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## DEMOGRAPHICAL VARIABLES AS DETERMINANTS OF SATISFACTION VIRTUALISATION OF A UNIVERSITY IN THE EASTERN CAPE PROVINCE, SOUTH AFRICA

Nteboheng Patricia Mefi, Walter Sisulu University, Butterworth Campus

Samson Nambei Asoba, Walter Sisulu University, Butterworth Campus

### ABSTRACT

This study took interest into the demographical determinants of satisfaction with virtualization of a University in the Eastern Cape province in South Africa. The switch to remote or virtual teaching and learning has been increasing over the past few years and many organizations are in a transitional state to achieve full virtualization. The study focused only focused on three demographical variables, namely educational qualifications, job positions and job grades. The study adopted a quantitative research design to address the research question: What factors affect satisfaction with virtualisation at the selected university. The study found that virtual satisfaction differed across the different level of education, the mean differences across the groups in both variables were not statistically significant (because their p values were above the required threshold (0.05). The mean scores between professors and lecturers differed as it refers to virtualisation as shown by t-test for equality of means which indicated that there were significant differences in teaching and learning ( $p < 0.05$ ,  $t = -2,339$ ). Lastly, perceptions of both professors and lecturers regarding teaching and learning, use of social media in the academic setting, and assessment and examination were different. Essentially, this was taken to imply that virtualisation had stronger demands to those whose job involved higher interaction with students through learning and teaching.

**Keywords:** Virtualization, Education, University, Work satisfaction, Demographical.

### INTRODUCTION

Many studies in the social sciences have been based on explaining phenomena using demographical variables such as age, race, educational qualifications, personality and other biographical criteria (Robbins & Judge, 2009). Essentially, demographical variables tend to be important independent variables in explaining many variables that influence behavior in organizations. This study focused on educational qualifications, job positions and job grades. The aim was to explore demographical variations in perceptions of factors that affect virtualization. To achieve this objective, the study explored the question: What factors affect satisfaction with virtualisation at of academics at a selected university . Variation in responses to this question were then considered along demographical lines in order to attain the objective of the study.

## LITERATURE REVIEW

Queiros and de Villiers (2016:167) acknowledge the demographical differences in technological acceptance that are experienced in universities in light of virtualization and Education 4.0. The general observation is that most students and young academics who are currently at university have a flair for technology. This, however, differs from their lecturers who are mainly an earlier generation that has a relatively lower technological acceptance. Bui's (2019) study of job satisfaction among lecturers found that facilities, characteristics of jobs, compensation, financial and non-financial benefits as well as personal growth opportunities were important variables in shaping job satisfaction

Students in universities normally make a generation that is more than a quarter of the population, which means social media, online messaging and digital communication will still reign supreme in organizational strategy. People of this generation and age are more techno-savvy and, therefore, find the internet very useful. The majority of them are still at school or university and utilise the internet almost every day, for example, to do assignments, search for the nearest restaurant or simply look for directions. Their lives revolve around the internet, increasing the number of people utilizing this medium. Johns *et al.* (2013:135) found that the past decade had shown a great increase in internet usage patterns by Generation Y, which was expected to exceed 20 million by 2015. This is the generation aged from 16 years to 27 years, also known as young adults. There is uncertainty about where Generation Y begins but many researchers say it started in 1992. Generation Z makes up 18% of the world's population. Generation Y is born into the technology world, which is what differentiates this generation from the others. They have grown up in an environment of numerous technological gadgets such as video games, laptops, cell phones, play stations and wireless. Their means of communication is through the Internet and they primarily use social networks to communicate with friends and family and for entertainment. According to Peterson (2012:41), these young people are exposed to the internet but they are still amateurs who do not fully understand it. This generation is the most interesting group, with characteristics of always being connected, surfing the net and being social network addicts. These teenagers are dominating the Internet usage patterns of South Africa, social networking sites, they are living in a technology world, they are always found surfing the Internet, gathering information and sharing it with their friends. Generation Y primarily uses social networks for communicating and to check up on the latest gossip. They do not care about careers, advertisements or business opportunities available on the Internet. Marketers need to be very careful of how they communicate to this generation. They should use the relevant technology tools that have the power to influence the perception of these young people because these teens are not brand loyal but consider a product very important and they like to share with others what they perceive as interesting. According to Masjedi (2012), Generation Z is always eager to know more so they expect more from the use of technology.

