

Learning Styles Preferences Among Usm Distance Learners Via Videoconferencing Technology.

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ABSTRACT

This study aims to identify the most dominant learning styles of SDE-USM distance learners with the usage of videoconferencing technology. The theoretical foundation for this study is based on Grasha-Reichmann learning styles model such as independent, dependent, competitive, collaborative, avoidant and participative. 394 respondents answered the questionnaire distributed to them and collected data were analysed using descriptive statistics such as means, standard deviations. The SPSS software version 17 was utilised to analyse the data. This study showed that independent learning styles recorder higher mean value as compared to others learning styles. Researchers suggest that further studies should explore other learning style theories with other delivery methods as well as include a larger sample from different institutions.

Keywords: learning styles, adult education, adult learners, videoconferencing technology

INTRODUCTION

The concept of learning in distance learning (DL) and face-to-face learning differs from the aspect of usage of media as interface, interaction and so forth. DL gives freedom of choice other than the traditional conventional approach which gives opportunity to all in getting the same education (Fazilah et al., 2000). According to Nafisah (2000), the concept of DL is different from the concept of conventional education in that the student is separated physically from the lecturer. Aini (2000) defined the DL program as a delivery system connecting the student with the learning resources. The School of Distance Education, University Sains Malaysia (SDE-USM), previously known as the Centre for Off-Campus Studies was established in 1971. SDE-USM provides opportunities for working adults to obtain tertiary education. Information technology (IT) has opened a new information delivery platform in the teaching and learning process, especially for distance learning program. According to Wikipedia (2009), video conferencing technology uses telecommunications of audio and video that are able to connect people at different remote sites. With the usage of videoconferencing technology in the teaching and learning process, students have the opportunity to communicate with lecturers and other students, sharing information as well as being active participants in the videoconferencing session.

Videoconferencing technology also known as "USMVideoNet" had been introduced at SDE-USM since 1995 as one of the teaching and learning delivery mechanisms. The videoconferencing technology connects the USM main campus to other regional centers throughout Peninsular Malaysia. This technology uses international internet protocol of H.323, including the ability to integrate data and video with the TCP/IP network. Many literatures showed that there are many advantages of videoconferencing in educational institutions. According to Martin (2005), Rose et al. (2000), Townes-Young and Ewing (2005) and West (1999), videoconferencing technology minimizes the time and costs savings between remote locations, helps to fill in the gaps of teaching services besides improving access to learning.

The effectiveness of live videoconferencing as a teaching tool has been researched thoroughly. (Katz, 2002; Wheeler, 2002). Findings by Carville and Mitchell (2001) showed that students have developed learning strategies and skills with

the usage of videoconferencing technology. However, the technology capacity and constraint should be given attention as it would affect the students' learning process Belanger and Jordan (2000), Simpson (1991), Holden (1994), Yocom and Whitson (1995) stated that voice acceptance will be unclear at the different locations when the students speak slowly. Latchem and Rapley (1992) also found that during videoconferencing implementation, many problems occurred as seen from the quality of audio, screen and image. One-way communication can also occur if the student did not participate during the session. A study conducted by Shaffe (2000) found that students were more passive to interact during the videoconferencing session. The distances between the location of the campus or regional center are usually far apart. Distance, time and cost of travelling to attend the videoconferencing session may account for failure to attend the live videoconferencing.

Gardner (1993), Sadler (1996) as well as Allinson and Hayes (2000) stated that every student has different learning styles. Grasha (1996) has defined learning styles as personal qualities that influence the students' ability to obtain information, to interact with peers and the teacher as well as to participate in the teaching and learning process. Several models of learning styles have been developed to understand the individual learning styles in various scales, instruments and questionnaires. The most commonly models are the theory of multiple intelligences by Gardner (1993), the Felder-Silverman Learning Styles Model by Richard Felder and Linda Silverman (1988), the Myers-Briggs Type Indicator by Myers and McCaulley (1985), the Kolb Learning Styles Inventory by Kolb (1984), Gregorc's Style Delineator by Gregorc (1984), the Canfield Learning Styles Instrument by Canfield and Knight (1983), the Learning Style Model of Instruction by Dunn and Dunn (1978), the Grasha-Reichmann Student Learning Styles Scales by Anthony Grasha and Sheryl Hruska-Reichmann (1974) and many more.

