Does personality type affect Teachers' Information Systems Utilization in Pedagogy? The Makerere University Lecturers' Experience

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Abstract. This article reports on personality types and their influence on lecturers' information systems utilization in pedagogy in Makerere University. Findings are drawn from analyses of data that was collected from 244 lecturers who were purposively selected from six faculties. A self administered questionnaire, standardized tests, analytical interviews and inferential analyses were done by using Analysis of Variance (ANOVA) and Student –t test techniques. Findings indicate that as lecturers' personality type preferences change, their attitudes and actual utilisation of information systems also change. Reasons that explain significant variation in both attitude and actual utilisation of specific MISs basing on particular bi-polar personalty type dimensions are given, as the article also suggests appropiate Information system tools and integration strategies that should be adopted in pedagogy by this oldest and biggest university in Uganda.

Key words. Personality types, Learning Management Information System and Pedagogy.

1 Introduction

To ensure maximum utilization of Management Information Systems [MISs], and to leverage all its units' effectiveness, Makerere University - Uganda's oldest and biggest university (Established in 1922, now with a total number of 36,878 registered students in 22 academic units, operating on an annual budget of approximately US$ 56 million as of June, 2009, < http://mak.ac.ug >), has set in its ICT Policy to fully integrate Management Information Systems in all its administrative, instruction and learning activities. The extent to which personality types affect its lecturers' selection and use of particular information systems, what particular personality types work, how and why they work, in relation to the integration of Learning Management Information Systems [LMISs] in teaching in this university, are the key concerns of this paper.

Through a number of MISs, Makerere University is set to improve on both the efficiency and effectiveness of most of its day to day operations. Indeed, the University ICT policy is set to improve on the university's library operations and services through the implementation of an integrated online Library Information System (LIBIS), streamlining and improving on students' teaching, learning and

assessment by using a number of Learning Management Information Systems for instance Blackboard http://blackboard2.mak.ac.ug KEWL http://nextgen.mak.ac.ug Moodle http://muele.mak.ac.ug and the implementation of an integrated Academic Records Information System (ARIS). The uiversity is also set to streamline its financial management processes through the use of an integrated Financial Information System (FINIS) and to improve on the the human resource management and administrative activities through the implementation of a Human Resource Information System (HURIS). The University Directorate for ICT is charged to ensure the efficiency and effectiveness of all the above management systems and is tasked with the responsibility of carrying out training and providing technical and end-user support to all university staff in their respective faculties in the use of these information systems and to give general training in the use of generic office computer applications to promote office computing all over campus.

Baryamureeba (2004) emphasizes that training in the use of ICT and the use of modern MISs has been given a high priority in the Makerere University ICT policy. In fact, the ICT Master Plan Policy Phase II of Makerere University clearly states that all the academic staff should be trained on a continuing basis to equip them with ICT requisite skills to the level that before appointment to Assistant Lecturer position or any further, academic staff are required to demonstrate the prescribed level of competence in technology enhanced interactive teaching techniques (Makerere University ICT policy master plan 2004). Today, it is also required that each faculty, school or institute has at least 1 computer per 5 students enrolled for undergraduate degree and postgraduate diploma courses, and 1 computer per Masters or PhD student enrolled.

Consequently, Makerere University and the government of Uganda have injected in a lot of finances to ensure successful utilization of these information systems by anually committing close to shs 1 billion in addition to development partner funds (Tusuubira, 2002). However, Baryamureeba (2003) reports that this amount has been growing from year to year.

Regrettably to note on the other side is that despite the time investment and the enormous funds set aside by the university to train and facilitate its academic staff to incorporate technology as an integral tool in the teaching and learning processes, very few lecturers at Makerere University actually use available LMISs in teaching (Tusuubira, 2008).

