

Influence of Demographic Characteristics on the Competence level of Information Technology in using HRIS tools in Educational Institutions

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Abstract: All institutions today use Information system (IS) tools for their effective functioning of the system. Be it branded or customized tools, the institutions use them for their daily activities to be automated and to run the system error free, and to provide quality data, reports and decisions. The success of the application of the Human Resource Information System (HRIS) depends on the knowledge level, skill sets, motivation level, and the deployment of human resources responsible for effective usage of the system. However, from the study, it is implicit that there is an influence of demographic features on the application of Information Technology and usage of Information System tools. The study was carried out to show that the efficacy and effectiveness of the usage of the IS tool in any institution not only cater to the need of the operational level and middle level managers, but also the strategic needs of the institution. However, awareness about the effectiveness of the tool has to be strengthened for the maximized usage of the tool. This paper vividly shows the impact or the influence of demographic features on usage of IS tools.

Keywords: Human Resource Information System (HRIS), Information System (IS), Management Information System (MIS), Information Technology (IT), Technology Acceptance Model (TAM), Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude Toward Use (ATU), Behavioural Intention towards Use (BIU), Actual System Use (ASU)

I. INTRODUCTION

Information System (IS) tool is majorly used in all fields or area of expertise. It is evident from the study that the tool is used by users at different levels of management. It tools are used by all irrespective of the gender differences, irrespective of the age differences and irrespective of the designation or levels of management. The study in this paper focuses on the influence of demographic characteristics on the competence level of Information Technology (IT) in using HRIS tools in educational institutions in India. The Technology Acceptance Model (TAM) is applied to ensure how the actual system (Information System) is affected by the intermediate variables Attitude towards Use (ATU) and Behaviour towards Use (BIU) which are directly dependent on 2 independent variables Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). The demographic study helps us understand the influence of gender, age or designation on the effectiveness of the usage of the HRIS tool in the Indian B-schools.

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II. BACKGROUND AND THEORETICAL FRAMEWORK

The study applies the Technology Acceptance Model (TAM). Technology Acceptance Model (TAM) was first coined by Davis (1989). Technology Acceptance Model (TAM) is an intention-based model developed specifically for predicting the user acceptance of Computer Technology [Maslin Masrom, 2007]. The application of attributes like Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) are the predictors of the users' attitude and behavior towards the technology usage.

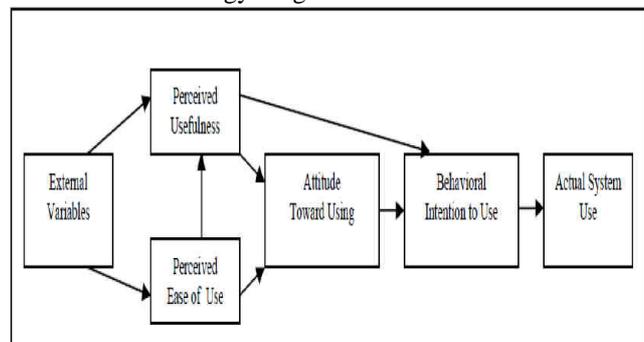


Fig 1: Technology Acceptance Model (Davis, 1989)

Fig 1 indicates how the Actual System Use (ASU) is dependent on two intermediate variables Attitude Towards Change (ATU) and Behavioural Intention to Use (BIU) which are directly dependent on two independent variables PU and the PEOU

III. OBJECTIVE OF THE STUDY

The major objective of the study in this paper is to understand the influence of the demographic characteristics affecting the competence level of Information Technology (IT) in using Human Resource Information System (HRIS) tool in Indian B-schools.

A. Research Questions

Today we find Information Technology booming soaring beyond limits in all fields. There is no field where IT is not involved. In such an IT filled scenario, it is worthwhile to understand to what extent the technology is utilized by any novice users or an experienced person. The study here is to understand if the gender difference, age difference, designation difference, people working at different levels of management will have major influence on the usage of IT tools or the competence of IT level or no.