All students have their own learning styles. Grasha and Yangerber-Hicks (2000) explained that learning styles are an individual's preference for how to learn. Some students are more independent than other learners, some may need guidance from the lecturers or peers, some students may tend to take responsibility for their learning while others may take little responsibility and reluctant to learn. Some students also may want to do better than their peers whereas others may enjoy working with other students. For instance, if a learner is an independent learner, it would make sense for them to choose streaming or recording videoconferencing as they can work alone and confident to learn on their own. If they are dependent learner, they need feedback and guidance from the lecturers or peers, so it would be suited to live videoconferencing that involves interaction with others. Students may prefer one delivery mode over another because of the differences in individual learning styles.

Students in SDE-USM are mainly composed of adult students. Adult students have their own careers, family responsibility and have years of experience. Huang (2002) stated that adult learners have different learning styles as compared to young learners. They bring years of experience and knowledge to any learning situation. Hence, it is expected that they would prefer different learning styles especially with the usage of technology in teaching and learning process. Learning styles in distance education environments were not frequently studied. Walker (2005) states that researcher particularly related on the learning environment in distance education is limited. David (2002) also states that there is a gap in the literature in comparing learning style with an individual's preference for the delivery mode. There are also few studies that analyse the effectiveness of videoconferencing from the student's perspective. Many studies have explored the learning style with the students' academic achievement (Gee, 1990; Halsne & Gatta, 2002; Buerk, Malmstrom, & Peppers, 2003; Garland, 2003; Rohana et. al., 2003; Downing & Chim, 2004; Liu, 2007; Manochehri & Young, 2006; Kamaruddin et.al., 2010, and few studies have conducted on how learning styles relate to the preferred mode of delivery. (Uschi, 2001; David, 2002; Kim & Susan, 2002). There are different aspects regarding of the effectiveness of different media of instruction. A study by Gee (1990) that used the Canfield

Learning Styles Inventory (CSLI), found that distance learners preferred an independent learning environment, whereas on-campus students preferred collaborative work in a live teleconference distance education class.

Research done by Wong (2006) using the Grasha-Riechmann learning style scale in identifying the preferred learning style of students at Open University Malaysia (OUM) through the use of video conferencing technology found that the independent learning style was the most common learning style used by students undertaking programs at OUM. Findings by Diaz and Cartnal (1999) who studied learning styles among on-campus students and distance learning program students based on the Grasha-Reichmann learning style scale show that those in distance learning programs were more likely to have an independent learning style whereas the on-campus students were more inclined to practice the dependent and collaborative learning styles. However, the findings of Ahmad and Suaini (2010) who studied learning styles of Bachelor of Education degree part time students in Universiti Teknologi Malaysia (UTM) using the Grasha-Riechmann learning style scale found that collaborative and competitive learning styles were the dominant learning styles among the students. Further, the study by Kumar et al. (2004) involving 65 students at Midwestern University found that students preferred the participant, collaborative and dependent learning styles. Hamidah et al., (2009) in their study involving several educational institutions in the north of Malaysia found that female learners were more inclined toward the collaborative, participant, dependent and competitive learning styles. Based on the academic programs namely science and arts, the findings showed that there was a significant difference between learning styles and the academic program aspect.

This study attempts to fill the gap in adult student learning styles research by investigating the impact of information technology, which it is a videoconferencing technology on learning styles of distance learners. Thus, the main objective of this study is to investigate the most dominant learning styles of adult students' in SDE-USM based on Grasha-Reichmann learning styles model such as independent, dependent, competitive, collaborative, avoidant and participative.

