowing the gap. However, it is important to acknowledge that challenges persist. Urban teachers may have an edge in exposure to cutting-edge technologies and institutional support, while rural teachers might face infrastructural limitations and logistical barriers.

Despite this, the concerted efforts by governments, educational bodies, and non-governmental organizations to prioritize digital equity have yielded significant results. The narrowing disparity highlights the adaptability of educators and the evolving landscape of digital education. In conclusion, while contextual differences in access and resources exist, the overall digital competency of teachers in higher education from urban and rural localities appears comparable due to targeted interventions, self-motivation, and institutional frameworks. This parity underscores the effectiveness of policies aimed at fostering digital literacy and the shared commitment of educators to quality teaching.

- **Hypothesis - 3: -**

In this study, the researcher has studied Table 4.3, which compares the Digital Competency between Science and Arts Group Teachers of Higher Education by showing the mean, standard deviation, and t-value. The t-value of both groups is 0.08. Both Science and Arts educators must be adept at integrating digital tools into their pedagogy, not as a supplementary skill but as a core aspect of modern education. The uniformity in digital competency can be attributed to the similar demands placed on educators in these groups, as both are required to use digital platforms for virtual classrooms, digital resources, research collaboration, and administrative tasks.

Furthermore, institutional initiatives often standardize training programs and resources for faculty members across disciplines, fostering equivalent levels of digital fluency. While it might be assumed that Science teachers, due to their technical inclination, have an advantage in adopting technology, Arts educators often demonstrate equal proficiency through creative applications of digital tools for critical analysis, multimedia projects, and cultural studies. Moreover, the difference in digital competency diminishes as higher education institutions prioritize professional development and ensure access to technological resources for all faculty members. Research also suggests that the motivation to learn and apply digital skills is influenced more by institutional culture, policy, and individual adaptability than by disciplinary background.

However, subtle variations may still exist in the specific tools and methods preferred by Science and Arts educators, reflecting the diverse nature of their subject matter. For example, Science teachers might lean more on simulation software or data analysis tools, while Arts teachers might utilize digital storytelling platforms or graphic design tools. Yet, these differences do not necessarily imply a disparity in overall digital competency but rather a contextual application of similar skill sets. This convergence highlights the importance of cross-disciplinary collaboration and knowledge sharing, enabling educators to broaden their technological horizons.

- **Hypothesis - 4: -**

In this study, the researcher studied Table 4.4, which compares the digital competency between Self-financed and aided teachers of higher education by showing the mean, standard deviation, and t-value. The t-value of both groups is 1.18. Both self-financed and aided teachers are often subject to similar professional demands, expectations, and exposure to technological advancements. Institutions, irrespective of their funding models, typically mandate the use of learning management systems, virtual classrooms, and digital communication tools, ensuring that educators across both categories have access to similar resources and training opportunities. Teachers from both self-financed and aided institutions often participate in workshops, webinars, and certification programs to enhance their digital skills, driven by personal and professional aspirations to remain relevant in the evolving educational ecosystem.

Additionally, younger generations of educators, regardless of their institutional affiliation, are generally more tech-savvy due to their early exposure to digital tools. Institutional policies also play a role in bridging any potential gap, as most higher education institutions prioritize the standardization of digital practices to ensure consistency in teaching quality. Peer learning and collaboration among educators further reduce disparities in digital competency. In terms of challenges, self-financed teachers may face financial constraints, while aided teachers might encounter bureaucratic hurdles; however, these factors do not significantly impact their ability to acquire and apply digital skills. Research studies and surveys often reflect these trends, highlighting that both groups of teachers demonstrate comparable levels of proficiency in using technology for educational purposes. This parity underscores the universal nature of digital competency as an essential skill set for educators, transcending differences in employment categories.

RESULTS

1. There is no significant difference in Digital Competency between Male and Female Teachers of Higher Education.
2. There is no significant difference in Digital Competency between Urban and Rural Locality Teachers of Higher Education.
3. There is no significant difference in Digital Competency between Science and Arts Group Teachers of Higher Education.
4. There is no significant difference in Digital Competency between self-finance and Aided Teachers of Higher Education.

VI. Educational Implications of the Study

The findings from the research on "The Impact of Digital Competency on Professional Development and Teaching Style in Higher Education" hold significant implications for education systems, educators, policymakers, and institutions. This section explores how the study's outcomes can inform educational practices and strategies to enhance teaching quality and professional growth.

