

Applying Theories of Learning Styles in E-Learning with Social Networking Tools

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ABSTRACT

The main objective of this paper is to provide a bridging solution to adjustment problems of students migrating from secondary school system into college/university environment. It proposes an extended E-Learning through the use of existing varieties of online teaching modes. It propagates the extended E-Learning for the first semester modules that may be extended to a second semester to address team adjustment problems. This paper seeks to show how students can be made to work together in virtual groups before they meet in person. By being in a virtual team prior to physically being present in the university/college, it is proposed that this will reduce the teething problems of group/team work, a necessity in a college learning environment. The additional benefit to colleges/universities in using the recommended extended E-Learning method as an entry mode will be in the reduction in cases of students entering into the country with student visas for vice activities.

Data was collected from first year foreign students in a private university in Malaysia to identify the link if any between students of a country to learning style and if the gender had any moderating effects.

The findings on this batch of students showed that students from a country do not necessarily have the same learning style and furthermore that gender had no impact on their learning style. This allows for an implementation of study system based on Learning Style without having to consider the country of origin of the students. This study does not intend to negate the results of previous studies linking learning styles to country of origin. However, it shows that in a college environment and specifically in a module or subject the numbers of students from a same country will not be substantial to substantiate the past studies. This study was done in one

private higher educational institute only due to limitation in human resource and finance. The importance of this study is to promote the idea of embracing the relevant technologies to enhance the higher education's social and teaching methodology while ensuring students have a positive learning experience. This paper builds on the existing learning styles theories specifically Kolb's Learning Styles Inventory.

Keywords: Social Networking Tools, Virtual Classroom, Extended E-Learning, Learning Styles

INTRODUCTION

Malaysia is seeing an influx of foreign students pursuing higher education in the public and private universities (Arokiasamy 2010). This was further substantiated by Datin Professor Ir Dr Siti Hamisah binti Tapsir 's presentation at the joint conference by the Australian Government and The British Council held at Kuala Lumpur in November 2011 entitled Excellence in Transnational Education, Partnership for the future. In which she indicated that the government aims to have 200,000 foreign students in Malaysia by the year 2020. Arokiasamy (2010) had also stated that Malaysia is being sought after by foreign education institutions to collaborate with local higher education providers to offer foreign education locally in Malaysia. Sirat and Sarjit (nd) in their research on Transnational Higher Education In Malaysia: Trends and Challenges noted that increasing foreign Universities presence in this country would have a positive impact as it would reduce resources flowing out of the country, thus reducing the effect of brain drain in Malaysia.

With the opportunity to become an 'Education Hub', besides looking into providing good quality higher education, the providers of these higher education should also look at areas of problems that must be addressed to enable Malaysia be the best international education destination. The best means a quality education at an affordable price. Affordable price includes not having to repeat courses which would result in unnecessary higher costs. As the options for transnational education is expected to increase, so will the migration of students from one country to another in pursuit of foreign qualification. This requires the teaching providers to look into managing student's learning experience beyond that of just teaching them. Even if a student has the potential to be a high

achiever, an inability to adapt to a different learning environment will result in the student performing poorly, resulting in negative experience. The reasons may vary from an inability to make a transition from a secondary school style of learning to university style to adapting to the changes of a new country, i.e new environment. Issues relating to environment that has been identified in the past have been associated with language and culture of a country. In an attempt to gap the difference in learning experiences, studies on learning styles have also been carried out extensively. One of the information that had surfaced from these studies are that learning styles can be 'tagged' to the country of origin. However, the studies have not considered the various mini cultures or subcultures of a country that can affect the learning styles of a person. In some situations these subcultures may have a strong influence that it may result in 'exceptions' from the prevailing learning style. Furthermore, these studies cannot be applied to a learning environment as students are grouped by course/module of studies that not necessarily result in students of a same national filling in the seats in that subject/module. For the purpose of this study a survey was done of foreign students in an introduction course in a local private higher education. The outcome revealed that only 30% managed to pass the course and out of that only 3 managed to get scores higher than 75%. This would result in these students having to retake the modules and at times the students will have to retake more than 1 module resulting in higher than budgeted cost.