Methodology

Procedure

This study is a descriptive study on the learning styles of adult students in SDE-USM. Descriptive research is suitable for use in research that aimed at describing a scenario that is happening in the population. This study focus on the videoconferencing technology as it is one of the educational tools for the teaching and learning process in SDE-USM and the best tool that has been recognised in Malaysia (Md Noor, 2001). The theoretical foundation for this study is based on Grasha-Reichmann learning styles model such as independent, dependent, competitive, collaborative, avoidant and participative. The "independent learners" prefer to work alone, do not rely on their lecturers to give direction on their studies and they are very confident learning on their own. The "dependent learners" typically need guidance and feedback from the lecturers or their peers. They prefer to have detailed instructions on how to complete assignments and to have someone to tell them what to do for their learning. The "avoidant learners" tend to take little responsibility and are reluctant to learn. Generally, they do not enjoy learning, tend to feel it is unnecessary to compete with other students to get a good grade, have a high absenteeism and are also poorly organized in their work. On the other hand, the "participative learners" are eager to take responsibility for their learning, interact well with their peers and are highly motivated. The "competitive learners" are described as those who want to do better than their peers. They feel like it is necessary to compete with other students for the lecturers' attention and being the best students are the goals of competitive learners. The "collaborative learners" prefer to work and learn through sharing and cooperating with the lecturers and their peers as well as enjoy working with other students on classroom activities and discussion.

All respondents in this study were off-campus undergraduate students enrolled in a Bachelors degree program. The population for this study consisted of students enrolled in SDE-USM for courses such as Management, Social Sciences, Humanities and Sciences. Researchers used stratified random sampling to ensure that the subjects are truly represents the population in SDE-USM and 394 students were selected as the subjects.

Data collection

Source information used in this study consisted of primary and secondary data. Primary data were obtained through the use of a questionnaire. The secondary data were obtained by reviewing reference books, journals, theses, and internet online sources. The instrument used in this study is the Grasha-Reichmann Student Learning Styles Scale (GRSLSS). The GRSLSS is an instrument focusing on the interaction and instructional preferences of participants. This scale is suitable for high school, college or university students in order to determine students' learning styles when interacting with lecturers and peers. The scale is one of the key that differentiating element of a distance class as it focuses on the lack of social interaction between lecturers and peers. This scale is also relevant to use in a distance education setting. By using this scale, an instructor may optimize the teaching and learning environment for all students and design courses based on students' learning styles.

Data analysis

Descriptive analysis such as means and standard deviations has been used to analyse the data. Mean was used to obtain the central tendency for the investigated group and standard deviation was used to determine the distribution of scores within the group. The data was then analysed using statistical analysis of SPSS software version 17.0.

Findings and Discussion

To determine the most dominant learning styles with the usage of videoconferencing technology.

To examine the most dominant learning styles among adult students' in SDE-USM, descriptive analysis such as mean and standard deviations were used to find the research findings. Referring to the mean score tabulated in Table 1, the total of mean score for each item is more than 2.50 and standard deviation is between 0.5 - 1.00. The findings found that overall, students emphasize more on the independent learning styles 2.75 (0.87), followed by avoidant 2.70 (0.82), competitive 2.56 (0.79), dependent 2.40 (0.72), participative 2.19 (0.69) and less emphasize on the collaborative learning styles 2.01 (0.61).

The results showed that independent learning styles recorder higher mean value as compared to others learning styles. This result suggests that most of the adult students' in SDE-USM are independent students with the usage of videoconferencing technology in their learning process. The students' experience as an adult has allowed them to be independent and take greater responsibility on their own learning process. With the usage of videoconferencing technology, adult students' in SDE-USM are more independent for pursuing their own learning goals and needs. This finding is supported by a research done by Gee (1990) that using the Canfield learning styles inventory, states that the students in the distance education course had the highest scores for the independent learning style whereas the on-campus students with the highest mean score were the collaborative students. According to Grasha (1996), students who have independent characteristic prefer to finish their task by themselves and receive less direction from their lecturers. Johnson and Johnson (1999) stated that students who are independent usually have their own study materials, work at their own pace and strive not to disturb other students. They also have their own objectives to

achieve, have deep interest, regard their success as dependent on their own ability and also regard their success and failure as unrelated to others.