## METHODOLOGY

The study followed a quantitative design which was in the form of a survey of academics at a selected University from the eastern cape Province. Central tendency measures were used conducted to assess how centered the distribution of the constructs involved in the study were. A

five-point Likert scale where the value 1 corresponds to “Strongly disagree” and the value 5 corresponds to “Strongly agree” was used to measure the constructs which were of interest in the study. Since the mean point of five-point Likert scale is 2.5 (5/2), any mean scores below 2.5 indicated that most respondents tend to either disagree or strongly disagree with the statements measuring the constructs, while mean scores between 2.5 and 3.4 suggests that most respondents are neutral. All the mean scores equal to or above 3.5 suggest that the majority of respondents tend to either agree or strongly agree with the statements measuring that specific construct.

## FINDINGS

The data that was collected and analysed in this study on the demographical variation in respect of perspectives on virtualisation are presented in the sub-sections that follow.

### Relationship between position and Job satisfaction

The T-tests ANOVAs as presented below shows the differences between the variables. The Independent T-test was conducted to compare the mean scores of job satisfaction and virtualisation of HEIs across positions and job grades. A series of one-way ANOVA was conducted to compare the mean scores of job satisfaction and virtualisation of HEIs across service, level of education.

**Table 1: Job positions and job satisfaction**

J		N	Mean	Std. Deviation
Salary/Pay	Professors	9	3.33	0.44
	Lecturers	106	2.92	0.73
Work itself	Professors	9	3.44	0.76
	Lecturers	106	3.49	0.63
Workload	Professors	9	3.09	0.52
	Lecturers	96	3.18	0.51
Promotion	Professors	9	3.44	0.41
	Lecturers	106	3.20	0.64
Supervision	Professors	9	3.89	0.78
	Lecturers	106	3.60	0.72
Facilities policies	Professors	6	2.67	0.65
	Lecturers	87	3.19	0.63
Commitment	Professors	9	3.33	0.43
	Lecturers	90	3.64	0.77
Interpersonal relations	Professors	6	3.78	1.00
	Lecturers	102	3.53	0.72

**Table 2: Results of Independent Samples Test**

	T-test for Equality of Means		
	T	Df	P-value
Salary pay	1.674	113	0.10
Work itself	-0.204	113	0.84
Workload	-0.500	103	0.62
Promotion	1.124	113	0.26
Supervision	1.137	113	0.26
Facilities policies	-1.977	91	0.05
Commitment	-1.174	97	0.24
Interpersonal relations	0.802	106	0.42

Table 1 indicates that the mean scores between professors and lecturers were different as it relates to job satisfaction (salary pay, work itself, workload, promotion, supervision, facilities policies, commitment, and interpersonal relations). Table 2 (t-test for equality of means) reveals that there was a significant difference in facilities policies ( $p < 0.05$ ,  $t = -1.977$ ) between professors and lecturers. This implies that professors' and lecturers' views about facilities policies were different.

### Relationship between position and Virtualisation of HEIs

**Table 3. Job positions and virtualisation of HEIs**

Virtualisation	positions	N	Mean	Std. Deviation
Teaching and learning	Professors	9	2,98	0,377
	Lecturers	106	3,47	0,611
Software training needs	Professors	9	3,46	0,389
	Lecturers	106	3,35	0,610
Use of social media in the academic setting	Professors	8	2,92	0,321
	Lecturers	100	3,44	0,558
Assessment and examination	Professors	9	2,87	0,470
	Lecturers	106	3,29	0,512
Research and community engagement	Professors	9	3,15	0,377
	Lecturers	106	3,00	0,762

**Table 4: Independent Samples Test**

	t-test for Equality of Means		
	t	df	P value
Teaching and learning	-2,339	113	0,021
Software training needs	0,534	113	0,594
Use of social media in the academic setting	-2,603	106	0,011
Assessment and examination	-2,370	113	0,019
Research and community engagement	0,588	113	0,558

As shown in Table 3 above reveal that the mean scores between professors and lecturers differ as it refers to virtualisation (teaching and learning, software training needs, use of social media in the academic setting, assessment and examination, research, and community engagement). Table 4 (t-test for equality of means) indicates that there were significant differences in teaching and learning ( $p < 0.05$ ,  $t = -2,339$ ), use of social media in the academic setting ( $p < 0.05$ ,  $t = -2,370$ ), and assessment and examination ( $p < 0.05$ ,  $t = -2,603$ ) between professors and lecturers; meaning that the perceptions of both professors and lecturers regarding teaching and learning, use of social media in the academic setting, and assessment and examination are different.