B. Research Hypothesis

The research sets hypotheses for the following:

- i. To find out if there is any significant difference between the gender with respect to using an IS tool in the institution
- ii. To find out if there is any significant difference between designations of various users in using the system
- iii. To find out if there is any significant difference between the work experience of the users in using the IS tool
- iv. To find out if there is any significant difference between the kind of tool used in using the IS system
- v. To find out if there is any significant difference between the type of users in using the IS tool
- vi. To find out if there is any significant difference between self assessment of an individual with respect to work experience in using the IS system.

The hypothesis is set to compare with the attributes PU, PEOU, ATU, BIU and ASU

IV. RESULT & DISCUSSIONS

The study involved random sampling dividing the country demographics into 4 zones as North and Central, North East, West and South which includes 20 states and 81 B-schools with 500 responses.

The analysis resulted that the IS tools were used across the institution by different users at different levels of management. The frequency analysis of the respondent's occupation for the study is as follows:

Table1: Frequency analysis based on Levels of Management

Level of Occupation	Frequency	Percentage (%)
Top Level Employees	67	13.4
Middle Level Employees	401	80.3
Low level employees	32	6.3
Total	500	100.0

In Table 1, the analysis shows clearly that the IS tools are used majorly by the middle level employees by around 80.3%. The middle level managers majorly use the IS tool for reporting purposes. It is also made clear that the technology has reached to serve the need of the higher level of management also by 13.4% but the awareness is less comparatively; thereby, the effectiveness of the usage of IS tool is less when compared to middle level management users. Similarly, the lower level employees too use the IS tool, but the awareness is less. The study focuses on effectiveness of the HRIS tool: where the awareness has to be given to the operational level employees as well as the top level managers.

The frequency analysis based on gender as shown below:

Table 2: Frequency Analysis based on Gender

Gender	Frequency	Percentage (%)
Male	283	56.6
Female	217	43.4
Total	500	100.0

From Table 2, the study shows there is no gender difference in using the IS tools. However, 56.6% of male and 43.4% of female uses the IS tool across the B-schools in the country within the sample taken.

The frequency analysis based on work experience is analysed as follows:

Table 3: Frequency analysis based on Work Experience

Work Experience	Frequency	Percentage (%)
Less than 3 yrs	212	42.6
3-5 yrs	185	36.9
5-10 yrs	56	11.1
Above 10 yrs	47	9.4
Total	500	100.0

The analysis in Table 3 states that majority of the users of IS tool (42.6% and 36.9%) are up to 5 years of experience. Though technology is prevalent even to the next level, the awareness is to be created for the usage. As we understand, the users with more than 5 to 10 years of experience mostly come under the higher level of management where the effectiveness is yet to be increased.

The frequency analysis based on the type of tool is as follows:

Table 4: Frequency analysis based on the type of tool used in B-Schools

Type	Frequency	Percentage (%)
Branded	13	2.6
Customised	477	95.4
None	10	2
Total	500	100.0

Table 4 of the analysis clearly states that 95.4% of the institutions use customized or tailor-made tools satisfying the individual institution need when compared to the branded type of IS tools. Those institutions using branded IS tools are very minimal when compared to the customized users.

Table 5: Frequency analysis based on the type of IS users

Users	Frequency	Percentage (%)
Novice User	69	13.7
Intermediate User	408	81.7
Advanced User	23	4.6
Total	500	100.0



Table 5 clearly states that the intermediate users or the users at the middle level management using the system for reporting are more with 81.7% when compared to novice and advanced users. Therefore, the awareness ought to be created among the novice and advanced users about the availability of technology at different levels of use.

The respondents gave a self assessment about the usage of tool as given in Table 6:

Table 6: Frequency analysis based on self assessment of the respondents

Self assessment about HRIS tool	Frequency	Percentage (%)
Low experience	62	12.3
Moderate experience	425	85.1
High experience	13	2.6
Total	500	100.0

The study clearly states from Table 6 that the frequent IS tool users are those with moderate experience with 85.1%. From the taken sample, it is clear that those IS users with high experience is very minimal up to 2.6% and those with low experience is 12.3%. Hence, the awareness has to be created across the institution about the usage of IS tool and its effectiveness.