Given the scenario that Malaysia is aiming to be an education hub it is expected that more and more private and public universities in Malaysia will increase the numbers of foreign based education they offer. As such a potential problem arising from offering these

programmes will be the increase in cost of study when students do not perform well due to language problem or inability to work in a university environment. Education providers will be tempted to lower/compromise the quality of education to capture the students to keep coming to Malaysia and the downside of that would be the lack/non recognition of Malaysian programmes which will ultimately result in decline in traffic towards Malaysia for education purpose. It would be a double edged sword situation.

Another concern from this is the abuse of student visas which has been an on going issue, the latest being the arrest of 35 GROs who had entered the country on student visa which was reported in the *Star* (23 June 2012, p. 38) and the capture of foreign students who were involved in commercial crimes that was reported in the *Star* (4 July 2012, p.3). To reach the government's aim to have 200,000 foreign students in Malaysia by the year 2020 (Hamisah 2011) the higher education providers should incorporate creative course delivery modes to ensure that the quality of Malaysian education is not compromised and social vices do not rise.

LITERATURE REVIEW

Kolb (1984) introduced Experiential Learning, Experience as the Source Of Learning and Development. This theory was later applied by Yamazaki and Kayes (2004) in their research on Japanese Expatriates in America. Yamazaki and Kayes (2004) in their study took an inventory of the learning styles of Japanese and Americans managers in an organisation who were unable to work well as a team then regrouped them to compliment their learning style which then resulted in higher productivity and improved work performance (Yamazaki and Kayes 2004; Miranda 2009). The outcome of this study besides introducing the idea that people have their own Learning Style that must be met for optimum results, also reaffirmed Kolb's theory that people's learning style can be associated to their country of origin which in this case were that of the Japanese and their American Expatriates (Yamazaki and Kayes 2004). Country of Origin having an impact on learning style is by no means a new theory. Hayes and Alison (1988) made similar association but it did not gain popularity until Yamazaki and Kayes' (2004) research was published.

Any education institute be it a school or a university will have the highest concentration of teaching and learning activities. As such, it makes a good place for Learning Style theories to be tested. Keri (2002) found that male and female students had differing learning styles and proposed that teaching methods must be diversified to cater for this. De Paula and Hlawaty (2001) conducted a study on German and Brazilian students from ages 13 to 17 and concluded there were differences in terms of preference to certain

factors such as lighting (external environment), preferred study time (morning versus noon versus evening) perception preferences, a total of 22 different areas were tested. The outcome of this study showed the difference in learning style could be associated to gender.

Joy and Kolb (2008) in their research concluded among other findings that culture had a significant impact in deciding a person's preference for abstract conceptualisation versus concrete experience and a marginal effect on the preference between active experimentation and reflective observation. To know what this means, a short explanation on Kolb's Learning Style theory is necessary.

Kolb's theory on Learning style was published in 1984. His hypothesis was that people can be categorised according to the way they learn and he introduced four (4) styles of learning:

- 1) Convergers (people whose learning takes place in situations where there is a necessity for problem solving by means of hypothetical-deductive reasoning.),
- 2) Divergers (the use of brainstorming method to solve problems and are able to view situations from many different perspectives)
- 3) Assimilators (solve problems by use of inductive reasoning and are able to create theoretical models)
- 4) Accommodators (those who solve problems by carrying out plans and experiments).

Further according to Kolb (1984) that these learning styles are made up of a combination (bundling) of learning cycle and there are four types of learning cycles that will take place.

- 1) The Concrete experience is to learn from experience or reaction to experience
- 2) Reflective observers is to learn through watching and listening.
- 3) Abstract conceptualisation is when learning takes place through thinking
- 4) Active experimentation is where the learning happens when the act is done.

