DETERMINANTS OF INFORMATION SYSTEMS USAGE AND ACCEPTANCE IN HIGHER EDUCATION

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Abstract

Information systems are recently widely introduced at Polish Universities, both teachers and students have problems using them. Recently Warsaw University of Technology (WUT) has launched new University Management Systems, among them Internet based platforms for students and teachers: mandatory Dean's Office Service System (USOS) is continuously developed and updated with new features. The aim of this paper is to find main determinants and variables regarding use and acceptance of the USOS. The study was conducted among university teachers at Warsaw University of Technology Branch in Plock. The Internet based survey was conducted via Internet. Teachers highly evaluated the system, however the negative relationship between the didactic position and the frequency of use and USOS knowledge is visible. Based on the survey conducted in Plock the study will be extended to the entire University.

Key words: higher education, information systems, USOS, technology acceptance

JEL Code: C88, D83, M15

Introduction

Implementation of IT support management systems cause significant modifications in organizations activity. In this case everything in a organization may be changed i.e. organizational structure, employees, procedures, tools, IT systems etc. (Piderit, 2000) Changes influence not only internal part of the organization but external environment as well. Unfortunately change affect resistance and requires skillful management (Hussain et. al., 2016, Hon et. al., 2011, Burnes, 2004, Kalman, 2016). People tend to make the current state to continue in the same way and in the same standard as before. Changes are perceives as loose of stability, loose of position and power in the organization, necessity of learning new things, lack of ability to use new technologies. Resistance to change is the biggest obstacle in new

technologies implementation especially in the implementation of new management systems. Introducing alterations and mitigating resistance depend on many factors and affect both staff behavior and factors related to organization performance (Kotter, 1995, Piderit, 2000, Mumford, 1965).

Introduction of new technologies is widely described in the literature. Sumak and Sorgo used Unified Theory of Acceptance and Use of Technology to describe teachers‘ attitudes to new technologies introduced at schools. The factors influencing educational technology acceptance have been identified. The survey allowed to identify differences in teachers‘ perception. The authors used Structural Equation Model (SEM) to verify hypotheses of the study (Sumak, Sorgo, 2016). Jan and Contreras identified factors related to use administrative information system in private universities. Technology Acceptance Model was used to evaluate the results of the study. The authors tried to identify perceived easy of use, perceied usefullness and technology acceptance. They proposed the survey and the SEM model. The determinants of teachers‘ perception were presented based on the study (Jan, Contreras, 2011). Pynoo combined Technology Acceptance Model and Theory of planned Behavior to predict behavioral intention to use of educational portal. The attitude, perceived usefulness, perceived easy of use, subjective norms, perceived behavioral control, intention and frequency of use were examined. Based on the study patterns of teachers‘ behaviour were described (Pynoo at. al., 2012).

During the last five years the Warsaw University of Technology has decided to significantly change the IT management. Both new Centre for Informatization has been established and new information systems have been introduced i.e. University Management System SAP, mandatory Dean’s Office Service System USOS and Educational Platform 'Portaliusz'. Since the public universities have problems with using such systems the management of the Centre for Informatization have decided to check if those systems are correctly implemented and if students and the staff have any problems using them. For this purpose many researches have been performed. The present paper considers use of the USOS system, which use has encountered serious problems in the past (Zajkowski, Stanczak, 2015, Stanczak, Zawila-Niedzwiecki 2015, Stanczak, Zawila-Niedzwiecki 2016, Walczak, 2017).

The aim of the study is to assess current teachers‘ acceptance of USOS portal. Additionally it was checked if age and university position influence teachers‘ attitude to the USOS.

2 Methods

The first stage of the study was performed at the Warsaw University of Technology (WUT), Branch in Plock. The survey was conducted among University teachers. The questionnaire is attached in the Table N, in the Appendix to this paper. Participation in the survey was anonymous and entirely voluntary. The respondents had access to the survey via the Internet. Teachers were invited to participate in the research by the university e-mail where the link to the questionnaire was attached. Also superiors informed the staff about the research. It was planned to prepare Structural Equation Model and examine relationships between variables. Unfortunately a small number of people completed the survey, since only the basic statistics could have been calculated. Indicators of descriptive statistics were used for the questionnaire data analysis: indicators of central tendency and location (mean, mode, median), indicators of variability (range, standard deviation), crosstabulations, frequency distributions and others were also used. The SPSS programme was used for calculations.