## Relationship between job grade and Job satisfaction

**Table 5: Statistical results of relationship between job grade and job satisfaction**

Job satisfaction	Job grade	N	Mean	Std. Deviation
Salary/pay	Grade 6 - 7	41	3,04	0,792
	Grade 8 - 9	71	2,90	0,672
Work-itself	Grade 6 - 7	41	3,48	0,516
	Grade 8 - 9	71	3,49	0,702
Workload	Grade 6 - 7	37	3,25	0,516
	Grade 8 - 9	65	3,13	0,513
Promotion	Grade 6 - 7	41	3,37	0,531
	Grade 8 - 9	71	3,15	0,657
Supervision	Grade 6 - 7	41	3,58	0,768
	Grade 8 - 9	71	3,64	0,695
Facilities policies	Grade 6 - 7	31	3,18	0,612
	Grade 8 - 9	60	3,14	0,657
Commitment	Grade 6 - 7	32	3,42	0,799
	Grade 8 - 9	64	3,68	0,715
Interpersonal relations	Grade 6 - 7	38	3,54	0,777
	Grade 8 - 9	67	3,51	0,707

**Table 6: Independent Samples Test**

Job satisfaction	t-test for Equality of Means		
	t	df	P value
Salary/pay	0,960	110	0,339
Work-itself	-0,024	110	0,981
Workload	1,103	100	0,273
Promotion	1,750	110	0,083
Supervision	-0,465	110	0,643
Facilities and policies	0,263	89	0,793
Commitment	-1,601	94	0,113
Interpersonal relations	0,152	103	0,879

The results in Table 5 indicate that the mean scores between Grade 6 - 7 and Grade 8 - 9 are different as it pertains to job satisfaction. A t-test should indicate whether this difference is significant. The second portion of Table 6 (t-test for equality of means) reveals that there is a non-significant difference in job satisfaction ( $p > 0.05$ ) between Grade 6 - 7 and Grade 8 - 9. In other words, the average level of job satisfaction is almost the same for both Grade 6 - 7 and Grade 8 - 9.

## Relationship between job and Virtualisation of HEIs

**Table 7: Statistical results of job and virtualisation**

Virtualisation Job grade		N	Mean	Std. Deviation
Teaching and learning	Grade 6 - 7	41	3,34	0,679
	Grade 8 - 9	71	3,46	0,547
Software training needs	Grade 6 - 7	41	3,44	0,635
	Grade 8 - 9	71	3,30	0,574
Use of social media in the academic setting	Grade 6 - 7	38	3,36	0,625
	Grade 8 - 9	68	3,40	0,520
Assessment and examination	Grade 6 - 7	41	3,25	0,579
	Grade 8 - 9	71	3,26	0,493
Research and community engagement	Grade 6 - 7	41	3,07	0,754
	Grade 8 - 9	71	2,96	0,740

**Table 8: Independent Samples Test**

	t-test for Equality of Means		
	t	Df	P value
Teaching and learning	-1,066	110	0,289
Software training needs	1,218	110	0,226
Use of social media in the academic setting	-0,335	104	0,739
Assessment and examination	-0,060	110	0,952
Research and community engagement	0,702	110	0,484

Table 7 indicates that the mean scores between Grade 6 - 7 and Grade 8 - 9 are different as it pertains to virtualisation of HEIs. A t-test should indicate whether this difference is significant. The second portion of Table 8 (t-test for equality of means) shows that there is a non-significant difference in virtualisation of HEIs ( $p > 0.05$ ) between Grade 6 - 7 and Grade 8 - 9. In other words, the average perception of virtualisation of HEIs among Grade 6 - 7 and Grade 8 - 9 is almost the same.

## Relationship between level of education and job satisfaction

One-way ANOVA was conducted to compare the mean scores of job satisfaction and visualisation across level of education. There are three important tables to consider: (1) Descriptive table which provides the mean and standard deviation of the dependent variable for each separate group. (2) ANOVA table which indicates whether there is a statistical significance between the groups. The significant difference is determined by the P-value that is below 0.05. (3) The Post-hoc table (multiple comparisons) which provides additional information of where the difference lies within groups. This table should be analysed when the ANOVA shows a significant result ( $p$ -value  $< 0.05$ ). The Tukey test was used in this ANOVA.