- One key implication is the need for institutions to identify and address the digital competency gaps among faculty members. As digital technologies continue to evolve, educators must be equipped with the skills to integrate these tools effectively into their teaching practices. Professional development programs should be designed to provide tailored training that meets the diverse needs of instructors, focusing on both technical skills and pedagogical strategies for technology integration. Institutions can establish digital competency frameworks that align with global standards, ensuring educators are prepared for the demands of a tech-driven educational landscape.
- The study emphasizes how digital competency can transform teaching styles, shifting from traditional lecture-based methods to more interactive, student-centered approaches. This has profound implications for curriculum design, instructional strategies, and assessment methods. Educators can leverage digital tools to foster collaborative learning environments, encourage critical thinking, and personalize learning experiences. To support this shift, institutions should promote a culture of innovation, where faculty are encouraged to experiment with digital methodologies and share best practices.
- Continuous professional development is crucial in enabling educators to stay updated with emerging technologies and pedagogical trends. The study highlights the importance of integrating digital competency training into existing professional development frameworks. Workshops, webinars, online courses, and peer mentoring programs can be organized to ensure faculty members acquire the necessary skills and confidence to use digital tools effectively. Moreover, incentivizing participation in such programs through certifications, recognition, or career advancement opportunities can motivate educators to actively engage in lifelong learning.
- The implications of digital competency extend beyond educators to students, as the study underscores the interdependence between teaching practices and student learning outcomes. Educators with high digital competency can serve as role models, fostering digital literacy and critical thinking skills among students. Institutions should prioritize creating a digital-friendly learning environment by providing access to modern technologies, reliable internet, and technical support. Additionally, embedding digital literacy into the curriculum can prepare students for the demands of a rapidly changing workforce.
- The integration of digital technologies in education raises concerns about equity and inclusion, particularly for faculty and students from underprivileged backgrounds. The study's findings suggest that institutions must take proactive measures to ensure equal access to digital resources and training opportunities. By addressing disparities in digital access and competency, higher education institutions can create a more inclusive learning environment that empowers all

stakeholders to succeed in a digital world. Collaborative initiatives with government agencies, non-profits, and private organizations can further support efforts to bridge the digital divide.

- Digital competency fosters opportunities for collaboration among educators, both within and across institutions. The study highlights the potential for digital tools to facilitate the sharing of resources, expertise, and innovative practices. Higher education institutions can encourage faculty collaboration through virtual communities of practice, interdisciplinary projects, and co-teaching initiatives. Such collaborative efforts can enhance the quality of education, drive professional growth, and create a sense of community among educators.
- In conclusion, the research project aimed to explore the key variables and factors affecting the chosen topic, shedding light on critical insights that can further drive progress in the respective field. Through careful examination of the data, coupled with relevant theoretical frameworks, it has been possible to develop a comprehensive understanding of the subject. The analysis revealed patterns, trends, and correlations that significantly contribute to our current knowledge base, offering valuable lessons for both practitioners and researchers alike. The findings highlight that while there are notable challenges, there are also considerable opportunities to address these concerns effectively. It is essential to recognize the multifaceted nature of the issue, as its complexity requires a nuanced approach to problem-solving.
- The results also emphasize the importance of adaptability and responsiveness in the face of change. One key takeaway is the need for ongoing assessment and modification of strategies to ensure that progress continues on the right track. Additionally, the research underscores the importance of collaboration across different sectors and disciplines, as collective efforts can often lead to more innovative solutions and a deeper understanding of multifarious issues.
- Moving forward, several recommendations can be implemented to advance the field. First, there is a need for greater emphasis on cross-disciplinary research, as many of the most pressing challenges require expertise from multiple domains. By fostering collaboration between researchers, practitioners, and policymakers, we can tackle problems from various perspectives and formulate more holistic solutions. Furthermore, there should be increased investment in education and training to build capacity within the field. Empowering individuals with the right skills and knowledge is vital for long-term sustainability and growth.
- Another suggestion is to prioritize data collection and evidence-based practices, ensuring that decisions are guided by sound, reliable information. This can be achieved by enhancing the quality and accessibility of data, as well as promoting transparency and accountability in reporting. The use of advanced technologies such as artificial intelligence and data analytics could also play a pivotal role in generating more precise insights, leading to more effective decision-making processes.
- Finally, it is crucial to maintain a forward-thinking mindset. The pace of change in the modern world is accelerating, and adapting to future trends is essential. Research should continually be refined to keep pace with these developments, and stakeholders must be proactive in anticipating future challenges. Sustainability should be at the forefront of all strategies, with an emphasis on environmental and social responsibility.