The second learning style practiced by the DL students at SDE-USM is the avoidant learning style. The students who adopted this learning style were more inclined to not attend lectures, were weak in managing tasks given and avoided establishing more productive goals. Nevertheless, the researcher opines that students with avoidant learning style are more responsible over their learning and they have the ability to avoid having any pressure especially related to their learning. According to Grasha (1996), students who had the avoidant learning style had the tendency to achieve low academic achievement and usually had the highest absenteeism in lecture attendance. They also were found to be weak in managing tasks, were less responsible in their learning, avoided participating in any activity in the classroom, lacking in enthusiasm for their chosen course and did not like to face tests and examinations because they usually barely made the passing grade. Tajul (1989) also agreed that those with avoidant learning style are not confident of passing with excellence in a subject being learned, are not interested in the learning being followed, lack peers with whom to discuss, and are unready to discuss with other students. However, students who favor the avoidant learning style were found to have ability to avoid any stress or anxiety throughout their T&L process. They also have time to indulge in other activities besides studying. This will give a negative effect in their learning outcomes such as a less than productive learning process and prevent them from setting more productive and clear targets.

Further, the competitive learning style is the third most favored by the students of SDE-USM. Students were found to compete among themselves for rewards and recognition in the T&L process. In fact, mistrust emerged among the students in the same group. The students who adopt a competitive learning style can motivate themselves in maintaining their performance and set their own targets in learning. Nevertheless the students who love to compete found it hard to learn techniques and skills for collaborating with other students. According to Grasha (1996), students who are competitive in nature will compete among themselves for rewards and recognition. In fact, distrust may crop up even among the same group members. They were always eager to show their prowess such as completing tasks in a better way than others. Besides that, they were always keen to know the achievement level of others in tests or assignments. Learners who employ the competitive style can motivate other learners to maintain their performance in directing the target for the learning being followed. Besides that, they can carry out actions better than other students can, when following the lectures. They will always interact with the lecturer and other students by asking questions in the lecture theatre and constantly seek praise or appreciation related to activities in the lecture theatre. However, the students who like to compete find it difficult to appreciate other students and do not learn enough about practicing collaboration techniques and skills for interacting with other students.

The fourth learning style is the dependent learning style whereby the students tend to be disappointed or discouraged if faced with challenges in the T&L process. This is because they are very dependent on the lecturer to give them instruction to complete a task and always require clear instruction from the lecturer. Indeed, these dependent learners will find it hard to develop self efficacy skills in their learning. Grasha (1996) suggested that the dependent students will feel disappointed when faced with challenges in their learning. This is because of their high dependence on their lecturers since they expect clear instructions in completing any task. In fact they need guidance from their lecturers, and must be told what needs to be learned especially when facing examinations. The lecturer and other students are their sources of reference. Besides that, they also rely only on the prepared learning materials and do not take the initiative to seek out other additional information related to their lessons. The students who adopt a dependent learning style are seen as students who find it difficult to develop self-efficacy in their learning. They do not like to learn how to overcome a certain problem that is unclear. This is because they always need guidance from the lecturer where they regard the lecturer as one who should help them in managing their anxiety and giving clearer

instructions. These students also often meet with their lecturers and other students to obtain information considering that they need notes from the lecturers to learn the material being taught. They also prefer the student-centered T&L process.