As already mentioned the learning styles are made up of bundling of learning cycles which basically is the two strongest way (cycle) a person learns by. For example when a person learns through abstract conceptualisation and active experimentation, then the person is said to have a Converger type of learning style. The combination of cycle and resulting styles is shown below:

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Learning Style	Combination Of Learning Cycles	How Learning Takes Place
Assimilators	Abstract Conceptualisation/Reflective Observer	People in this category, will learn through listening, observing and then thinking them through
Convergers	Abstract Conceptualisation/Active Experimentation	People in this category are those who needs to have a combination of thinking through and hands on
Divergers	Concrete Experience/Reflective Observers	People who learn from experiences and analyses the experiences from various different perspective
Accommodators	Concrete Experience/Active Experimentation	People who will test their experiences by carrying out plans and experimentation

Diaz and Cartnal (1999) studied the learning characteristics of students who take up Distance Learning and compared them to the characteristics of students who studied in a traditional on campus mode. This research concluded that students who did online courses were more independent learners whereas those who studied on campus students were more dependent learners. The positive point for on-campus studying is that these students showed more collaborative work because they gained rewards by being so, something that did not show in distant learners unless it was made a part of their course

requirement. This research opens the door to the possibility of incorporating the benefit of both into one study mode.

In another study, the online youth run magazine, ReMag, volume 11/03 , reported that Malaysian students were heavily coached by teachers in their primary and secondary years which results in these students being unable to adapt to pre university environment (<http://recom.org/remagv2/2011/03/16/malaysian-students%e2%80%99-learning-attitude-and-style/>) March 2011. This could mean that a ‘bridge’ is required for a successful crossover from high school to college.

In another study, using Kolb’s Learning Style Inventory, Hong and Chan (2000) surveyed students in a Hypermedia Based Learning mode at University Science Malaysia to determine if there was a correlation between students learning styles, the use of navigational tools and their navigation pattern. Their findings were that those with dominant learning styles of ‘divergent’ or ‘assimilator’ showed prudent navigational pattern. Those with dominant learning style of ‘convergent’ or ‘accommodative’ showed daring navigational pattern. Prudent as used in this experiment meant that these students would start navigation from one mode and return to the mode whereas the daring navigators will not hesitate to follow the external or additional links as they go along. This is consistent with the theory of learning style since assimilators and divergers are people who think through or reflect and need to analyse further, making them ‘prudent’ The convergers and accommodators are those who require hands on and need to test the waters so to speak making them the ‘daring’ users. This study showed a link between students use of computer with their learning styles.

Pashler et al (2008) defined Learning Style as the concept that propagates the view that individuals differ in regard to what mode of instruction or study is most effective for them, i.e different people learn information in different ways. Much has been said about testing learning style, which brings about the question on what kinds of tools or methods can be used to perform these test. The tools and methods are all some form of questionnaire from which the answers are analysed. Some of the popular tools are Dunn and Dunn learning styles models (1980), Kolbs Learning Style Inventory (1984,1985) Honey and Munford's Learning Style Questionnaire (1992) to name a few (Pashler et al 2008).

The Dunn and Dunn assessment instruments ask questions on various areas such as how they learn best, the upkeep of their desk area as well as their thinking process, while Kolb's Learning Style inventory assesses the respondents answers to questions on how they learn best and then classify them as either divergers, assimilators, convergers and assimilators (Pashler et al 2008). Honey and Munford's Learning Style Questionnaire which was derived from Kolb's Learning Style inventory is similar to Kolb's except that different terms are used such as the word reflectors used in place of divergers, theorist in place of assimilators, pragmatist for convergers and activist for accommodators (Clark 2011). He further states that these changes come with a change in meaning as well but all of them analyse responses from questions to categorise the subjects that were being tested. Similar to Kolb's, Honey and Munford's theory propagates that people act based on the situation and are not locked in one style (Clark 2011).

Importance Of Recognizing Learning Styles

As already established students vary in the way they learn, some by seeing and hearing, others by reflecting and acting and still others by reasoning, memorising and visualising (Felder & Henriques 1995). They further point out that if such is the learning variation, then the teaching methods must be adjusted. They further state that failure to do so results in that students may be bored, be inattentive in class which will result in poor results and may be discouraged about the course or feel that they are not good in the subject matter (Felder & Henriques 1995, 1988; Godleski 1984; Oxford et al. 1991; Smith & Renzulli 1984). Felder & Silverman (1995) point out that this will in return result in instructors being critical of their students or question their own competence as a teacher. There are other studies that concur with this, such as that carried out by Andrews (1990), Dunn et al.(1995), and Klavas (1994) to name a few. These studies have shown that test scores improved when some form of accommodation of student's learning style was incorporated into their learning environment. This then suggest that adjustments should be made as they produce positive results.

