Effects of Demographic Attributes on Perceptions of the University Administrators about the Implementation of e-Learning Management and Delivery Practices in Pakistan

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Abstract

This study is intended to find out the effects of demographic variables on the perceptions of university administrators about the implementation of e-learning management and delivery practices. A Simple Random Sampling technique was exercised to choose public and private sector universities which were functioning in Lahore and Gujranwala division, recognized by Higher Education Commission, Pakistan. The data was collected from university academic administrators. A pilot study was conducted to develop a questionnaire for administrators. Data were analyzed through SPSS-21. Findings were confirmed that the four demographic variables have a significant effect on the perceptions of university administrators about e-learning management practices and delivery practices. Therefore, it is recommended that universities should focus on demographic variables on changing the perception of the administrators during implementing the e-learning infrastructure.

Key Words

E-learning, E-learning Management and Delivery Practices, Universities, Public and Private Sector, Demographic Variables

Introduction

E-learning is the utilization of advanced technologies to upgrade learning forms. It has the capability to transform the way we learn across the board. It can help to elevate the standards and widen interaction among the teachers and the students. It also has the potential for setting up fast and vigilant administration in the institutions. It supports every learner to attain knowledge with his or her potential. Nowadays, advanced and developing countries have been excited to adopt the cost-effective possibilities of e-learning in educational programs to all ages beyond time and geographical restrictions.

Higher Educational Institutions are expected to render a pioneering role in generating knowledge and skills required by the information-based society in Pakistan. There is an increasing trend in designing and applying instructional technologies. The presence of digital gadgets in the education sector is the sign of rapid using of e-learning. Over the last few decades, the dimensions of e-learning have been transformed through multiple paradigm shifts in all dimensions with respect to teachers, students, and administrators. All public sector HEIs are showing determination to adopt e-learning changes (HEC, 2008; Nawaz and Kundi 2010). So, it is going on to integrate information communication technologies into organizational and teaching functions.

There are numerous hindrances in the execution of e-learning infrastructures in Pakistani universities. These obstacles may be demographic variables and static or traditional way of thinking of people to recognize new changes etc. Therefore, this study may be beneficial to visualize the consequence of demographic features on the perceptions of university administrators about the implementation of e-learning management and delivery practices.

Statement of the Problem

It is narrated as; The effects of demographic attributes on the perceptions of university administrators about the implementation of e-learning management and delivery practices in Pakistan.

The objective of the Study

The core objective of this study was to find out the impacts of demographic variables on the perceptions of university administrators about the implementation of e-learning management and delivery practices.

Research Questions and Hypotheses

The considerable questions were:
1. Do all types of demographic variables have uniform effects on the perceptions of university administrators about the implementation of e-learning management and delivery practices?
2. What is the effect of interaction between demographic variables on the perceptions of university administrators about the implementation of e-learning management and delivery practices?

The null research hypothesis derived from the research questions were:

H01: Demographic variables have not to affect the perceptions of university administrators about the implementation of e-learning management and delivery practices.

H02: There is no interaction effect of demographic variables on the perceptions of university administrators about the implementation of e-learning management and delivery practices.

Purpose of the Study

The usability of e-learning management and delivery practices are attaining a viable role in the universities/degree awarded Institutions. It is significant to visualize this innovative sphere of influences. Therefore, a study on the outcomes of demographic variables on the perceptions of university administrators about the implementation of e-learning management and delivery practices is essential to assess it in the current changing scenario in Pakistan.

Delimitation of the Study

The university administrators of academic departments from both sectors who were performing their duties in Lahore and Gujranwala division, Pakistan were included in this article.

Review of Literature

E-learning is growing as a paperless way of dissemination of knowledge in the universities. Inglis et al. (2002) have narrated that e-learning and the internet in the universities are playing a vital role to shift the universe into a global village. It is also recognized that e-learning tools may be comprised of different management systems with respect to content, knowledge and learning basis. It has an optimistic influence on learning and implementing the innovative processes or knowledge in the organizations. So, it is performing a worthwhile role to increase the organization's profitability.

Nichols (2008) has expressed that top management and strategic ownership are showing commitment to the transmission of e-learning tools in higher educational institutions. These higher educational institutions need to expand the pace of e-learning policy and implementations in their structural way (de Freitas and Attewell 2004). E-learning experiences are the sign of a dynamic and adjustable interplay of role between emergent strategies and management changes in the institutions. The participation of e-learning experts and technicians put forward that the design, development, delivery, maintenance, and evaluation are the best arrangements for the accomplishment and failure of e-learning management practices in the institutions. This suggests that e-learning strategy is identified as a valuable tool in the universities' management practices.