2 Addressing the MISs – user Mindset and Personality Type Predispositions

Tusuubira (2008) acknowledges that addressing the ICT users' mindset is probably the greatest challenge to the integration of MISs in Education. Implementation of MISs is not simply an introduction of new technology and training of its users, but a complete re-thinking of how the institution's activities are achieved. Nicolle (2005) also has the view that successful usage of ICTs in institutions only comes when users are able and willing to change their working habits and thinking processes. This partly explains why even up to now with the continued trainings and extended ICT

infrastructure, a big number of lecturers at Makerere University have remained reluctant to adopt these new innovations into their pedagogical practices. In fact despite the free and open user trainings offered by the Directorate of ICTs to equip lecturers with the requisite skills needed to use the Blackboard http://blackboard2.mak.ac.ug and KEWL http://nextgen.mak.ac.ug Learning Management Systems, only 14% of 1,714 academic staff have received and used these learning platforms in teaching (Kabugo, 2008). This article presents analysis and discussion of findings on how lecturers' personality type predispositions and their mindset influence their attitude and actual utilization of LMISs in pedagogy at Makerere University.

3 Key Study Questions

The major questions that guided this study were formulated on the foundation of the four key personality type issues of Myer's Personality Type Indicator Inventory (http://www.personalitypathways.com), namely; how individuals (lecturers in this case) relate to others, how they take in information, the way they make decisions and how they order their lives. Each of these questions has a bi-polar dimension. These dimensions were crafted relation to the key components of Knezek & Christensen (1998) Teachers' attitude and use of information Technology (TAT) guide. The key components of this guide include; recognition of the value of technology and information systems in learning, determination of the type of information tools they need for their work, establishing how they can get their information from existing information systems, accessing and interpreting information for their professional growth, ability to use available Learning Management Systems, among other key components of the guide. The major questions that guided the study are;

i. Are there significant variations in lecturers' attitude and actual utilization of Learning Management Systems in teaching because of their personality types?
ii. How and why don't lecturers' personality types influence their actual use of LMISs in pedagogy?

4 Method and Data Analysis

The study involved non-probability sampling in which the purposive sampling method was used to select units for a sample of respondents, referred to as a working population (Rea and Parker, 1997). Purposive sampling is where samples are assembled by intentionally seeking individuals or situations likely to yield new instances or greater understanding of a dimension or concept of interest by selecting information rich cases for in-depth study (Krathwohl, 1998). Consequently, out of the 22 academic units / faculties in Makerere, the researcher identified six academic units whose type and size suggested that they could be using the information systems in management of students' teaching, assessment and records. The units included Faculty of Computing and Information Technology (FoCIT), Faculty of Technology

(FoT), Faculty of Social Sciences (FoSS), School of Education (SoE), Institute of Adult and continuing education (IACE) and Faculty of Arts (FoA). Purposive sampling was used in these academic units since these units have averagely higher numbers of students compared to others and besides, both FoCIT and FoT have reasonably adequate ICT infrastructure and are more technically oriented, thus their potential for use of ICT should ideally be at a high rate. The SoE and IACE on the other hand have the mandate of improving pedagogy at the university and thus should be at the fore front of integrating and promoting the use of LMISs and ICTs in pedagogy at the university.

A questionnaire was constructed consisting of two main sections, the first section testing the respondent's personality type and the other section tesitng the respondents' attitude and actual use of Learning Management Information Systems in pedagogy. The questionnaire was then administered to 244 out of the 285 lecturers whom the researcher actually sought to sample, following Morgan and Krejcie (1970) in Amin (2005) table for determining appropriate sample size for a given reserch.

Basing on Myers Personality Type Inventory, for each of the four key questions having a bi-polar dimension, that is to say; Extroversion (E) / Introversion (I) as the dimension that answers whether an individual is social or reserved, Intuition (N) / Sensory (S) as the dimension that answers whether an individual processes information by focusing on the relationships between facts or the facts themselves, Feeling (F) / Thinking (T) as the dimension that answers whether some one makes decisions subjectively or objectively and, Perceiving (P) / Judging (J) as the dimension that describes those individuals whose preference is to be flexible or rigid respectively, these responses were entered and run using the electronic personality test <http://www.personalitypathways.com>. Thus, if an individual prefers to focus on the outside rather than the innerself, takes in information by focusing on the relationships between facts, makes decisions subjectively and likes to be spontaneous and flexible in his / her actions, then, s/he is described as an ENFP type. Out of the 244 respondents whose questionnaires were returned, 229 of them had complete personality type preferences that were generated, and these were distributed as follows;

ENFP 16, ISTJ 12, ENTJ 12, ISFP 32, ENTP 52, INFP 16, ESFP 20, INTJ 4, ESTP 49 ISTP 16. The other 15 preferences were incomplete because of missing values in the questionnaires.