A. t-Test with respect to Gender:

Hypotheses:

H01 There is no significant difference between male and female with respect to PU

H02 There is no significant difference between male and female with respect PEOU

H03 There is no significant difference between male and female with respect to ATU

H04 There is no significant difference between male and female with respect to BIU

H05 There is no significant difference between male and female with respect to ASU

Table 7: t-Test with respect to gender

Attribute	Gender	N	Mean	t value	p value
PU	Male	198	3.88	.081	.936
	Female	152	3.88		
PEOU	Male	205	3.87	.567	.571
	Female	145	3.91		
ATU	Male	178	3.90	.437	.664
	Female	172	3.93		
BIU	Male	200	3.95	.688	.492
	Female	150	4.00		
ASU	Male	198	1.24	2.035	.000**
	Female	152	2.00		

** Significant at 1% level; * Significant at 5% level

From Table 7 we understand that there is no significant difference between the Gender with respect to Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude Towards Use (ATU) and Behavioural Intention towards Use (BIU). Both male and female are having same intentions towards these parameters. But, when it comes to Actual System Use (ASU), there is a significant difference among the gender in terms of usage of the actual IS tool. Therefore, the null hypothesis H05 is rejected and the alternate hypothesis is accepted which states that there is significant difference in the Actual System Usage (ASU) with respect to gender difference – male & female. According to the study, female are more inclined towards using technology and using Human Resource Information System (HRIS) tool when compared to male gender.

B. ANOVA test with Designation

ANOVA is used to find out the significance difference between means of more than two independent samples. The

respondents were asked to mention their designation. The options of the designation position were given as Top level management, Medium level management and operational or lower level management.. The analysis is presented in Table below:

Hypotheses:

H01 There is no significant difference between Designations with respect to PU

H02 There is no significant difference between Designations with respect PEOU

H03 There is no significant difference between Designations with respect to ATU

H04 There is no significant difference between Designations with respect to BIU

H05 There is no significant difference between Designations with respect to ASU



Table 8: ANOVA table with respect to designations at different levels of management

Attribute	Designation	Mean	SD	F value	P value
PU	Top level management	3.85	.465	436	.647
	Middle level management	3.88	.434		
	Low level management	3.95	.375		
PEOU	Top level management	4.00	.466	1.191	.305
	Middle level management	3.88	.556		
	Low level management	3.82	.733		
ATU	Top level management	3.89	.477	.215	.807
	Middle level management	3.91	.665		
	Low level management	4.00	.690		
BIU	Top level management	4.06	.485	.663	.516
	Middle level management	3.96	.637		
	Low level management	3.91	.526		
ASU	Top level management	1.70	.462	2.070	.128
	Middle level management	1.54	.499		
	Low level management	1.59	.503		

Result: It can be seen from Table 8 that the p value is greater than 0.05 (5% level of significance). Therefore, hence the null Hypotheses are accepted. It indicated that there is no significant difference between occupation level of the respondents with respect to Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude Towards Use (ATU), Behavioural Intention towards Use (BIU) and the Actual System Use (ASU). It is observed that in terms of using Human Resource Information System (HRIS), the users at all levels of management has the same perspective towards the system.

as less than 3yrs, 3 to 5 years, 5 to 10 years and more than 10 years. The analysis is presented in Table 9.

Hypotheses:

- H01 There is no significant difference between Work experiences with respect to PU
- H02 There is no significant difference between Work experiences with respect PEOU
- H03 There is no significant difference between Work experiences with respect to ATU
- H04 There is no significant difference between Work experiences with respect to BIU
- H05 There is no significant difference between Work experiences with respect to ASU

C. ANOVA test with Work Experience

The respondents were asked to mention their Work experience. The options of the work experience were given