E-learning is also a way to deliver information quickly. As compared to the traditional methods, this mode provides fast and reliable delivery cycles. Communication and delivery tactics may be encouraged for the learners. Luminita (2011) had said that the confidentiality of an e-system can be based on secure and reliable content delivery practices over the storage of data and networking interactions in organizations. Thermolia et al. (2015) have found that university administrators are focusing on both the development and execution of the e-learning systems. It tries to manage the delivery of data among stakeholders, instructors and educational managers when visualized at the same time.

Demographic variables are the particular characteristics of the nature and distribution of any population. The word demographic is derived from the Greek language demos (people) and graphic (picture). Examples of these variables are age, gender, race religion ethnicity, marital status, designation, and faculty, etc.

Generally, gender as a variable is assumed to elaborate inequalities and distinctiveness in the society. It may be used to discriminate the information. It has been observed that in the classrooms where no technology is used,

male students have more effect than female students and it was also found that female students have a greater level of appreciation than male class-fellows when teachers used modest technologies (Schrodt 2005 as cited by Md. Aminul Islam, 2011).

More experience of the interaction with a computer can be supportive of the adoption of technologies. It can change the attitude towards information communication technologies used in universities. People thus experienced will show more inclination due to having e-learning experiences than those people who do have not any e-learning experiences.

The designation is the title or an obligation to perform a specific job. Different organizations have a different designation for the job. Robyn and Du Preez (2013) have found that people engagement and job satisfaction can decrease the chances to quit institutions.

A faculty is a group of people having common duty or responsibility in an organization. These may motivate intrinsically or extrinsically to perform their duties. In tertiary level institutions, faculty behaviors can be influenced through the manipulation of incentive and reward packages. It will be supportive for the retention of the faculty personnel and managerial staff in the institutions.

Methodology

This research was based on survey quantitative nature research design. Generally, the survey is the most ideal approach to get data and feedback from the respondents. This study is based on four by two factorial designs in which the demographic variables were working as independent variables and e-learning management and delivery practices were functioning as dependent variables. A schematic diagram 3.1 among all variables is given below:

Population

All of the university administrators who were working in universities (public& private sector) recognized by the Higher Education Commission in Lahore and Gujranwala division, Punjab province, Pakistan.

Sampling

A multi-stage sampling technique was employed in this research study. A simple random sampling technique was used to select six universities as three from public and private sector each. After that, university administrators were selected from these universities through convenient sampling. Hence, the total usable public and private sector university administrators' questionnaires were 384.

The instrument of the Study

A questionnaire was developed by the researcher to observe e-learning management and delivery practices among public sector and private sector university administrators. The questionnaire was based on six different e-learning management practices and four delivery practices having four items of each management and delivery practice. Hence, there were 40 items. These items were constructed on Likert five-point scale. Validity and reliability were calculated through pilot testing. The validity and reliability values were .86 and .89 respectively of the 'e-learning management and delivery practices scale for administrators' (E-Learning MDPSA).

Table 1. Data Analysis and Results

Independent Variables				
Gender	**Experience**	**Designation**	**Faculty**	**Dependent Variables**
				E-learning Management Practices
				E-learning Delivery Practices

Multivariate Analysis of Variance (MANOVA) is performed to find out the significant consequences of demographic variables like gender, experience, designation and faulty on the perceptions of administrators about e-learning management practices and delivery practices. This analysis is conducted after verifying the multivariate statistical assumptions.

Multivariate Statistical Assumptions for a MANOVA

- **Independent Variables**

The independent variables like gender, experience, designation, and faculty were categorical.

- **Dependent Variables**

The dependent variables like management practices and delivery practices were continuous variables.

- **Observations were carried out Independently**

The observations placed in each or between groups were gathered independently. There was no association among the observations with one another.

- **Adequate Sample Size**

This assumption was also met for the study. It is observed that large sample size is more suitable for better results in MANOVA.

- **No Univariate or Multivariate Outliers**

The data were checked for outliers by developing box plots using SPSS. It was conducted according to levels of the dependent variables. There were no extreme outliers observed.