Using the Statistical Package for Social Sciences (SPSS) computer program, the descriptive statistics of respondents given by faculty were generated and Analysis of Variance (ANOVA) test carried out to test whether faculties / schools were significantly different in terms of attitude and actual use of computers in teaching, as the background variable. To establish whether attitude and actual use of LMISs in teaching depends on lecturers' personality type preferences, the student t- test was carried out. The test was also applied because personality type preferences take on a bi-polar dimension (Myers, 1998). Thus, two complete personality type preferences were compared at a time, for example INTJ vs. ESFP to establish whether their LMISs usage is statistically different. Semi structured interviews were conducted to supplement the questionnaire data. The qualitative data obtained from the interviews was coded and indexed according to the responses made during the interview process. The transcripts were manually coded into categories which were interpretative.

4.1 Results and Discussion of findings

Lecturers' Personality Types and their Attitude towards MISs in Pedagogy
For the ten complete personality type preferences presented in this section, two bi-polar dimensions were compared at a time. Their means, statistical value, degrees of freedom and levels of significance in their attitudes and actual LMISs utilisation in pedagogy are stated in table 1 and 2 respectively. Analyses and discussions of findings follow these presentations.

Table 1: Descriptive statistics, -t test and significance values of lecturers' personality preferences and their attitude toward using LMISs in teaching

Attitude towards utilization of LMISs	Personality Type Preferences	N	Mean	- t	df	Sig-Value
Equal variances assumed	ENFP	16	6.8125	-.2490	26	.020
	ISTJ	12	8.9167			
Equal variances assumed	ENTJ	12	9.3333	2.908	42	.006
	ISFP	32	7.1875			
Equal variances assumed	ENTP	52	7.1875	1.318	66	.192
	INFP	16	6.8125			
Equal variances assumed	ESFP	20	5.7000	-.3.763	22	.001
	INTJ	4	9.7500			
Equal variances assumed	ESTP	49	7.3673	-3.704	63	.000
	ISTP	16	9.7500			

E = Extrovert, N = Intuition, S = Sensor, F = Feeler
I = Introvert, T = Thinker J = Judger P = Perceiver

Table 1 indicates that there is a big mean difference in lecturers' attitudes toward using LMISs basing on contrasted pairs of the generated personality type preferences. Each of these mean differences in attitude (ENFP vs. ISTJ, ENTJ vs. ISFP, ENTP vs. INFP, ESFP vs. INTJ and ESTP vs. ISTP) is statistically significant (.020, .006, .192, .001, .000) is (<. 05), apart from that of the ENTP vs. INFP category, but which is also almost significant (.192) This implies that lecturers' personality types greately influence their attitude towards using LMISs in teaching. The proceeding table presents means, statistical value, degrees of freedom and levels of significance in lecturers' actual LMISs utilisation in pedagogy.

Lecturers' Personality Types and their actual usage of LMISs in Pedagogy

Table 2: Descriptive statistics, -t and sig-values of lecturers' actual use of ICT in teaching

Actual use of MISs in teaching	Personality Type Preferences	N	Mean	-t	df	Sig-Value (2-tailed)
Equal variances assumed	ENFP	16	18.5000	-3.424	26	.002
	ISTJ	12	23.0000			
Equal variances assumed	ESTJ	12	24.3333	9.829	22	.0009
	INFP	12	13.3333			
Equal variances assumed	ENTP	52	20.5385	1.518	68	.134
	INFP	16	18.5000			
Equal variances assumed	ESFP	20	14.0000	-.4.848	22	.000
	INTJ	4	24.0000			
Equal variances assumed	ESTP	49	20.0000	-3.704	63	.824
	ISTP	16	20.3125			

