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You are given the choice: which do you like the most? (Linking Learning Styles with Technology Preferences)

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Abstract

This study explored the preference for learning styles of ICT students in university of Malaya. Two separate questionnaires were used in the study in order to list down the students' learning styles preferences and their technology preferences to explore the technology preferences for different learning style categories. Through a analysis of the data, students preferred integrated technology were highlighted. The study emphasizes the importance of students being actively involved in the teaching-learning process by highlighting their preferred mood of technology involved in teaching. This may enhance teacher's ability to integrate technology with their teaching based on their class majority.

Keywords: Learning styles; Technology; Teaching; Technology integration.

LEARNING STYLES AND TECHNOLOGY PREFERENCES

"I have been trying to integrate new technology to my classroom but it seems that the integration is not welcomed by some of my students. I noticed that students are interested in certain sessions but not all." Have you ever thought of linking your students learning styles preferences with technology approaches you are using in your

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classroom teaching? Or in better words, have you ever found the situation in which you are using the updated technology but students are showing boredom and tiredness and politely asking you to STOP the class while you are struggling and trying your best to get their attention and feedback. This is the scenario that majority of us if not all but are facing in our classrooms. Have you ever thought about the possible reasons that may cause these situations. Are we going to blame our students? Shall we review our teaching styles and teaching aids we are using? Are we considering their learning preferences when we design our teaching or we are teaching them the way we have been taught?

Learning styles refer to learner's preferences regarding the approaches they are taking to process information. Learners have different preferences to perceive, analyze, process and learn. Learning styles are always highlighted as the important factor where students teaching and learning improvement are addressed. How the students learn and how the faculties can improve teaching through the instruction has been the concern of the educational bodies in most of recent research. Comprehending the important role of learning styles preferences in classroom with diverse culture seems more vital than it may sound and it is directly linked with learning styles success and failure in educational environment (Anderson, 1995).

Teaching styles are the manners in which we deliver the knowledge to our learners. Nowadays the trends have shifted to integrating the technology in teaching. It is important to mention that our traditional teaching delivery methods may not fit sufficiently in today's curriculum. Weimer (2003) believed that "many" traditional teaching styles are not really suitable for teaching in today's college curriculum, considering the fact that in one classroom there are combination of different learning style preferences which are not sufficiently addressed by faculty teaching. It must be noted that effective learning will take place in classrooms with learning style diversities when teaching styles are designed to accommodate the majority of those styles preferences.

Even though it is impossible to address all learning styles but when teacher mix, match the teaching styles systematically then the majority of the students will benefit from the classroom teaching.

Recently technology becomes the inseparable part of the education in general and in teaching and learning specifically. Varieties of technology teaching and learning application created the environment in which teachers have many options for instructional delivery.

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Varieties of technology teaching and learning application created the environment in which teachers have many options for instructional delivery. However, recently the focus has shifted from technology to pedagogy; Angelo (1996) stated that "What's different this time, however, is that the focus of change efforts is less on building new institutional structures, redefining the curriculum, or expanding access, and more on the heart of higher education – the teaching/learning process." Mia et al. (2008) conducted a study to explain the link between learning style preferences and instructional technology use. Their findings have indicated how ICT can create frames to support learning in different levels. This study was based on the Mia et al. (2008) recommendation. Therefore, the current study aimed at identifying the preferred technologies based on students' learning style group which has been categorized based on Felder and Soloman.

OBJECTIVES

This study is guided by the following objectives:

- To determine the preferred learning styles of undergraduate students
- To determine the preferred technology devices/application for each learning styles category

METHODS

This study was designed to explore the student's preferences in terms of their learning styles and technology preferences for each learning styles category. Quantitative approach was selected to conduct this research.

Samples

Participants in this study were first year ICT students in a public institution of higher learning .The study was conducted during 2011/2012 and participant's age was between 20-24.

Instruments

Two questionnaires were used in the study. The first one was the Felder and Soloman Learning Styles Index (ILS) to obtain students learning styles preferences. Learning styles have been classified into four dimensions by Felder and Soloman, namely:

Dimension 1: Active or Reflective

Dimension 2: Visual or Verbal

Dimension 3: Sensing or Intuitive

Dimension4: Sequential or Global

The second questionnaire was prepared using Google Drive application and it was distributed among the students when they attended their course. The questionnaire aimed at find out the major applications and ICT tools, therefore students were exposed to the list of the related application which they might have used. Applications such as repositories, mircoblogs, collaborative workspaces, website development, discussion groups, online games, maps and file sharing.

