Attitudes Towards Information and Communication Technology (ICT) Usages among Higher Education Students

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Abstract

Information and Communication Technology (ICT) has become an important part of the higher education system, influencing students' learning practices, communication, access to information, and academic performance. The present study examines the usage of ICT among higher education students and explores how digital technologies are incorporated into their academic and learning activities. The study focuses on students' access to ICT facilities, frequency of technology use, preferred digital resources, purposes of ICT usage, and perceptions regarding its usefulness in education. It also considers the challenges students experience while using ICT, including limited digital skills, inadequate technological facilities, internet connectivity issues, financial constraints, and difficulties in evaluating the reliability of online information. The study aims to understand whether ICT contributes to students' learning effectiveness, academic engagement, independent learning, and communication with teachers and peers. The findings are expected to provide a better understanding of students' digital practices and their level of ICT utilization in higher education. The study may also help teachers and educational institutions identify areas where students require additional technological support and digital-literacy training. Effective and purposeful use of ICT can create flexible learning opportunities and improve access to educational resources. Therefore, strengthening ICT facilities and digital competencies can contribute significantly to creating a more effective, inclusive, and technology-supported higher education environment. The present study focuses on higher education students' attitudes towards ICT usage and seeks to understand the factors associated with their acceptance and educational use of technology.

Keywords: ICT, higher education, students' attitude, ICT usage, technology acceptance, digital learning, Indian higher education

Introduction

ICT has changed the way students access information, communicate, collaborate, and participate in learning. Computers, Internet resources, digital libraries, multimedia, and online learning environments have expanded educational opportunities beyond the traditional classroom (Garrison & Kanuka, 2004; Selwyn, 2016). Consequently, students' attitudes towards technology have become an important consideration in successful ICT integration.

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The Indian higher education sector has also experienced increasing ICT adoption. Verma and Dahiya (2016), studying students and faculty members across six Indian universities, examined ICT awareness in relation to gender and highlighted the growing importance of technology in university education. Their research involved more than 900 participants. Mallya and Lakshminarayanan (2017), using data from 378 university students in India, found that students' attitudes and perceived usefulness significantly influenced their intention to use the Internet for academic purposes. Research by Sekar and Lawrence (2015) also examined B.Ed. students' attitudes towards ICT and reported generally favourable attitudes, while differences were observed according to institutional characteristics. Verma, Dahiya, and Sharma (2016) further examined Indian university students' ICT outlook and found that locality and educational level did not significantly influence their overall ICT outlook. These findings indicate the need to examine students' attitudes within their particular educational contexts.

Review of Related Literature

The Technology Acceptance Model explains technology adoption through factors such as perceived usefulness and perceived ease of use (Davis, 1989). Computer self-efficacy can also influence individuals' confidence and willingness to use technology (Compeau & Higgins, 1995). Studies in higher education have shown that students generally recognize the usefulness of ICT, although actual educational use may differ according to experience, access, institutional support, and learning purposes. Tharayil and Wesley (2017) examined ICT adoption among students in Indian higher education institutions using the UTAUT framework and identified factors associated with technology adoption. Similarly, Mallya and Lakshminarayanan (2017) demonstrated the importance of attitude and perceived usefulness in academic Internet use. Overall, the literature suggests that students' ICT attitudes are shaped by personal, technological, and institutional factors. Therefore, investigating higher education students' attitudes towards ICT is important for promoting effective and meaningful technology-supported learning in India.

Objectives

1. To compare teachers‟ ICT Usages due to the categorical variables like gender (male & female).
2. To compare teachers‟ Academic Aspiration due to the categorical variables like location (Rural and Urban).
3. To compare teachers‟ Academic Aspiration due to the categorical variables like Stream (Arts and Science).

Hypothesis

1. There would be no significant difference in the mean score of ICT Usages as perceived by college students in relation to gender (male and female) variation.
2. 2.There would be no significant difference in the mean score of ICT Usages as perceived by college students in relation to location (Rural and Urban) variation.

3. 3.There would be no significant difference in the mean score of ICT Usages as perceived by college students in relation to Stream (Arts and Science) variation.

Methodology:

The study was conducted using Quantitative research method.

Sample: In this study all the higher education students of west bengal will be consider as population. The colleges students of kolkata, south 24 parganas and north 24 parganas were the sample in this study. A total number of 767 students' participants in small group in their respected colllege Gender, Location and Academic stream wise stratifacation of the sample is given the table below.

Tools: The questionnaire was developed by the researcher .The questionnaire consists of 22 items. Content validity was done by the subject Expert.