**Table 9: Statistical results of level of education and satisfaction with virtualisation**

		N	Mean	Std.Deviation
Salary pay	Diploma – NQF Level 6	2	2,67	0,471
	Bachelors’ Degree - NQF Level 7	3	2,56	0,962
	Honours Degree/B-tech NQF Level 7 & 8	32	2,80	0,811
	Masters NQF Level 9	55	3,00	0,725
	PhD – NQF Level 10	23	3,12	0,547
	Total	115	2,95	0,723
Work-itself	Diploma – NQF Level 6	2	3,20	0,566
	Bachelors’ Degree - NQF Level 7	3	3,60	1,249
	Honours Degree/B-tech NQF Level 7 & 8	32	3,53	0,812
	Masters NQF Level 9	55	3,48	0,545
	PhD – NQF Level 10	23	3,45	0,512
	Total	115	3,49	0,635
Workload	Diploma – NQF Level 6	1	3,00	
	Bachelors’ Degree - NQF Level 7	3	3,53	0,416
	Honours Degree/B-tech NQF Level 7 & 8	31	3,12	0,534
	Masters NQF Level 9	47	3,16	0,483
	PhD – NQF Level 10	23	3,23	0,558
	Total	105	3,17	0,510
Promotion	Diploma – NQF Level 6	2	2,80	0,566
	Bachelors’ Degree - NQF Level 7	3	3,27	0,808
	Honours Degree/B-tech NQF Level 7 & 8	32	3,20	0,752
	Masters NQF Level 9	55	3,17	0,582
	PhD – NQF Level 10	23	3,40	0,526
	Total	115	3,22	0,627
Supervision	Diploma – NQF Level 6	2	3,83	0,707
	Bachelors’ Degree - NQF Level 7	3	3,78	1,575
	Honours Degree/B-tech NQF Level 7 & 8	32	3,75	0,616
	Masters NQF Level 9	55	3,55	0,715
	PhD – NQF Level 10	23	3,61	0,789
	Total	115	3,63	0,723
Commitment	Diploma – NQF Level 6	2	3,38	0,530
	Bachelors’ Degree - NQF Level 7	2	4,38	0,884
	Honours Degree/B-tech NQF Level 7 & 8	30	3,76	0,775
	Masters NQF Level 9	44	3,51	0,732
	PhD – NQF Level 10	21	3,57	0,725
	Total	99	3,61	0,746
Interpersonal relations	Diploma – NQF Level 6	2	3,67	0,471
	Bachelors’ Degree - NQF Level 7	3	4,11	1,018
	Honours Degree/B-tech NQF Level 7 & 8	30	3,53	0,693
	Masters NQF Level 9	52	3,50	0,742
	PhD – NQF Level 10	21	3,57	0,790
	Total	108	3,54	0,736

**Table 10. ANOVA outputs**

		Sum of Squares	df	Mean Square	F	P value
Salary/ pay	Between Groups	2,082	4	0,521	0,997	0,412
	Within Groups	57,428	110	0,522		
	Total	59,510	114			
Work itself	Between Groups	0,279	4	0,070	0,168	0,954
	Within Groups	45,719	110	0,416		
	Total	45,998	114			
Workload	Between Groups	0,622	4	0,155	0,587	0,673
	Within Groups	26,457	100	0,265		
	Total	27,078	104			
Promotion	Between Groups	1,270	4	0,318	0,802	0,526
	Within Groups	43,528	110	0,396		
	Total	44,798	114			
Supervision	Between Groups	1,011	4	0,253	0,475	0,754
	Within Groups	58,578	110	0,533		
	Total	59,588	114			
Commitment	Between Groups	2,451	4	0,613	1,106	0,358
	Within Groups	52,077	94	0,554		
	Total	54,528	98			
Interpersonal relations	Between Groups	1,115	4	0,279	0,505	0,732
	Within Groups	56,795	103	0,551		
	Total	57,909	107			

The results in Table 9 show that the average scores of job satisfaction (salary pay, work itself, workload, promotion, supervision, facilities policies, commitment, and interpersonal relations) differ across the different level of education. However, the results in Table 10 also show that the mean differences across the groups in both variables are not statistically significant, because their p values are above the required threshold (0.05). Meaning that salary pay, work itself, workload, promotion, supervision, facilities policies, commitment, and interpersonal relations are not statistically different across levels of education.