3 Results

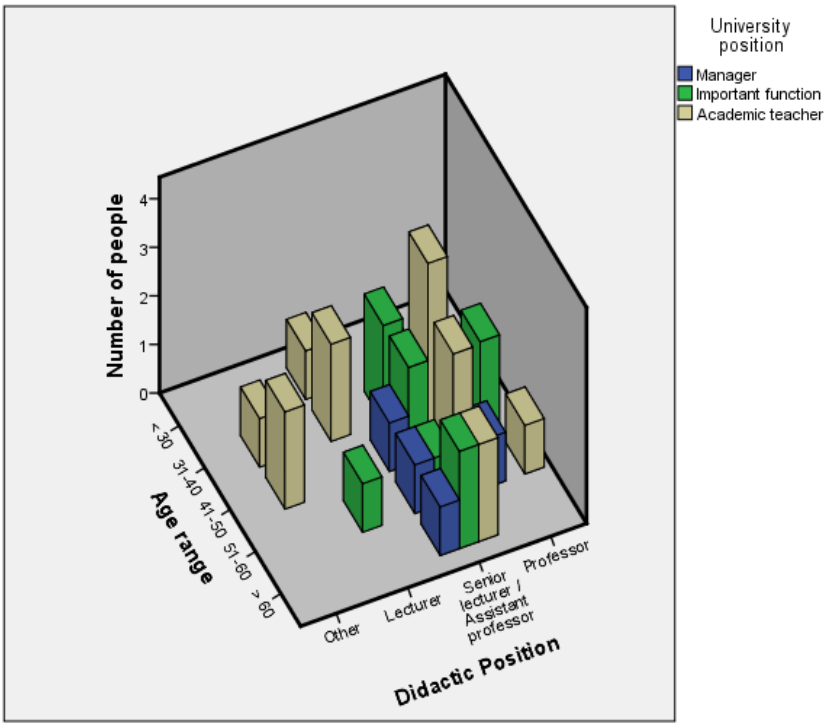
There are almost 150 university teachers in Plock Branch of WUT, however only 36 people completed the questionnaire, 16 women and 20 men. Distributions among age ranges didactic positions and university positions are presented in the Table 1. The largest respondents groups were teachers at the age of fourty and at the middle didactic position. There were five people representing the management and eleven performing important functions at the university. Number of people representing different categories were shown in the Figure 1. Basic descriptive statistics were shown in the Table 2.

Tab. 1: Respondents distribution among age ranges and didactic position

Age range, years		Frequency	Didactic position	Frequency	University position	Frequency
Valid	< 30	1	Other	3	Manager	5
	31-40	7	Lecturer	5	Important function	11
	41-50	12	Senior lecturer / Assistant professor	21	Academic teacher	17
	51-60	10	Professor	5		
	> 60	5				
	Total	35		34		33
Missing		1		2		3
Total		36		36		36

Source: Author's own research

Fig. 1: Number of people representing different categories examined in the study



Source: Author's own research

Tab. 2: Descriptive statistics of survey results

Question number acc. to Table N→	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Mean	4,33	3,91	3,69	3,86	4,08	3,58	3,69	3,92	3,28	3,78	3,17	2,97	3,29	3,25	3,50	3,80
Median	4,00	4,00	4,00	4,00	4,50	4,00	4,00	4,00	3,00	4,00	3,00	3,00	3,00	4,00	4,00	4,00
Mode	5	5	3	3[a]	5	4	4	4	4	4	3[a]	1[a]	3	4	3[a]	5
Std. Deviation	,717	1,04	1,09	1,02	1,16	1,05	,980	,806	,914	,898	1,22	1,54	1,13	1,38	1,23	1,18
Variance	,514	1,08	1,19	1,04	1,34	1,11	,961	,650	,835	,806	1,49	2,38	1,26	1,91	1,51	1,40
Skewness	-,602	-,653	-,602	-,566	1,11	-,466	-,679	-,536	-,124	-,534	-,245	-,204	-,083	-,409	-,487	-,832
Std. Error of Skewness	,393	,398	,393	,393	,393	,393	,393	,393	,393	,393	,398	,398	,398	,393	,393	,398
Kurtosis	-,796	,061	,219	,060	,222	-,353	,397	,173	-1,05	-,240	-,772	-1,54	-,560	-1,08	-,550	-,022
Std. Error of Kurtosis	,768	,778	,768	,768	,768	,768	,768	,768	,768	,768	,778	,778	,778	,768	,768	,778
Range	2	4	4	4	4	4	4	3	3	3	4	4	4	4	4	4
Minimum	3	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1
Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