Identifying students learning style should by no means be about looking for 'the style' of a student and customizing teaching to that specific style. Learning style is a suggestion of a behavioural tendencies (Felder & Spurlin 2005) as such it is only an indication of which is the strongest method of learning. Felder & Spurlin (2005) rightly point out that while the maximum learning will take place when the teaching is matched with the learning style, to function effectively in the future as professionals, students must be trained to use their other learning styles as well.

Matching Learning Style To Teaching Style

Complimenting teaching method to learning style is necessary to ensure that students are able to learn from their courses. Studies have been done to show that when right adjustments are made, students' grades improve. One such study by Zeeb (2004) at Jefferson's Academy High School was on adjusting lighting and furniture to suit students study preference. The results showed that with the adjustments, the academic results improved. This study however looked at the externals such as the lighting preferences, seating arrangement such as to sit on the floor versus chairs and various other external environment adjustments. This may be the reason to the different types of study areas in colleges and universities.

E-Learning

Conventional E-Learning

Marc Rosenberg (2001) takes a narrow view of e-learning confining it to the internet as in the use of internet technologies to deliver a broad array of solutions that enhance knowledge and performance. It is based upon three fundamental criteria, networked delivered to the end-user via a computer using standard internet technology focuses on the broadest view of learning. Most learning universities teaching via e learning is confined to sending of materials to learners and the learners taking a test with no interaction between teacher and learner

Virtual Classroom-Extension of E-Learning

Murdach & Muller(2010) did a study on virtual classrooms with the objective to improve access to advanced educational experiences by allowing students and instructors to participate in remote learning communities using personal computers;

This is to improve the quality and effectiveness of education by using the computer

to support a collaborative learning process. The importance is knowledge transfer.

This paper introduces the concept of extended e-learning with the use of social networking tools for collaborative work between students and lecturers and their fellow coursemates using their learning styles.

RESEARCH OBJECTIVE

The study looked into extending the e-learning system from a one way traffic of sending out information to students to creating a virtual group of students by course for year one subjects of an undergraduate degree programme.

The main objective of this paper is to address the problems of students' adjustments migrating from a secondary school system to a college environment. It proposes an extended e-learning mode through the use of social networking tools.

SCOPE AND METHODOLOGY

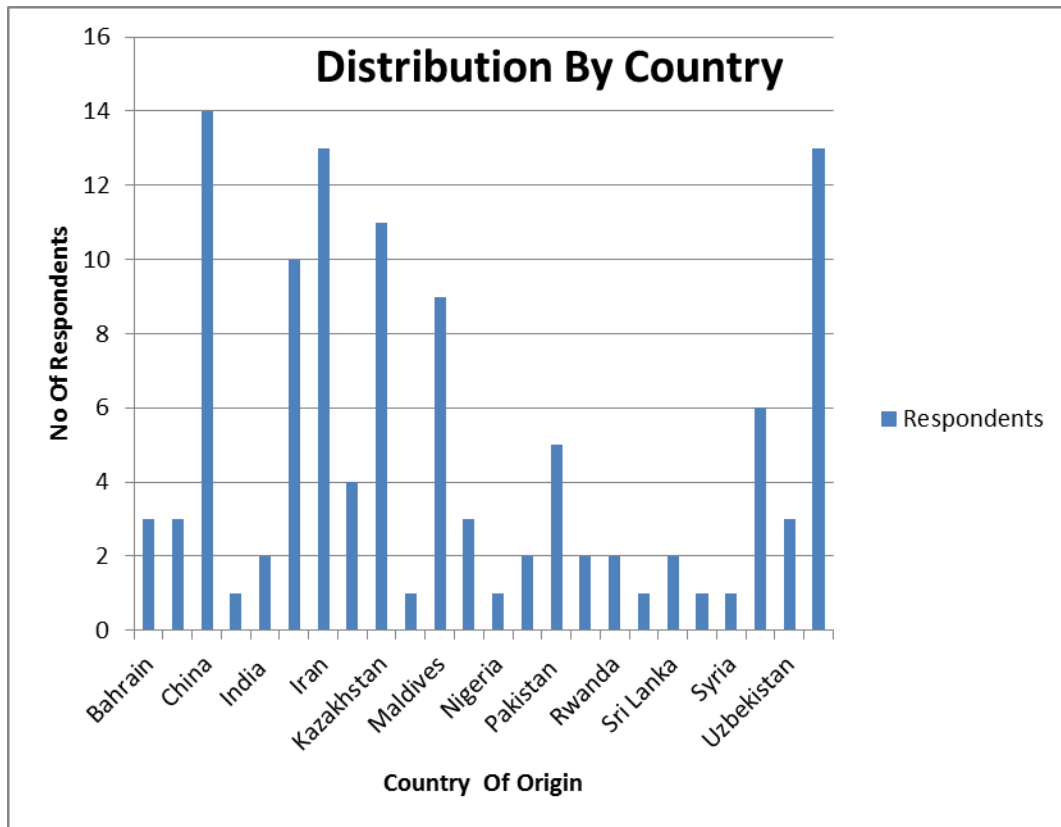
Respondents comprised mainly first and final year graduating students in a private university in the Klang Valley. Three exercises were conducted via the following:

