

SCATTEREDNESS TESTING OF THE ATTITUDE OF STUDENTS AND TEACHERS TOWARDS ICT

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ABSTRACT

In this paper, we have evaluated the scatteredness in the attitude of Indian students and teachers towards Information and Communication Technology (ICT) in University level. The survey was held in the academic year 2015-2016 in six Indian universities. Out of 904, the count of student's samples was 560 and teacher's samples was 344. We applied Frequency test (F-test) at 0.05 significant level on two datasets. The present study considered 35 independent variables belongs to ICT awareness (Availability, Usability, Problem, Solution, Opportunity) and one dependent variable named residence state. The degree of freedom (DF) for Punjab-Haryana student is 282-278 and for Punjab-Haryana Teacher is 184-160. The findings of study reveal that there is scatteredness found in the attitude of students and teachers towards 20 independent variables. Also, we did not find scatteredness in the attitude of stakeholders towards 15 independent variables. Therefore, these 15 independent variables are making no significant effects on the attitude of students and teachers towards ICT in Indian higher education system.

KEYWORDS

F-test, Attitude, Teacher, Student, Residence State, Scatteredness.

1 INTRODUCTION

Information and Communication Technology (ICT) is the strength of higher educational institutions . In past two decade, India has achieved remarkable development in both sectors. Information technology industry in India consists of information technology enabled services (ITES), hardware production and software development. India is using rapidly ICT resources in research, projects and higher education (Verma C., 2016). Thee litratures of paper discussed study has been conducted on differnertail anlaysis of eductaiors's attitude, opinions, and ICT awarness in relaiton to various fetautres such as gender, loclaity, occupation and others having statstcal tests. University affiliation did not affect the teachers' attitude towards ICT in higher education (Verma C. et al., 2018) and also, university affiliation status has no impact on the perception of students (Verma C. et al., 2018). The gender variable did not impact on the opinions of students and faculty towards information and communication awareness (Verma C., & Dahiya S., 2016). A significant difference has been found between government and private secondary school teachers towards teaching attitude about ICT (Shah S. & Thoker A., 2013) and also a major difference has been discovered in the attitude towards using ICT in teaching between the types of institutions (Thakur G.,2014). The scatteredness in the mind-set of students and faculty towards ICT knowledge has been found (Verma C., 2018). No statistically significant difference has been found in the social outlook, personal outlook and academic outlook towards internet awareness regarding usage of Internet in relation to their field or

expertise (Verma C. & Dahiya S., 2016). There is meaningful difference has been found between the opinion of students and educators for their occupation (Verma C., 2016). There is no consequential diversity has been found in between student and faculty towards Information and communication technology awareness in relation to their state of residence (Verma C., Kumar D., & Dahiya S., 2016). A study has been performed to explore the ICT knowledge difference between students and faculty in relation to their occupation (Verma C. & Dahiya S., 2016). T-test proves that educational standard and demography of students did not affect the outlook towards ICT awareness in higher education in relation to locality and level of study (Verma C. et al., 2016). This paper is categorized into 3 major sections. Section 1 elaborates the research methods includes objectives, variables, sampling, instrument and tools & techniques applied. Section 2 discusses the results of the study and Section 3 concludes the outcomes of the study.

2 RESEARCH DESIGN AND METHODOLOGY

Objective

This paper is written to analysis the scatteredness in attitude of teachers and students of Indian higher education towards ICT. Also, the authors investigated the significant difference among students and teachers in relation to their residence state towards ICT awareness.

Variables

Out of total seventy variables, only 50% variables are passed under Item analysis test. In the Item analysis test, 26 variables had VG status and no need for updating further as the Discriminating Power (DP) lies in between the range of 0.40-0.9. There were 9 variables were found with Good (G) status for DP 0.30-0.39, requires little bit modification; the 35 variables were found with Poor (P) status for DP < 0.19. Hence, these variables were rejected due to difficulty value (DV) is less than 0.20 [cite]. Hence, this paper included the 35 five dependant variables and 4 independent variables to be analysed. The independent variables are named as Punjab Student, Haryana Student, Punjab Teacher and Haryana Teacher. Table 1 displays the name of 35 dependent variables used in study.