Result and Discussion

Testing of Null Hypothesis (H0):

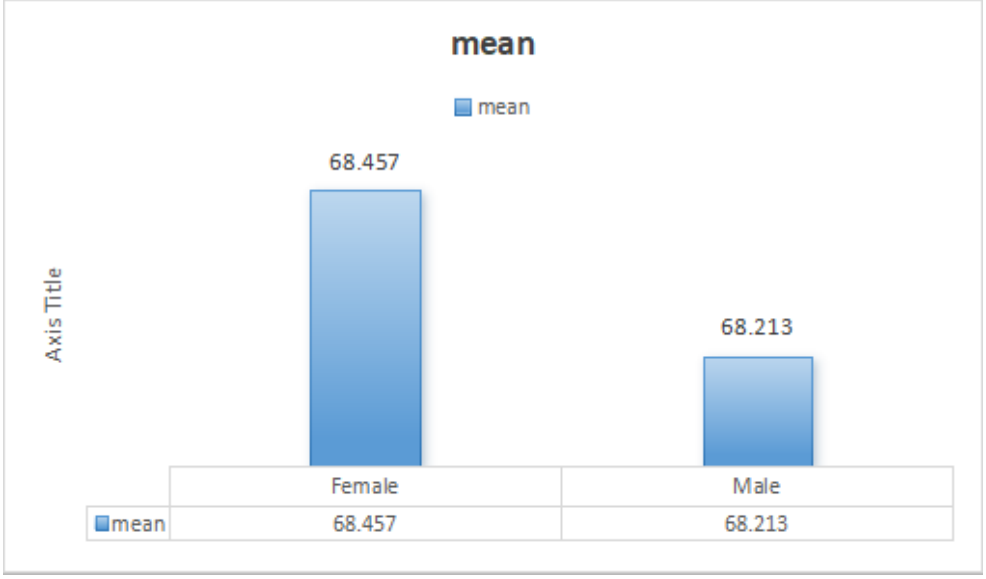
$H_0$1: There would be no significant difference in the mean score of ICT Usages as perceived by college students in relation to gender (male and female) variation.

Table1: The table showing the independent sample t-test for attitude of higher education students towards ICT Usages in higher education with respect to their gender (Male and Female).

SI. No.	Gender	Number of Sample	Mean	S. D	t-Value	df	Level of Significance at the 0.05 level
1	Female	448	68.457	7.5368	.442	765	.659
2	Male	319	68.213	7.5705			

Table1. shows that the Mean = 68.213, SD = 7.570 of male students and Mean = 68.457, SD = 7.53681 of female students in their ICT Usages. In that context of mean scores female students in ICT Usages (68.457) are higher than the male students (68.213). While to compare the male and female higher education students ICT Usagess it is seen from the analysis of Table 1 that 'p' value is 0.659 ($p>0.05$). Hence, 't' is insignificant at 0.05 level of significance and $H_0$1 is not rejected. So, it can be said that Female students are not significantly different from Male students with respect to their ICT Usages.

Figure1: The figure showing that the mean difference of attitude of students towards ICT Usages in higher education with respect to their gender (Male and Female).



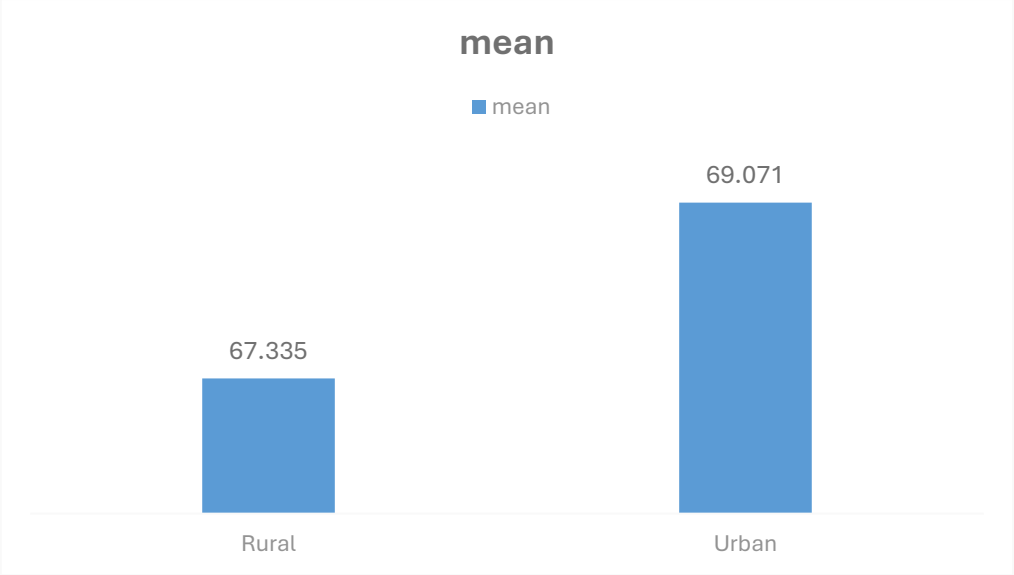
$H_0$2 There would be no significant difference in the mean score of Academic Aspiration as perceived by college students in relation to location (Rural and Urban) variation.