- i) A Focus Group
- ii) First year students
- iii) Graduating students

Open ended questionnaires were administered to the focus group to understand how prepared they were in pursuing transnational education. A simplified version of Kolb's Learning Style inventory adopted for educational environment was administered to first year students in an introductory management course which is a first year core subject. The learning styles were analysed based on their choice of answers that best described how they learnt. This was to study the correlation between students' gender and learning style. A second test was to see if there was a correlation between a student's learning style and the country of origin.

The spread of students from the varies countries is shown in Graph 1.

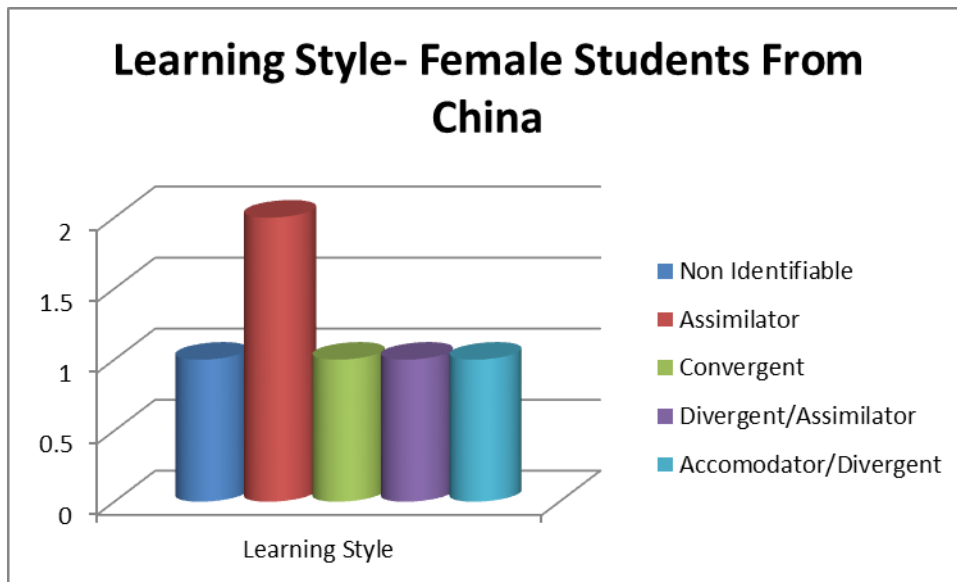
Graph 1 – Distribution By Country Of Origin