Next, the participant learning style was the fifth preferred learning style practiced by students in the SDE-USM program. Those who employ this learning style are more responsible over their own learning and have good relationship with other students. These students will complete all assigned tasks with a positive attitude, are active in all lecture room activities and obtain valuable and useful experience in every lesson they follow. Nevertheless, these students often do a learning task by placing too much importance on the needs of others rather than their own needs. The findings of this study show that students in the SDE-USM are less involved when following the DL program with the use of video conferencing technology as the interface in the T&L process. Those students who prefer participant learning style usually like to engage in activities in the lecture hall, love to attend lectures and are responsible for their own learning. Grasha (1996) stated that such learners often have good relationship with other learners. Besides that, they always complete their assignments and always have a positive attitude. They regard lecture room activities as very valuable, useful and attract their attention to follow the lessons. They also are active students in classroom activities. This group of students also consider that they will gain experience in every lesson followed when they go for lectures. However, the students in this group were found to always place others' needs in excess of their own needs. This means that they will put others' needs and requirements ahead of their own.

According to Laurillard (2000) and Smyth (2005), use of video conferencing technology can enable students to collaborate in the T&L process to get in-depth explanation. Apart from use of videoconferencing technology in the T&L process, students need to be independent at certain times in order to obtain additional information. Nevertheless, this study found that the collaborative learning style was the least applied learning style by the students of SDE-USM. Among the characteristics of students with the collaborative learning style are that they enjoy sharing ideas when learning in groups. Barker (2002) noted that the use of technology in adult education must allow learners to interact with one another, support learners in obtaining more effective information, help resolve learning problems and allow student collaboration. Askov and Simpson (2001) also agreed that technology use must encourage adult learners to collaborate among themselves. However, the students in this group were found to depend too much on others and lacked the ability to do their tasks by themselves. The students were lacking in collaborativeness perhaps because they had limited interaction with the lecturers and other students considering that all of them were busy with their own daily responsibilities. The researcher is also of the opinion that considering the limited one hour time for the video conference session, students do not have the opportunity to carry out collaborative discussion using the video session mode in their learning process.

Table 1: Means and standard deviations of adult students' learning styles.

| Learning Styles | Mean (SD) |
|-----------------|-------------|
| Independent | 2.75 (0.87) |
| Avoidant | 2.70 (0.82) |
| Competitive | 2.56 (0.79) |
| Dependent | 2.40 (0.72) |

| | |
|---------------|-------------|
| Participative | 2.19 (0.69) |
| Collaborative | 2.01 (0.61) |

SD – Standard Deviations

4. Conclusion

Technology can be used as a valuable tool to promote and strengthen certain learning styles with specific mode of delivery. For instance, if the lecturer requires the students to interact during the session, it may strengthen the students' participant in the classroom, minimize those who are avoidant learners and provides opportunity for the competitive learners to do better than their peers. The students may naturally choose the most productive learning styles for their learning process. What important is that videoconferencing delivery modes provide an option for the students to use effectively for their learning process.

This study found that the most dominant learning style adopted by students in SDE-USM is the independent learning style. As adult learners following distance learning, the students have the freedom to learn on their own, are independent at certain times and take responsibility over their own learning. According to Karsono (1993), students have to be independent and learn on their own while the institution offering DL programs can play its role by preparing help in the form of academic facilities and other support services. This shows that for the effectiveness of a T&L process the independence factor is important for the student to be more motivated in the T&L process through videoconferencing technology.

Researchers also suggested that students should take their own initiative to work in a group, sharing ideas as well as initiate discussion in order to avoid feeling isolated and unmotivated when they sign up for distance education programs. To strengthen the students' learning styles, the researchers suggest that the lecturers have to be more productive to interact with their students and discuss the learning material during the live videoconferencing session. Lecturers may also require the students to give group assignments that may help to strengthen the students' participative and collaborative learning. The researchers also suggest that further research should explore the different types of learning styles with other delivery modes, utilize other learning style theories and models as well as do a comparative study on the learning style differences between students in the distance education program and on-campus students.

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