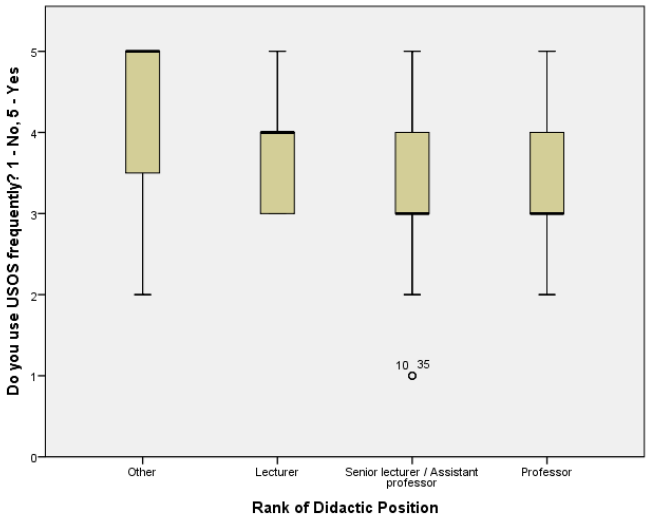
Source: Author's own research

4 Discussion

A small number of responses did not allow to perform reliable statistical tests since only general research results could have been presented. In their answers, most people (85%) rated their Windows usage knowledge as good and very good, 63% respondents evaluated USOS as helpful, more than 55% said that the system significantly speeds up their work, more than 61% said that the USOS is useful, 75% said that it is a good idea to use USOS, 58,3% of respondents rated system usage as nice, almost 64% said that it is a very good tool, 75% rated USOS as easy to use, 44% think the system is intuitive. 40% rated university helpdesk as good. More than 50% of respondents said that they know all USOS functionalities, almost 70% said that they can do in the system anything they want, however when the question regarding calculating the average student mark were raised only 17% said that they can calculate it in the system. Almost 50% teachers use the USOS frequently, 65% would use the system even if they were not forced to do so.

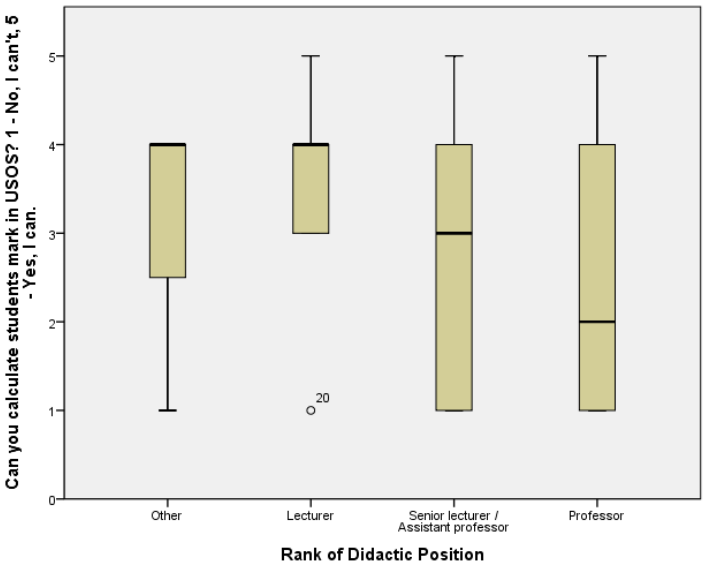
No relationship between respondents age and their answers was found. It could be seen that there is a relationship between didactic position and the frequency of system use. The higher the didactic position the less frequent usage of the system. It was also observed that the higher didactic position the less USOS knowledge teachers have. The relations of means are shown in the Figures 2 and 3. Unfortunately due to the small number of results this relationships could not have been statistically confirmed.