FINDINGS AND RESULTS

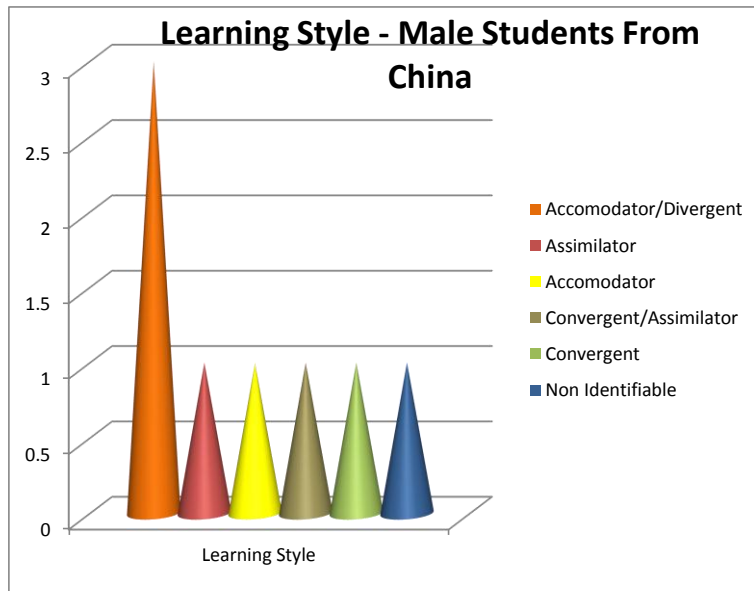
Students from the same country and of the same gender did not have the same learning style. The survey also revealed that the most difficult adjustment for students was on communication; many students surveyed did not have English as their medium of instruction in their country. The respondents also indicated that they did not perform well when they had to work in teams.

Graph 2 – Learning Styles Of Female Students From China

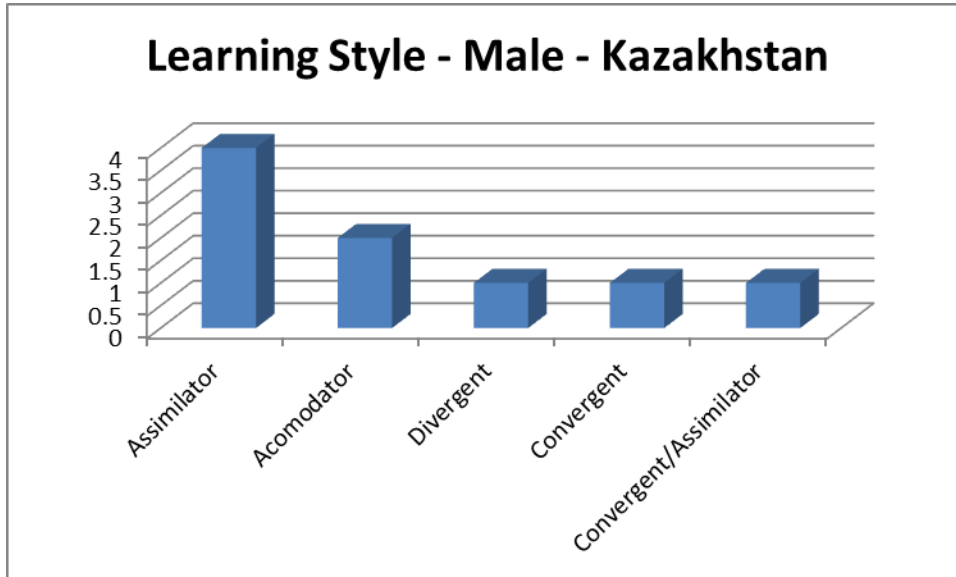


Although a strong leaning style is apparent, however, other styles are equally present.

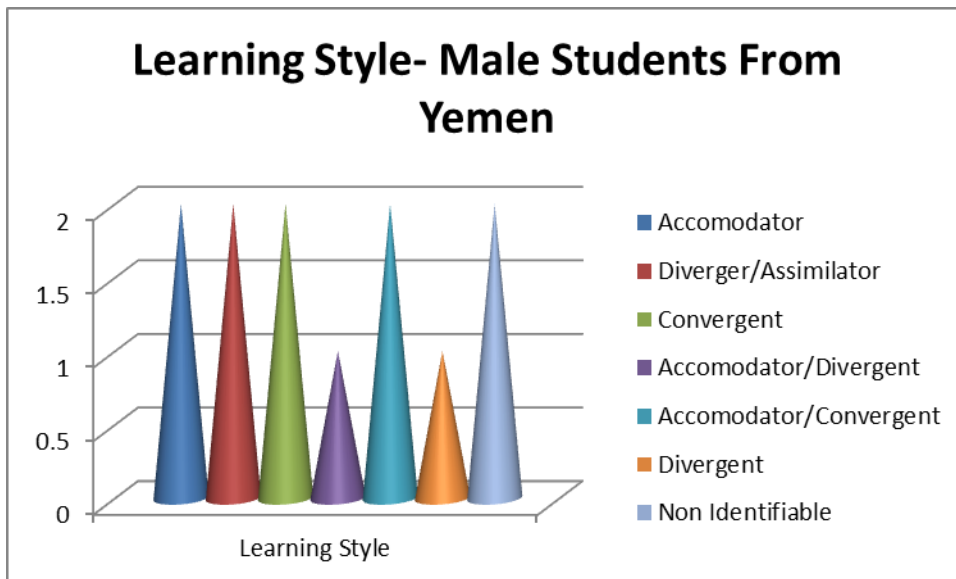
Graph 2 – Learning Styles Of Male Students From China