E = Extrovert, N = Intuition, S = Sensor, F = Feeler
I = Introvert, T = Thinker J = Judger P = Perceiver

With the null hypothesis stated; there are no variations in actual use of LMISs in teaching depending of lecturers' personality types, table 2 presents pairs of generated personality type preferences (ENFP vs. ISTJ, ENTJ vs. ISFP, ENTP vs. INFP, ESFP vs. INTJ and ESTP vs. ISTP) and their respective means. Using the –t test and corresponding degrees of freedom, the table indicates that these means are statistically different and significant at .05 (.002, .0009, .000<.05) apart from the ENTP vs. INFP type of (.134>.05) and the ESTP vs. ISTP (.824>.05) respectively. This therefore implies that personality type preferences greatly influence lecturers' use of LMISs in teaching.

Unlike with attitude where almost all the tested personality type combinations were significant, with the actual use, the ENTP vs. INFP, and ESTP vs. ISTP preferences are not statistically significant (>.05). This therefore implies that a positive attitude may not necessarily mean actual use. Reasons that explain these significant variations were investigated in the follow up interview and are discussed below;

It was revealed that many of the introverted lecturers are reserved people and hence, because of their personality, they find computers and other related technologies more appealing to them because they enable them to communicate in a more quiet modality when teaching students especially of large classes. On the

contrary, the extroverts tend to be outgoing but give up very first on every thing. They prefer physical interactions with the world of things and people (Myers, 1998). This is basically why there was a sharp contrast in the actual use of computers between introverts and extroverts. Where as the introverted ones found computers more appealing, the extroverted preferred usual face to face interaction with students than using computers and other related technologies. Such a variation was so sharp so much that one typical introvert remarkably said;

> *Although in the past I preferred communicating silently to my students through course works and handouts, my knowledge of moderating online communities has now helped me to fully develop my personality. I loved discovering all ways that could enable me teach at a distance without necessarily meeting students and I can now do it with ease. I am aware of some lecturers who move on with them and perpetuate their bad habits to learners because of face-to-face classroom interactions. Yes, although even with the electronic platforms, some lecturers can merely use the online environments as dumping sites for content, in my opinion, I still think that this can be solved if such lecturers learn about multimedia technologies in education. What fails many of us here, I think when they move to lecture halls, they take themselves as experts in variety of fields when in fact they still have a lot more to learn online* (Interviewed in 2009).

On the other hand, it was revealed that feelers are sceptical about using LMISs in teaching than the thinking type and hence they use the internet and other related multimedia platforms and technologies in teaching less frequently. One respondent of the feeling type revealed that she finds the internet impersonal and a value free environment and therefore unattractive, yet her counterpart a thinking type said that she finds the internet more interesting to use because it links her to more open educational resources freely and at the end of several clicks on a given web navigation, she feels more skilled.

On the other dimensions, it was observed that intuitive lecturers use computers more often than sensors. It was learnt that lecturers who prefer depending on their intuition as a basis of processing their information perceive MISs as a tool for facilitating their imaginative and creative works. One respondent of this category from the Faculty of Computing and Information Technology was asked what he actually uses the MISs for and he said;

> *For example, I use the blackboard and kewl learning platforms and the internet to figure out imaginative works like simulations, games and fancy, fancy work of the kind especially in building Mathematics and Physics learning models. I find the test tools and auto response or feedback extremely important for the evaluation of my students* (Drawn from a questionnaire response).

On the contrary, when asked whether MISs motivate one to teach his courses, one Sensor explicitly said;

> *If motivation encompasses the determination and zeal of getting what you expected to get and the likelihood of getting it, then we sensibly need real work and not getting back to imaginations. You know, until we appreciate the fact that computers are just tools that manipulate existing knowledge then, we can create our own art facts. For me I know how to use computers but I always try to do my*

own work the way I know it and resort to computers if I cant do it the other way. You know, they have their own limitations as well. I think I am self motivated and with or without computers, I still do my own work. (Interviewed in 2009).