- **Multivariate Normal Distribution**

It is supposed that the dependent variables should have observations to pursue a multivariate normal distribution separately. If the dependent variables have a large number of participants (more than at least 20 participants × independent variable interaction) then Multivariate Central Limit Theorem proves correct. In this way, we can imagine that the multivariate normality assumption is fulfilled. Mertler and Vannatta (2001) narrated that ANOVA and MANOVA tests can show a moderate violation of multi-normality if dependent variables have at least '20' participants in each group. Hence, this study had a sufficiently large number of participants in each dependent variable to fulfill this assumption.

- **Linear Association**

This was checked by a scatter plot matrix. The data have expressed an elliptical shape.

- **Homoscedasticity**

Levene's test was used to check the homoscedasticity of the dependent variables. The results showed that it is not significant ($p > .05$).

Table 2. Levene's Test of Equality of Variances

	Levene Statistic	df1	df2	Sig.
Gender				
Management Practices	1.41	1	382	.24
Delivery Practices	5.69	1	382	.06
Experience				
Management Practices	1.66	6	377	.13
Delivery Practices	0.70	6	377	.65
Designation				
Management Practices	0.69	7	376	.68
Delivery Practices	1.55	7	376	.15
Faculty				
Management Practices	0.79	2	381	.46
Delivery Practices	0.94	2	381	.39

The supposition of homogeneity of covariance of independent variables was checked by the Box's M test at p >.001.

Table 3. Box's M Test for Equality of Covariance Matrices

Gender		Experience		Designation		Faculty	
Statistic	Value	Statistic	Value	Statistic	Value	Statistic	Value
Box's M	10.42	Box's M	34.90	Box's M	24.53	Box's M	14.37
F	3.45	F	1.85	F	1.14	F	2.37
df1	3	df1	18	df1	21	df1	6
df2	5696424.99	df2	10603.25	df2	59112.17	df2	224299.38
Sig.	.02	Sig.	.02	Sig.	.30	Sig.	.03

This table did not reveal any violation in homoscedasticity (p < .001). It allows the researcher for using Wilk's lambda to assess the multivariate effects (Myers, et al.,2002)

Multicollinearity

The two examined variables should show moderate correlation with one another. The table No.4 has depicted it as;

Table 4. Correlation Between two Dependent Variables

	Management Practices	**Delivery Practices**
Management Practices	1	.487**
Delivery Practices	.487**	1

**. It is observed at the 0.01 level (2-tailed)

Table 5. Wilks' Lambda for the Multivariate Test Comparing Demographic Variables

Effect	Wilks's Lambda Value	F	Hypothesis df	Error df	p	Partial Eta Squared
Intercept	.008	17858.941[b]	2.000	306.000	.000	.992
Gender	.999	.094[b]	2.000	306.000	.910	.001
Experience	.970	.782[b]	12.000	612.000	.670	.015
Designation	.964	.800[b]	14.000	612.000	.670	.018
Faculty	.997	.206[b]	4.000	612.000	.935	.001
Gender* Experience	.993	.500[b]	4.000	612.000	.736	.003
Gender* Designation	.986	.434[b]	10.000	612.000	.930	.007
Gender* Faculty	.967	2.573[b]	4.000	612.000	.037	.017
Experience * Designation	.902	1.013[b]	32.000	612.000	.450	.050
Experience * Faculty	.987	.416[b]	10.000	612.000	.939	.007
Designation * Faculty	.898	1.414[b]	24.000	612.000	.092	.053

> 'b' is Exact statistic
> The statistic is an upper bound on F that yields a lower bound on the significance level.
> At using alpha=.05

The table No.4.4 shows that Multivariate Analysis of Variance test was performed to find out the effects of gender, experience, designation, and faculty on the two dependent variables of management practices and delivery practices.
There was a statistically significant difference in intercept interaction (Gender*Experience*Designation* Faculty) on combined dependent variables management practices and delivery practices, $F(2, 306) = 17858.941$, it is significant at α=0. 000 because α < p ; Wilk's Λ = 0.008, partial $η^2$ = .992.There was no statistically significant difference in the main effect of gender on combined dependent variables management practices and delivery