Reference

1. Redecker, C. (2017). European framework for the digital competence of educators: DigCompEdu (Y. Punie, Ed.). Joint Research Centre, European Commission. Publications Office of the European Union. doi.orgHomanova, Aluwi,
2. A. H., Omar, M. K., Hussien, N., Abu Bakar, S. M. S., & Bin Ahmad, M. F. (2024). The Smart Organization Movement: A Review and Research Agenda for Digital Competencies.
3. Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. Teachers College Record, 108(6), 1017–1054. doi.org
4. . Instefjord, E. J., & Munthe, E. (2017). Educating digitally competent teachers: A study of integration of professional digital competence in teacher education. Teaching and Teacher Education, 67, 37–45. doi.org
5. Pettersson, F. (2018). On the issues of digital competence in educational contexts: A review of literature. Education and Information Technologies, 23(3), 1005–1021. doi.org
6. Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020, March 27). The difference between emergency remote teaching and online learning. EDUCAUSE Review. educause.edu
7. König, J., Jäger-Biela, D. J., & Glitsch, N. (2020). Adapting to online teaching during COVID-19 school closure: Teacher education and teacher competence effects among early career teachers in Germany. European Journal of Teacher Education, 43(4), 608–622. doi.org
8. The Future of Jobs 2023: Insights and Implications - Telangana NavaNirmana Sena.
9. Brown, X. T. (2020). Effective Marketing Strategies of Profitable Small Businesses.
10. Alwhaibi, R., Alwhaibi, R., Alotaibi, M., Almutairi, S., Alkhudhayr, J., Alanazi, R., Al Jamil, H., & Aygun, Y. (2024). Exploring the Relationship Between Video Game Engagement and Creative Thinking in Academic Environments: Cross-Sectional Study. Sustainability, 16(20), 9104.
11. Taylor, R., & Hawkins, S. (2008). Mathematics for Economics and Business.
12. How does the COVID-19 pandemic influence students' academic activities? An explorative study in a public university in Bangladesh | Humanities and Social Sciences Communications.
13. Royal Global University (RGU), Guwahati, Courses in RGU, Admission in RGU 2024, Entrance Exam in RGU.
14. Pang, S., Zhai, W., Guo, R., Deng, Y., Deng, Y., Zhang, H., & Zhang, H. (2024). A Systematic Review and Global Trends on Blue Carbon and Sustainable Development: A Bibliometric Study from 2012 to 2023. Sustainability, 16(6), 2473.
15. Hardie, S. L. (2009). Moving Beyond the Surface: Ethics Education in Canadian Social Work Bachelor Programs.
16. Carter, A., Blackman, A., Hicks, B., Williams, M., & Hay, R. (2017). Perspectives on effective coaching by those who have been coached.
17. Uche, R., & Ogbonnaya, E. (2013). Identification and Solution of Maintenance Challenges in a Production Line.

18. Amundsen, C., & Wilson, M. (2012). Are we asking the right questions? A conceptual review of the educational development literature in higher education. Review of educational research, 82(1), 90-126.
19. Anderson, T. (Ed.). (2008). The Theory and Practice of Online Learning (2nd ed.). Athabasca University Press.
20. Abbas, Q., Qaisar, S., & Hussain, S. (2018). Comparative study of teaching styles of various school categories at the secondary level in the district of Chiniot of Punjab. Journal of Research in Social Sciences, 6(2), 98-111.
21. Ahmed, S., Hussain, I., Perveen, Q., Jumani, N. B., &Christie, S. U. (2021). Teachers' Teaching Styles and Students' Performance. Ilkogretim Online, 20(5).
22. Atma, B. A., Widiyatmoko, A., &Kristiawan, M. (2021). Teaching Style, Learning Motivation, and Learning Achievement: Do They Have Significant and Positive Relationships? European Journal of Educational Research, 10(1), 437-447.
23. Al-Asfour, A., & Young, S. (2018). Tribal college and university faculty members' professional development needs and college administrators' needs perception. Journal of College Teaching & Learning (TLC), 14(4), 149-158.
24. Algahtani, A., Aldarmahi, A. A., Al-Taweel, F. M., & Abd El Aziz, G. S. (2020). Faculty Members' Perceptions of the Goals, Barriers, and Solutions Related to Effective Faculty Development Programs. World Journal of Education, 10(3).
25. Almenara, J. C. (2020). Development of the Teacher Digital Competence Validation of DigCompEdu Check-In Questionnaire in the University Context of Andalusia (Spain). Sustainability, 12(23), 10153.
26. Agrawal, S., & Mittal, S. (2018). Multidisciplinary higher education, research, dynamics, and concepts: Opportunities and challenges for sustainable development. Journal of Advances and Scholarly Researches in Allied Education, 15(4), 112–117
27. Deepa, S. N., & Ghatak, B. (2013). Netiquette awareness among academic community members: an analysis. Journal of Computing, 5(1), 20-27.
28. Dangwal, K. L., & Srivastava, G. (2016). Digital competence: A new dimension in higher education. Universal Journal of Educational Research, 4(6), 1301-1306
29. Artacho, M. R. C. (2020). Teacher training in lifelong learning—The importance of digital competence in the encouragement of teaching innovation. Sustainability, 12(11), 4433.
30. Artacho, M. R., Campos, M. N., Chacón, A., & Sánchez, J. A. (2021). Teachers' Perceptions of Digital Competence at the Lifelong Learning Stage. Sustainability, 13(23), 13301.
31. Alayyar, G. M., Fisser, P., & Voogt, J. (2012). Developing technological pedagogical content knowledge in pre-service science teachers: Support from blended learning. Australasian Journal of Educational Technology, 28,
32. 40 Gupta, N., & Singh, P. (2019). The competency of teacher educators and student teachers towards e-learning tools. International Journal of Research and Analytical Reviews, 6(2), 415–422.
33. Hussain, M., Mohammad, A., & Ahmad, S. (2017). The practice of e- governance in Indian higher education: A study of institutional readiness and digital inclusion. Journal of Education and Practice, 8(12), 89–96.
34. Rajeswaran, S. (2019). Lack of digital competence: The hump in a university-English for specific purpose-classroom. Journal of English Language Teaching, 61(4), 18–25.

35. Almerich, G., Orellana, N., Suárez-Rodríguez, J., & Díaz-García, I. (2016). Teachers' information and communication technology competencies: A structural approach.