Nearly the majority of the judging types in the sample mentioned the importance of computers in data entry, editing, analysis and manipulation of information for teaching learners. However, not a single perceiving lecturer mentioned this. They acknowledged the pitfalls of MISs in terms of power failure and data loss and ended it there. It was only one thinking type professor from the faculty of Arts who elaborated on the influence of his personality type on his use of information systems and teaching. This professor had this to say;

About three - five years a go filled a questionnaire that subsequently revealed I was an introverted intuitive thinking judging type --- INTJ in the code of the Myers-Briggs type indicator. The description of the INTJ was extremely flattering. Last year, I asked my students to fill this questionnaire and it revealed that most of my students are extraverted, Sensing, Feeling, Perceiving types – ESFP, which implied that many were my real opposites! I suddenly recalled the complaint they normally pose when I give them assignments; 'But we don't know what you want…just tell us what you want and we shall do it'. I had always viewed this as a sign of low intelligence and poor scholarship residing in my students but from that moment I appreciated that we were trying to communicate across an immense gulf of personality difference – different ways of perceiving the world and using information. I also think that ninety percent of the University professors are Intuitive types and sixty percent of our students are Sensing types and I think, the effects of this difference is worth exploring. I think the effect of personality on the way we teach, do research and conduct our selves as university teachers is very crucial. (Interviewed in 2009).

All the above quantitative and qualitative data obtained from observation and interview responses indicate that personality type is instrumental in influencing lecturers' use or non use of technologies in the teaching of university students at Makerere University. The results imply that where as a positive attitude may influence one's actual integration of MISS in teaching, it may not necessarily guarantee use as only 14 % of the sampled population was found to be actually using LMISs yet over 65 % had a positive attitude towards it in teaching.

5 Conclusion and Recommendations

From the discussion above, the following conclusions were made in line of two the two research objectives;

Personality type preferences (ENFP vs. ISTJ, ENTJ vs. ISFP, ENTP vs. INFP, ESFP vs. INTJ and ESTP vs. ISTP) significantly affect lecturers' attitude towards using MISs in teaching. This means that besides the technology specific variables like hardware, software and accessibility, human factors are also very paramount in explaining variations in attitude towards use of MISs in teaching.

Personality types influence lecturers' actual use of MISs in pedagogy in Makerere University. As personality type preferences change, lecturers' actual use of MISs in

teaching also changes. It was observed that direct bi-polar patterns of personality preferences have strong variations in actual utilization of LMISs. For example, the direct opposite ordered personality preference type of ESFP vs. INTJ, exhibited a very sharp variation (.001<. 05) and (.000 < .05) in both attitude and actual usage levels of LMISs respectively. Results revealed that the INTJ types work more comfortably with LMISs in teaching than other types. On the contrary, the ESFP types were the least performers in actual utilization of LMISs into pedagogy.

On the basis of the above conclusions therefore, the investigator here boldly recommends that the integration of educational technology and or instructional media in pedagogy, most of which are relatively new, expensive, complex to use, and not widespread, should proceed to be done with caution. The characteristics of both the teachers and learners are very important factors in choosing a medium of instructional to enable effective teaching and learning (Laurillard 1993). These characteristics include learner preferences, styles, experiences, interest, and level of motivation, to mention a few and to highlight the role of personality types of both the instructor and the learner in any successful learning activity. In context, addressing lecturers' mindset and understanding their personality types is probably the greatest challenge for maximum, efficient and effective integration of LMISs into pedagogy in Makerere University. Effective integration of LMISs into teaching at Makerere would only come when lecturers are able and willing to change their teaching styles and work habbits. Integration of ICT into pedagogy is not simply an introduction of new technology in classrooms, but a complete re-thinking of how effective learning is achieved. There is therefore need to solict for intended user input as any management information system is being developed. Particular attention in this regard should be put on lecturers' personality types, characteristics and preferences as the University developes and trains lecturers to use LMISs in pedagogy.

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