Table 9: ANOVA table with respect to work experiences

Attribute	Work Experience	Mean	SD	F value	P value
PU	Less than 5 yrs	3.81	0.46	2.756	0.042
	3-5 yrs	3.91	0.404		
	5 – 10 yrs	3.92	0.28		
	More than 10 yrs	3.97	0.529		
PEOU	Less than 5 yrs	3.82	0.533	1.373	0.251
	3-5 yrs	3.95	0.577		
	5 – 10 yrs	3.92	0.532		
	More than 10 yrs	3.94	0.609		
ATU	Less than 5 yrs	3.94	0.616	1.398	0.243
	3-5 yrs	3.99	0.69		
	5 – 10 yrs	3.92	0.703		
	More than 10 yrs	3.97	0.467		
BIU	Less than 5 yrs	3.94	0.618	0.456	0.713
	3-5 yrs	4.02	0.592		
	5 – 10 yrs	3.95	0.647		
	More than 10 yrs	3.97	0.637		
ASU	Less than 5 yrs	1.6	0.492	0.509	0.676
	3-5 yrs	1.54	0.5		
	5 – 10 yrs	1.51	0.506		
	More than 10 yrs	1.61	0.496		



Result: The above Table 9 shows that p value is greater than 0.05 at 5% significant level with regard to PEOU, ATU, BIU and ASU (H02, H03, H04, H05). This shows that there is no significant difference between work-experience of the users in using the system with respect to the attributes – PEOU, ATU, BIU and ASU. Therefore the respective null hypothesis H02, H03, H04 and H05 are accepted. But in the case of PU, the p value is less than 0.05, therefore, it is concluded that there is significant differences between work experience and the Perceived Usefulness (PU). Hence, the null hypothesis H01 is rejected and the alternate hypothesis is accepted. The test also revealed that people who have more than 10 years of experience have more understanding on the Usefulness of the system: therefore, the mean value of those more than 10 years is 3.97, when compared to the other groups with different work experiences like less than 3 years, 3 to 5 years, 5 to 10 years. The reason is because this set of users is those who are using the system for longer period of time than the others; therefore, they are able to

realise and apprehend the usefulness of the system over a period of time.

D. ANOVA test with kind of HRIS tool

The respondents were asked to mention the different kinds of HRIS tool adopted by the B-Schools. The various options were given as branded, customised and none. The analysis is presented in Table 10

Hypotheses:

- H01 There is no significant difference between kinds of HRIS tools with respect to PU
- H02 There is no significant difference between kinds of HRIS tools with respect PEOU
- H03 There is no significant difference between kinds of HRIS tool with respect to ATU
- H04 There is no significant difference between kinds of HRIS tools with respect to BIU
- H05 There is no significant difference between kinds of HRIS tools with respect to ASU

E. ANOVA test with type of HRIS tool

Table 10: ANOVA table with respect to the type of HRIS tools used

Attribute	Type of HRIS tool	Mean	SD	F value	P value
PU	Branded	3.85	0.47	.853	.427
	Customised	3.88	0.43		
	None	3.95	0.38		
PEOU	Branded	4.00	0.47	.193	.825
	Customised	3.88	0.56		
	None	3.82	0.73		
ATU	Branded	3.89	0.48	.067	.935
	Customised	3.91	0.67		
	None	4.00	0.69		
BIU	Branded	4.06	0.48	2.246	.107
	Customised	3.96	0.64		
	None	3.91	0.53		
ASU	Branded	1.70	0.46	.309	.734
	Customised	1.54	0.50		
	None	1.59	0.50		

Result: The result clearly states in Table 10 that the p values of the attributes PU, PEOU, ATU, BIU and ASU are more than 0.05 (5% level of significance). Therefore, there is no significance difference between various kinds of HRIS tools like branded, customised with respect to the various attributes used in the system. As the p value is greater than 0.05, the null hypothesis is accepted. The study clearly states that whether the tool used is branded or customized, all the institutions are using the technology and the IS tool, irrespective of the kind of tool.

F. ANOVA test with the type of users

The respondents were asked to mention the type of users they belong to – novice users, intermediate users or

advanced users of using the HRIS tool in any B-Schools. The analysis is presented in Table 11.