Table2: The table showing the results of t-test for attitude of higher education students towards ICT Usages in higher education with respect to their Location (Rural and Urban).

SI. No.	Location	Number of Sample	Mean	S.D	t-Vlaue	df	Level of Significance at the 0.05 level)
1	Rural	316	67.335	7.8805	-3.153	765	.002
2	Urban	451	69.071	7.2273			

Table2. shows that the Mean = 67.335, SD = 7.880 of Rural students and Mean = 69.071, SD =7.227 of Urban students in their ICT Usages. In that context of mean scores Urban students in ICT Usages (69.071) is higher than the rural students (68.213). While to compare the rural and urban higher education students ICT Usages it is seen from the analysis of Table 2 that 't' value is 0.002 ($p<0.05$). Hence, 't' is significant at 0.05 level of significance and $H_0$1 is rejected. So, it can be said that rural students are significantly different from urban students with respect to their ICT Usages.

Figure:The figure showing that the mean difference of attitude of students towards ICT Usages in higher education with respect to their location (rural and urban).



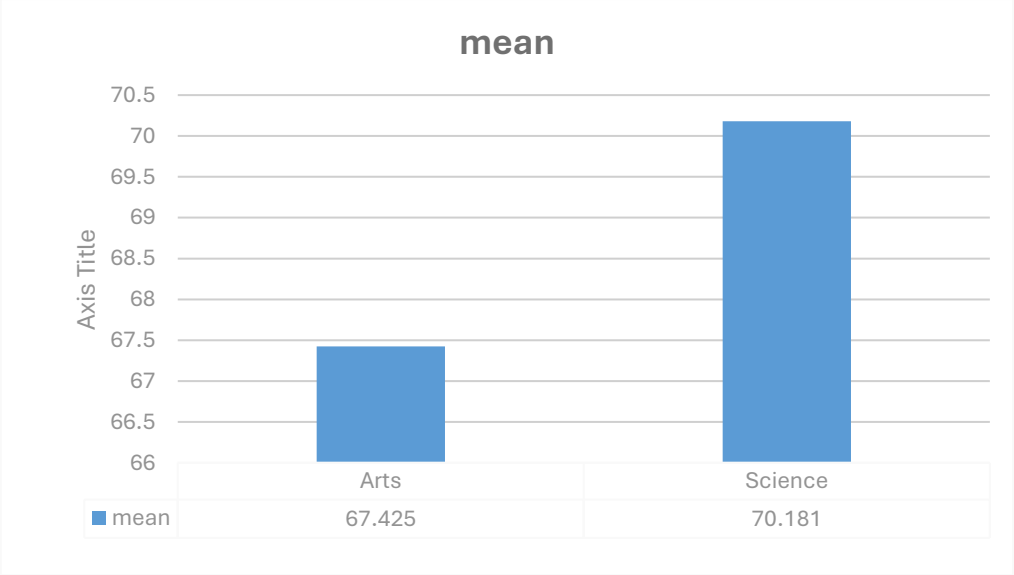
$H_0$3 There would be no significant difference in the mean score of Academic Aspiration as perceived by college students in relation to Stream (Arts and Science) variation.

Table3: The table showing the results of t-test for attitude of higher education students towards ICT Usages in higher education with respect to their Stream(Arts and Science).

SI. No.	Stream	Number of Sample	Mean	S. D	t-Vlaue	df	Level of Significance at the 0.05 level)
1	Arts	508	67.425	7.420	-4.853	765	.000
2	Science	259	70.181	7.473			

Table 3. shows that the Mean = 67.425, SD = 7.420 of Arts students and Mean = 70.181, SD =7.473 of science students in their ICT Usages. In that context of mean scores Science students in ICT Usages (70.181) is higher than the Arts students (68.213). While to compare the rural and urban higher education students ICT Usages it is seen from the analysis of **Table3** that 'p' value is 0.000 ($p<0.05$). Hence, 't' is significant at 0.05 level of significance and $H_0$1 is rejected. So, it can be said that Science students are significantly different from Arts students with respect to their ICT Usages.

Figure3: The figure showing that the mean difference of attitude of students towards ICT Usages in higher education with respect to their stream (Arts and Science).



FINDING:

- It was found that the attitude of female students is better than the male students for ICT Usages on higher education.
- It was found that the attitude of urban students is better than the rural students for ICT Usages on higher education.
- It was found that the attitude of Science students is better than the arts students for ICT Usages on higher education.

Recommendations

the findings suggest that higher education institutions should focus not only on providing ICT infrastructure but also on developing students' confidence, skills, access, and meaningful use of technology. Particular attention should be given to rural students and Arts students, while ICT development opportunities should remain inclusive of both male and female students.

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