### Relationship between level of education and Virtualisation of HEIs

**Table 11: Statistical results of relationship between level of education and virtualisation of HEIs**

		N	Mean	Std. Deviation
Teaching and learning	Diploma – NQF Level 6	2	2,92	0,589
	Bachelors’ Degree - NQF Level 7	3	3,89	0,822
	Honours Degree/B-tech NQF Level 7 & 8	32	3,48	0,561
	Masters NQF Level 9	55	3,44	0,606
	PhD – NQF Level 10	23	3,33	0,660
	Total	115	3,43	0,609
Software training needs	Diploma – NQF Level 6	2	2,92	1,061
	Bachelors’ Degree - NQF Level 7	3	3,50	1,167
	Honours Degree/B-tech NQF Level 7 & 8	32	3,32	0,566



	Masters NQF Level 9	55	3,36	0,553
	PhD – NQF Level 10	23	3,43	0,655
	Total	115	3,36	0,595
Use of social media in The academic setting	Diploma – NQF Level 6	2	2,92	0,354
	Bachelors’ Degree - NQF Level 7	3	3,89	0,977
	Honours Degree/B-tech NQF Level 7 & 8	30	3,46	0,491
	Masters NQF Level 9	52	3,40	0,531
	PhD – NQF Level 10	21	3,29	0,656
	Total	108	3,40	0,560
Assessment and examination	Diploma – NQF Level 6	2	2,75	0,118
	Bachelors’ Degree - NQF Level 7	3	3,83	1,093
	Honours Degree/B-tech NQF Level 7 & 8	32	3,31	0,487
	Masters NQF Level 9	55	3,23	0,494
	PhD – NQF Level 10	23	3,21	0,528
	Total	115	3,26	0,519
Research and community engagement	Diploma – NQF Level 6	2	2,33	0,000
	Bachelors’ Degree - NQF Level 7	3	3,22	1,575
	Honours Degree/B-tech NQF Level 7 & 8	32	3,02	0,752
	Masters NQF Level 9	55	2,99	0,673
	PhD – NQF Level 10	23	3,07	0,804
	Total	115	3,01	0,739

**Table 12: ANOVA results**

		Sum of Squares	df	Mean Square	F	P value
Teaching and learning	Between Groups	1,487	4	0,372	1,001	0,410
	Within Groups	40,850	110	0,371		
	Total	42,337	114			
Software training needs	Between Groups	,624	4	0,156	0,432	0,785
	Within Groups	39,761	110	0,361		
	Total	40,385	114			
Use of social media in the academic setting	Between Groups	1,514	4	0,379	1,217	0,308
	Within Groups	32,038	103	0,311		
	Total	33,552	107			
Assessment and examination	Between Groups	1,673	4	0,418	1,583	0,184
	Within Groups	29,065	110	0,264		
	Total	30,738	114			
Research and community engagement	Between Groups	1,171	4	0,293	0,527	0,716
	Within Groups	61,154	110	0,556		
	Total	62,325	114			

The results in Table 11 show that The average scores of Virtualisation of HEIs differ across the different education levels. However, the results in Table 12 show that the mean differences across the groups in both variables were not statistically significant, because their p values are above the required threshold ( $p > 0.05$ ). This implies that teaching and learning, software training needs, use

of social media in the academic setting, assessment and examination, research, and community engagement are not statistically different across education levels

## CONCLUSION

In this study satisfaction with virtual transformation was found to be associated with certain cognitive factors which were also provided in the literature. These cognitive elements include perceptions in respect of pay/salary, the work itself, promotion, supervision, commitment, and interpersonal relations. While the average scores of virtual satisfaction (salary pay, work itself, workload, promotion, supervision, facilities policies, commitment, and interpersonal relations) differed across the different level of education, the mean differences across the groups in both variables were not statistically significant (because their p values were above the required threshold (0.05)). This meant that salary/pay, work itself, workload, promotion, supervision, facilities policies, commitment, and interpersonal relations were not statistically different across levels of education. In this regard the power of the virtualisation environment in influencing satisfaction was notable given that all other factors for job satisfaction were found to be statistically not different. The mean scores between professors and lecturers differed as it refers to virtualisation (teaching and learning, software training needs, use of social media in the academic setting, assessment and examination, research, and community engagement) as shown by t-test for equality of means which indicated that there were significant differences in teaching and learning ( $p < 0.05$ ,  $t = -2,339$ ), use of social media in the academic setting ( $p < 0.05$ ,  $t = -2,370$ ), and assessment and examination ( $p < 0.05$ ,  $t = -2,603$ ) between professors and lecturers; meaning that the perceptions of both professors and lecturers regarding teaching and learning, use of social media in the academic setting, and assessment and examination were different. Essentially, this was taken to imply that virtualisation had stronger demands to those whose job involved higher interaction with students through learning and teaching.

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