Fig. 2: Relationship between didactic position and the frequency of use



Source: Author's own research

Fig. 2: Relationship between didactic position and USOS knowledge



Source: Author's own research

5 Conclusion

At the Warsaw University of Technology, Branch in Plock there were conducted the study regarding mandatory Dean's Office Service System USOS. There were prepared the survey regarding teachers' opinion about the system. People filled the questionnaire via the Internet. Among 150 teachers only 36 people completed the survey since performing statistical calculations were difficult, only the basic dependencies were identified. Based on the small dataset it could be concluded that teachers highly evaluate the system, however the negative relationship between the didactic position and the frequency of use and USOS knowledge is visible, further research is needed to assess why it is happen. Based on the survey conducted in Plock new questionnaire will be prepared for the whole Warsaw University of Technology. It is planned to use Structural Equation Modeling to recognize relationships in teachers attitude to the system.

6 Appendix

Tab. 3: Questionnaire used in the survey regarding USOS acceptance

No	Question	Answer
1	What is your age?	Age ranges: <30; 31-40; 41-50; 51-60; >60
2	What is your didactic position?	professor; senior lecturer/assistant professor; lecturer; other
3	What is yours university administrative position?	the management; important function; academic teacher
4	Self-reported Windows mastery: What is your general knowledge about Windows system?	5 point Likert scale. 1- Weak, 5 - Perfect
5	Does USOS help me in my work?	5 point Likert scale. 1- Makes my work very difficult, 5 - Makes my work very easy
6	Does USOS make my work faster?	5 point Likert scale. 1 - significantly shorten my work, 5 significantly speed up my work
7	Is USOS useful for me?	5 point Likert scale. 1 – No, 5 - Yes
8	Is it a good idea to use the USOS?	5 point Likert scale. 1 - Not a good idea, 2 - Good idea
9	Is using USOS nice?	5 point Likert scale. 1 - Terrible, 5 - Nice
10	Is USOS a good tool?	5 point Likert scale. 1 - Very bad, 5 - Very good
11	Is using USOS easy for me?	5 point Likert scale. 1 - Very difficult, 5 - Very easy
12	Do I know all USOS functions?	5 point Likert scale. 1 - I do not know anything, 5 - I know everything
13	Self-reported USOS knowledge: Can you do in USOS everything you want?	5 point Likert scale. 1 - I can do a few things, 5 - I can do everything I want
14	Is USOS usage intuitive?	5 point Likert scale. 1 - Not intuitive, 5 - Intuitive
15	Real USOS knowledge: Can you calculate students mark in USOS?	5 point Likert scale. 1 - No, I can't, 5 - Yes, I can.
16	I have the opportunity to get help while using USOS.	5 point Likert scale. 1 - It is hard receive help, 5 - Helpline provide invaluable help
17	Would you use the USOS if the University did not force you to do it?	5 point Likert scale. 1 - No, 5 - Yes
18	Do you use USOS frequently?	5 point Likert scale. 1 - No, 5 - Yes
19	Do you want to use the USOS?	5 point Likert scale. 1 - I use USOS reluctantly, 5 - I am very willing to use the system
20	Do you have any comments to the USOS?	Respondent's comment

Acknowledgment

I would like to express my very great appreciation to Centre for Innovation and Technology Transfer Management and Centre for Informatization of Warsaw University of Technology for their helpfulness, understanding and possibility of using SPSS. Special thanks should be given to Directors of Centre for Informatization Mr Andrzej Zajkowski and Mr Janusz Stanczak. I would also like to extend my thanks to the colleagues of the Centre for Informatization, Mr Robert Wojtowicz and to colleagues from Centre for Innovation, Mr Dariusz Parzych and Mr Jaroslaw Chojecki.

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