practices, $F (2, 306) = 0.094$, $p =.910$. There was no statistically significant difference in the main effect of experience on combined dependent variables management practices and delivery practices, $F (12, 612) = 0.782$, $p =.970$. There was no statistically significant difference in the main effect of designation on combined dependent variables management practices and delivery practices, $F (14, 612) = 0.800$, $p =.670$. There was no statistically significant difference in the main effect of faculty on combined dependent variables management practices and delivery practices, $F (4, 612) = 0.206$, $p =.935$. There was no statistically significant difference in two-way gender by experience interaction (Gender* Experience) on combined dependent variables management practices and delivery practices, $F (4, 612) = 0.500$, $p =.736$. There was no statistically significant difference in two-way gender by designation interaction (Gender* Designation) on combined dependent variables management practices and delivery practices, $F (10, 612) = 0.434$, $p =.930$. There was a statistically significant difference in two-way gender by faculty interaction (Gender* Faculty) on combined dependent variables management practices and delivery practices, $F (4, 612) = 2.573$, it is significant at α=0. 037 because α < p ; Wilk's Λ = 0.967, partial $η^2$ = .017.There was no statistically significant difference in two-way experience by designation interaction(Experience* Designation) on combined dependent variables management practices and delivery practices, $F (32, 612) = 1.013$, $p =.450$. There was no statistically significant difference in two-way experience by faculty interaction (Experience* Faculty) on combined dependent variables management practices and delivery practices, $F (10, 612) = .416$, $p =.939$. There was no statistically significant difference in two-way designation by faculty interaction(Designation* Faculty) on combined dependent variables management practices and delivery practices, $F (24, 612) = 1.414$, $p =.092$.

Follow Up Analyses.

The significant multivariate effects for gender, experience, designation, and faculty have indicated their impact on the two dependent variables. A final analysis was required to analyze two examined variables separately with respect to the respective groups of four independent variables. The Test of Between-Subjects Effects was used to determine statistical significance between gender, experience, designation and faculty and each of the two dependent variables. Table No.4.5 is depicting the findings utilized for the final analysis.

Table 6. Follow Up Analysis

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	p	Partial Eta Squared
Intercept	MP	1201.634	1	1201.634	23932.690	.000*	.987
	DP	1309.207	1	1309.207	20131.041	.000*	.985
Gender	MP	.000	1	.000	.004	.951	.000
	DP	.011	1	.011	.164	.686	.001
Experience	MP	.282	6	.047	.937	.468	.018
	DP	.312	6	.052	.800	.571	.015
Designation	MP	.233	7	.033	.663	.703	.015
	DP	.326	7	.047	.716	.659	.016
Faculty	MP	.023	2	.012	.233	.792	.002
	DP	.030	2	.015	.227	.797	.001
Gender* Experience	MP	.072	2	.036	.717	.489	.005
	DP	.025	2	.012	.189	.828	.001
Gender* Designation	MP	.060	5	.012	.237	.946	.004
	DP	.184	5	.037	.567	.725	.009
Gender* Faculty	MP	.062	2	.031	.620	.539	.004
	DP	.478	2	.239	3.675	.026*	.023
Experience* Designation	MP	.901	16	.056	1.122	.334	.055
	DP	.951	16	.059	.914	.553	.045
Experience* Faculty	MP	.065	5	.013	.257	.936	.004

	DP	.157	5	.031	.484	.788	.008
Designation * Faculty	MP	.807	12	.067	1.340	.195	.050
	DP	1.271	12	.106	1.628	.083	.060

Note: MP=Management Practices; DP=Delivery Practices. *p < .05

There was a statistically significant difference in intercepts interaction (Gender*Experience*Designation* Faculty) on both dependent variables separately: Management Practices (it is significant at α=0. 000 because α < p) and Delivery Practices (it is significant at α=0. 000 because of α < p). There was a statistically significant difference in two-way gender by faculty interaction (Gender* Faculty) on one dependent variable, Delivery Practices (it is significant at α=0. 026 because of α < p) only.

Conclusion and Discussion

The intercept interaction of four demographic variables has a significant effect on the perceptions of university administrators about e-learning management practices and delivery practices. In follow up analysis, it is also found that the intercept interaction of four demographic variables has a significant effect on both dependent variables separately. The demographic variables of gender by faculty interaction has a significant effect on the perceptions of university administrators about e-learning management practices and delivery practices. In follow up analysis, it is also found that the significant effect is on one dependent variable (delivery practices) only. Therefore, it is projected that university administrators are accepting e-learning tools to improve the effectiveness of the e-learning system in Pakistani universities. Aviram and Tami (2004) found that human perceptions have changed the attitudes about the use of technologically advanced information sharing communications. Khan et al. (2015) also had been observed that e-learning digital tools are potentially powerful for changing and reforming in educational institutions.

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