Graph 3 – Learning Styles Of Male Students From Kazakhstan

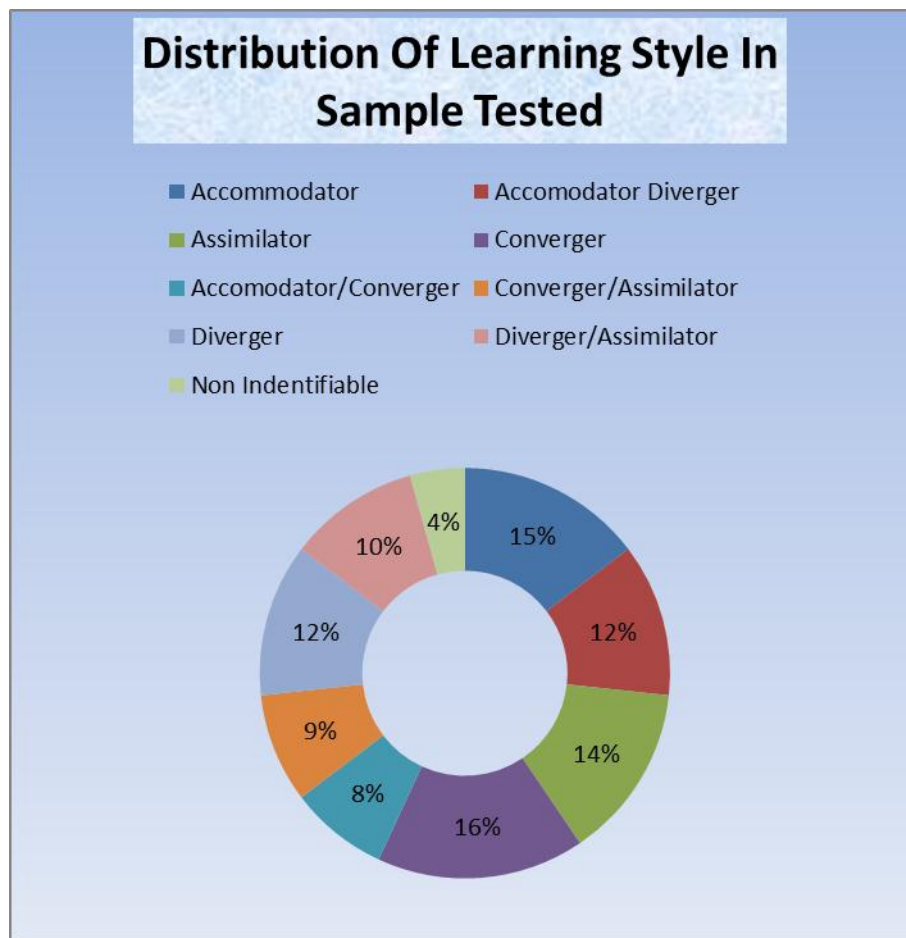


Graph 4 – Learning Styles of Male Students From Yemen



Although students learning styles could not be linked to their country of origin, they could be grouped according to learning styles as shown in Graph 5. The study also showed that students could have more than one preferred (strong) learning style.

Graph 5 – Learning Styles Distribution Of Students in the Sample



The above graph shows that students can be grouped into learning styles negating the effects of country of origin or background. It does not necessarily mean that past studies connecting learning style and country of origin is invalid, rather that in a classroom, it is impossible to have the numbers of students that can validate the study.

SIGNIFICANCE OF THE FINDINGS

In any module of a transnational education system, it is expected to have a mix of students from various countries. The mix of students will also be a mix of learning styles. This information can be used to benefit students learning experience by placing them in groups with different learning style.