- H01 There is no significant difference between the types of users with respect to PU
- H02 There is no significant difference between the types of users with respect PEOU
- H03 There is no significant difference between the types of users with respect to ATU
- H04 There is no significant difference between the types of users with respect to BIU
- H05 There is no significant difference between the types of users with respect to ASU



Table 11: ANOVA table with respect to type of users

Attribute	Type of users	Mean	SD	F value	P value
PU	Novice user	3.88	0.49	.001	.999
	Intermediate user	3.88	0.43		
	Advanced user	3.88	0.34		
PEOU	Novice user	4.02	0.48	1.948	.144
	Intermediate user	3.87	0.56		
	Advanced user	3.75	0.68		
ATU	Novice user	3.90	0.47	.072	.930
	Intermediate user	3.92	0.67		
	Advanced user	3.88	0.72		
BIU	Novice user	4.06	0.48	.588	.556
	Intermediate user	3.96	0.63		
	Advanced user	3.94	0.57		
ASU	Novice user	1.71	0.46	2.441	.089
	Intermediate user	1.54	0.50		
	Advanced user	1.63	0.50		

Result: The study says that the p values of all the attributes are more than 0.05 (5% level of significance) and therefore, the null hypothesis is accepted. This also makes us realize that the technology has reached to all levels of management at different levels of users like novice users, intermediate users and advanced users.

G. ANOVA test with Self assessment about using this HRIS tool

The respondents were asked to mention self assessment about using this HRIS tool adopted by the B-Schools. The various options were given as low experience, moderate

experience and high experience. The analysis is presented in Table 12.

H01 There is no significant difference between Self assessments about using this HRIS tool with respect to PU

H02 There is no significant difference between Self assessments about using this HRIS tool with respect to PEOU

H03 There is no significant difference between Self assessments about using this HRIS tool with respect to ATU

H04 There is no significant difference between Self assessments about using this HRIS tool with respect to BIU

H05 There is no significant difference between Self assessments about using this HRIS tool with respect to ASU

Table 12: ANOVA table with respect to kind of experience of users

Attribute	Technology in general	Mean	SD	F value	P value
PU	Low experience	3.86	0.47	.392	.676
	Moderate experience	3.88	0.43		
	High experience	4.00	0.50		
PEOU	Low experience	4.00	0.49	.981	.376
	Moderate experience	3.87	0.56		
	High experience	3.89	0.78		
ATU	Low experience	3.88	0.50	.134	.875
	Moderate experience	3.92	0.67		
	High experience	4.00	0.50		
BIU	Low experience	4.09	0.48	.981	.376
	Moderate experience	3.96	0.63		
	High experience	3.89	0.33		
ASU	Low experience	1.67	0.47	1.117	.328
	Moderate experience	1.55	0.50		
	High experience	1.56	0.53		

Result: The study makes it clear that the p value of all attributes are more than 0.05 (5% level of significance). Hence, all the null hypotheses are accepted. There is no significance difference between the respondents self assessment about the usage of HRIS tool in the B-Schools and the attributes PU, PEOU, ATU, BIU and ASU. The study states that the technology has reached users at

different levels of management at different kinds of users with different kinds of experience of the tool. The inference of this study and the awareness of the same has to be inculcated among the general.



Public to ensure the effectiveness of the HRIS tool in the Indian B-Schools.

V. CONCLUSION & RECOMMENDATIONS

A well equipped institution (B-Schools to be specific) should have a robust Data management System and a proper Management Information System to maintain the existing system and to make decisions. The objectives of the study are clear and understand that the demographic characteristics influence the competence level of Information Technology with respect to usage of Human Resource Information System (HRIS) tool in Indian B-schools. From the study it is also understood that Technology is available at all levels of management for their effective work support; however, the privilege is best utilized by the middle level managers who are the moderate users for their daily routine and reporting. Although, technology is available to the highest and the lower levels of management, the awareness is yet to reach the peak.

ANOVA is used to find out the significance difference between means of more than two independent samples. Analysis of variance is tested for different attributes and the results shows that there is no significant difference between the designations of the people in using the HRIS tool in B-schools; there is no significant difference between the people with different work experiences in using the HRIS tool; there is no significant difference between the branded or customized type of system being used; there is no significant difference between the kind of users – be it novice users, intermediate users or advanced users; there is no significant difference between the years of work experience that people possess in using the HRIS tool in the Indian B-schools.

All these inferences narrow down to the fact that technology is available and reachable to all levels of management, and to all kinds of users and to all users with varied work experiences. The research helps us realize that it is only through using the tool that the awareness of its effectiveness is known to the users and the effectiveness can be increased.

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