Sampling

A stratified random sampling was used to collect 904 samples from six Indian Universities. Total of 3 Universities were considered from each state for samples collection. For this, normative survey method was used to gather primary data belongs to teachers and students of Indian Higher education.

Instrument

After selection of variables and sampling methods, a well-defined structured questionnaire was designed to collect primary data samples. Therefore, 5 point Likert format questionnaire was used with of 35 dependent variables. Each item was self-reported scored on a 5 point Likert type scale (strongly disagree (SD) =1, disagree (D) =2, undecided (UD) =3, agree (A) =4, and strongly agree (SA) =5).

Response Rate

During survey, the total 344 teachers and 560 students have participated. Total of 269 students were belong to the government and 190 students were related to the private Universities. Total count of government teachers was 156 and private teachers was 188. Total 1000 survey forms were distributed to students and teachers and the researcher received back 904 only. Hence, Figure 1 shows the response rate of research which is calculated as 90.4%.

$$\frac{\text{\#Received}}{\text{\# distributed}} \times 100 \leftrightarrow \frac{904}{1000} \times 100 = 90.4\%$$

Figure 2 Response Rate

Tools and Techniques

To evaluate the instrument and to explore scatteredness in the attitude of stakeholders, we used Frequency test at 0.05 significance level using Data analysis tool in MS- Excel 2016. A Statistical F Test has been used as an F Statistic to compare two variances of variables Punjab Student and Haryana Student; Punjab Teacher and Haryana Teacher, by dividing them. The equation for comparing two variances with the f-test is:

$$F = s^2_1 / s^2_2$$

Where S1 denotes largest variance and S2 denotes smallest variance in the series.

3 RESULTS AND DISCUSSIONS

This section explores the variance difference among students and Teacher towards ICT for their residence state. It also describes that scatteredness in responses of student and Teacher. To find out scatteredness in opinions of participants, F-test at 5% significant level for variances of 35 dependant variables. Table 8.9 reflects significant difference between variance of student and Teacher for their state. The degree of freedom (DF) for Punjab-Haryana student is 282-278 and for Punjab-Haryana Teacher is 184-160. Applying F-test at 5 % level, calculated F value (CF) is compared with observed (OF) for find significant difference in the variances of students and Teacher for their state. The observed F value (OF) for Punjab-Haryana student and Punjab-Haryana Teacher is 1.22 and 1.28 respectively.

Table 2 State Wise Variances Difference for Student-Teachers.

VAR No.	Independent Variables	Punjab-Haryana student	Punjab-Haryana Teacher
		PS _{DF=282}	PF _{DF=184}
		HS _{DF=278}	HF _{DF=160}
		Observed F-Value (O _F)=1.22	Observed F-Value (O _F)=1.28
		Calculated F-Value (C _F) at 5%	
1	Adequate ICT infrastructure is available.	1.51	1.48
2	Institution campus is WI-fi.	2.37	1.44
3	Sufficient bandwidth is available for Internet.	2.43	1.11
4	ICT tools/software are easy accessible.	1.11	1.52
5	Institutions have clear policy framework to integrate ICT	1.38	1.88
6	Sufficient funds are available to promote ICT based research and development.	1.15	1.65
7	Sufficient ICT tools/software and hardware are available in research laboratory.	1.13	1.27
8	Institutions have E-library.	0.95	1.05
9	Adequate E-journals/ E-contents are available in Library.	1.02	1.25
10	E-contents are easily accessible/subscribed in library	0.99	1.30
11	ICT used in Planning and Management.	0.73	1.56
12	ICT tools/software used in research and development are reliable.	1.25	1.16
13	Use of ICT encourages research and project development.	1.25	0.93
14	ICT is used to exchange the research information with other organizations.	1.39	1.32
15	ICT used adequately in teaching, learning and research activities.	1.12	1.32
16	E-journals/ E-contents effectively using in research and development.	0.98	1.56
17	ICT is used to access the E-contents from other libraries.	1.64	1.60
18	ICT is used to learn the lecture/lesson from other institutions experts through video conferencing.	1.27	1.45
19	Time consuming to integrate ICT into teaching, learning, research and development.	1.45	1.15
20	Lack of readiness to adopt ICT technology in Teaching and Learning.	1.36	1.31
21	ICT tools/software not user friendly due to lack of training.	1.07	1.01