The feedback indicated that language was a problem. If students cannot communicate in English it will have a significant impact on their learning experience because in colleges/universities, students are expected to work in teams and the teams would be a mix of different nationalities. The common language used in transnational universities is English. Students inability to communicate in English would pose serious adjustment problem and frustrations within the team.

The survey also indicated that some students' grades improved as they progressed, indicating that a certain amount of adjustment had to take place at the cost of some important factors such as grade, language and ability to work in teams at the top of the list. It also showed that some students' grades did not improve due to pressure and inability to cope.

RECOMMENDATION

Based on the findings some recommendation on pre preparatory activities towards undergraduate degree via distant learning/distant interaction is suggested. First and foremost, it is recommended that students who enroll for a programme should:

1) Start though an e-learning mode

and

2) Networking tools should be used as part of e-learning

Students will go through all the beginners' module with the only difference of it being 'virtual.

As in employment practices, placement methods may be a good starting point to create a virtual team. Although Peter & Hull 1969 interpreted placement test as 'showing the door' even before an employee gets a chance to work, a Learning Style (LS) test on the contrary make participants aware of their strengths and allow them to use their strengths to compliment styles of others. The purpose of this test should be made clear to the students, to ensure sincere responses in answering the questions.

This test should be done at the point of registration. Registration is a requirement of entry to any programme. The information from the LS can then be used to group students complimenting each other's learning style. The next step then would be to make students work in teams in a virtual learning environment. The final step is to use network tools, such as those discussed below.

Course Orientation

Students need to get comfortable with each other to enable them to work on projects. Web tools such as Wallwishers could be used to spin off this virtual interaction. It is ideal for ice breaking. This site can be used to create a 'classroom' group of students who can then introduce themselves and share photo shots of themselves as a way of getting to know each other.

Make learning English fun

The issue of language, specifically the English Language is one of major concern. English is not the native language in Malaysia like many other countries. Students however will feel it a waste to take English course as part of their undergraduate course in campus. Taking it up as an online course would be a much cheaper option. It could be made into a fun and learning experience for students. An example will be to use VOKI. Students and lecturers can use it to create Avatars. The lecturer can create a theme and have students create their own Avatar and share it on email messages or create a blog to share (closed community, access to lecturer and students in that course only). It could include video conferencing, which at the end of the video conferencing, a topic for discussion can be given to students to share their answers on a White Board application which can be created in this webtool.

The above are only examples. There are other network tools that can be used in any modules. Another popular tool among the younger generation is wiki space. Here students can be put into groups to do research and it has the ability to track each student's contribution. It could also be used for the purpose of presentation. All these activities are done in the 'clouds'/ 'virtual.

Furthermore, assignment can be varied to cater for the different learning styles and for each assignment, the person with the most complimenting learning style should be made the leader. By using means that are student friendly, the outcome of learning is expanded. The social networking tools when used in Distant Learning or E-Learning can encourage student participation. Craig (2012) in his blog shared that a study by the Higher Education Institute revealed that a majority of first year undergraduates spent a lot of time on social network websites. As usage by students is increasing and with universities incorporating Facebook and Twitter as part of classroom activities, it can be expected that students will be more interested in joining online discussions (Craig 2012).

These on line courses are recommended for the first semester subjects to break the ice and barriers on working in a transnational environment. Fraleigh (2012) affirms that by 2020, workers will be expected to work with others of diverse background. This he says will require cross cultural competency. He believes that social technologies simplifies the process by bringing groups of related people together virtually (Fraleigh 2012). Therefore it can be deduced that students having been exposed to study and work with members in virtual environment will feel that they know their friends when they physically attend 2nd semester or 2nd year courses in campus.

However thorough planning of which courses are suitable and applicable to be conducted via Distant Learning is necessary. On line test should be incorporated to ensure entry requirements are met and only qualified students meeting the standards of the university is taken into college. This would also work as a deterrent to students who may intend to use education as means to enter the country for other reasons.

CONCLUSION

As educators of future workforce we should start implementing social networking/media methods into the teaching and learning environment to better equip students to fit into the a transnational education .

Through this survey, the opportunity to use learning style to assist students to fit into a virtual study environment that would enhance their learning experience was introduced. The study also discussed the use of web tools in a virtual classroom environment without compromising education standard or quality.

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