RESULTS AND DISCUSSION

The first objective of the current research is "to determine the preferred learning styles of undergraduate students" that is listed in Table 1. Findings displayed in Table 1 indicated the dominant learning styles in dimension one is active (81.6%) while (18.4%) of the students are reflective in class, which is lower compared to the active learners. The results showed that the dominant dimension is active compared to reflective where the first dimension of the learning styles are concerned. In second dimension, (55%) of the students are sensing learners while (45%) of the students are intuitive in class, which is slightly lower compared to the sensing learners. The results showed that the dominant dimension is active compared to reflective where the first dimension of the learning styles are concerned. In the 3rd dimension (51.6%) of the students are verbal, where (48.3%) were identified to be visual. In the final dimension global (60%) was indicated as the dominant where only (40%) of the students were sequential.

Table 1: Learning Styles Preferences Frequencies

Learning styles	Frequency	Percent (%)
Active	49	81.6
Reflective	11	18.4
Sensing	33	55
Intuitive	27	45
Visual	29	48.3
Verbal	31	51.6
Sequential	24	40
Global	36	60

Second objective of the study was to determine the preferred technology devices/application that each learning styles dimension prefer to use while engage in learning, the preferences are listed in Table 2. Finding indicated that among the technology tools that was presented active/reflective learners prefer to use Facebook (89%), Google (93.6%), Twitter (85.2%) and others (9.4%), among the sensing/reflective learners Facebook (97.2%), is more popular followed by Twitter (77.8%), Google (36.12%) and others (8.3%). Visual /verbal learners preferences are similar to Active /reflective learners preferences where Facebook (94.5%) was most in demand followed by Google (87.2%), Twitter (45.7%) and others (11.4%).Finally sequential learners preferred the Twitter (78.3%),Google(64.1%), Facebook (43.7%) and others. The learner's preferences regarding the Discussion tools were investigated across the four dimensions. It was indicated that there was a similarity where different dimension preferences were concerned. For Active/reflective learners whatsapps (99%) happen to be the first preference followed by Skype (73%), yahoo (64.5 %) and MSN (56.2%). Sensing /intuitive learners also having the same preferences as whatsapps (59.4%) was the highest, Skype (58.3%), Yahoo (37.3 %) and MSN (33.3%) that have a lower usage. In other two dimension similar preferences were observed, for Visual/ verbal learners whatsapps was first preference with (92.7%), Skype (76.3%), Yahoo (69.3 %) and MSN (50.2%) accordingly and finally sequential\global learners preferred whatsapps (79.4%), Skype (74%), Yahoo (55.3 %) and MSN (32.2%).

Table 2: Technology Devices Preferences Highlighted by Different Learning Styles Dimensions

Technology tools	**Dimension 1 %**		**Dimension 2 %**		**Dimension 3 %**		**Dimension 4 %**	
	Active	Reflective	Sensing	Intuitive	Visual	Verbal	Sequential	Global
Facebook	89		97.2		94.5		43.7	
Twitter	85.2		77.8		45.7		78.3	
Goggle+	93.6		36.1		87.2		64.1	
Others	9.4		8.3		11.4		70	
Discussion tools	**Dimension 1 %**		**Dimension 2 %**		**Dimension 3 %**		**Dimension 4 %**	
	Active	Reflective	Sensing	Intuitive	Visual	Verbal	Sequential	Global
Skype	73		58.3		76.3		74	
Yahoo	64.5		37.3		69.3		55.3	
MSN	56.2		33.3		50.2		32.2	
WhatsApps	99		59.4		92.7		79.4	

DISCUSSION

Learning styles inventory assist the researcher in highlighting the learners dominant styles in this study. Learners and their preferences where their learning are concerned in classroom have been researched for last 30 years. Current literature on learner's learning styles preferences explained that accommodating to learners' preferences is one of the ways to enhance the productivity in classroom setting. By considering the learners' learning styles preferences in the classroom, teachers are aware of the existing learning preferences diversity in their classroom and perhaps they can consider those diversities when planning their teaching. Furthermore this accommodating to learners preferences will add credit to the teaching outcomes as it will assist the educators to teach in a manner that majority of the classroom will benefit from it. This accommodating may appear time consuming in the beginning but not impossible.

Another significant finding of this study was the list of the technologies preferences being highlighted by the learners in each learning styles category. Learners choice were different where technology tools were concerned ,active/reflective learners preferred the Google as the first choice which was different from sensing /intuitive and visual /verbal that preferred facebook and sequential /global learners that prefer twitter. Results were the indicator of the learner's differences in terms of the technology preferences too. Where students were asked about the discussion tools preferences, surprisingly their preferences were similar across all the learning styles dimensions for their first option. They all select whatsapps as their first priority followed by other application, the finding of this study can be used as a guidelines for the lecturers in choosing the proper technology tools and etc for the right audience while engaged in teaching. This will enhance the learning outcomes and students feasibility regarding the subject matter. This study is part of the ongoing research on students preferences in technology devices in faculty of education, university of Malaya. Authors wish to continue their exploration on this subject matter to find out more specific results.

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