22	Need to increase the latest ICT infrastructure.	1.39	1.07
23	Internet bandwidth should be increased.	1.87	1.46
24	Need to increase E-journals/ E-contents as per requirement	1.96	1.32
25	Need to enhance ICT in Teaching and Learning.	2.12	1.12
26	Need for training/workshop to learn ICT tools/software and equipment.	1.97	1.12
27	ICT increase the effective teaching and E-learning in classroom.	2.09	1.19
28	Students and Teachers feel more professional, motivate, confident while using ICT resources.	1.05	2.21
29	ICT provides more comprehensive material of a particular topic.	1.44	1.61
30	ICT plays an important role in Admission and Examination.	1.05	2.07
31	Integrate of ICT increase Placement activities.	1.08	1.23
32	ICT reduce the cost for information exchange	1.78	1.34
33	ICT helps in design to new projects in higher education.	0.98	0.97
34	Successful ICT integration will brighten the future of Higher education	0.80	0.98
35	Using the ICT available increases productivity in Higher Education.	1.30	1.32

(*O_F = Observed F Value, C_F=Calculated F Value, VAR=Variable, DF=Degree of Freedom, PS_{DF}= Punjab Student DF, HS_{DF}= Haryana Student DF, PF_{DF} = Punjab faculty DF, HF_{DF}= Haryana faculty DF. (Source: Authors)

In Table 1, to calculate the variances difference between Punjab and Haryana students, calculated F values (CF) for variables no. 1-3,5,12-14,17-20,22-27,29,32 and 35 are greater that observed F value (OF) which is 1.22 at 5 % significant level for Punjab student's DF =282 and Haryana students' DF=278 (CF>OF at 5% for PSDF =282 and HSDF =278). It is found significant at 5% level. Hence, there is significant difference between variances of students for their state. Hence, we found scatteredness in the opinions of Punjab students and Haryana students towards ICT for these 20 variables. At another side, it is found that the calculated F values (CF) for variables no. 4,6-11,15-16,21,28,30-31 and 33-34 are smaller than that observed F value 1.22 (OF) at 5% significant level for Punjab Teacher's DF =184 and Haryana Teacher's DF=160 (CF<OF at 5% for PSDF =282 and HSDF =278). It is not significant at 5% level. Hence, there is not a significant difference between variance of Punjab Teacher and Haryana Teacher for these 15 variables. Hence, it proves their opinions towards ICT are not significant scattered.

Table 1 explores the difference in between variances of Punjab-Haryana Teacher. The calculated F values (CF) for variables no. 1-2,4-6,10-11,14-18,20,23-24,28-30,32 and 35 are greater that observed F value (OF) which is 1.28 at 5% significant level for Punjab Teacher's DF = 184 and Haryana Teacher's DF= 160 (CF>OF at 5 % for PFDF = 184 and HFDF =160). It is found significant at 5% level. Hence, there is significant difference between variances of Punjab Teacher and Haryana Teacher. Therefore, we found scatteredness in their opinions towards ICT for these 20 variables. The calculated F values (CF) for variables no. 3,7,8-8,12-13,19,21-22,25-26,27,31 and 33-34 are smaller than that observed F value (OF) at the 5 % significant level for the same degree of freedom (CF<OF at 5 % for PFDF = 184 and HFDF =160). It is not significant at 5% level. Hence, there is not a significant difference between variance of Teacher of Punjab-Haryana towards ICT for these 15 variables.

CONCLUSION

The outcomes of the paper described state wise significant variance difference among students and teachers towards ICT awareness F-Test. The authors did find any scatteredness in the attitude of the students and the teachers for the accessibility of ICT tools/software, Sufficient funds, Sufficient ICT tools/software and hardware, E-library, available E-journals & E-contents and its use, ICT in Planning and Management, ICT in teaching-learning and research activities, ICT in admissions and exams, ICT in Job placement, lack of training, Motivated and professional feeling, ICT in projects, ICT brighten the future of Higher education. Also, state variable impacted the attitude of teachers and students towards ICT for 20 variables discussed in Table 1. This paper recommends the future availability, usability and opportunities of ICT for stakeholders of higher education of Indian Universities.

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