

Learning Style Preferences: A Comparison between Students of an Indian and a Malaysian Medical School

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Abstract

Background: Students have different levels of motivation, attitudes about teaching-learning and responses to specific environments. The more the instructors understand the differences, better the chance they have of meeting the diverse learning needs of all their students. This study aims to analyze the learning preferences among students of an Indian and a Malaysian medical school.

Methods: The study was conducted among the 2nd year medical students from an Indian medical school (group 1, n=91) and a Malaysian medical school (group 2, n=100). After obtaining informed consent, the students were instructed to fill "the index of learning styles questionnaire" by Felder and Solomon. The questionnaire assesses preferences on four dimensions: processing (active/reflective), perception (sensing/intuitive), input (visual/verbal) and understanding (sequential/global). The data obtained was analyzed using descriptive statistics.

Results: In group 1, 56 students were female and 35 male, and in group 2, 61 were female and 39 male. In both groups we found that active learners were common in processing, sensing learners in perception, visual in input and sequential in understanding. The comparison in the learning style between both groups revealed that active learners were more in group 2 (64%), reflective in group 1 (42%), sensing in group 2 (64%), intuitive in group 2 (37%), verbal in group 2 (26%), visual in group 1 (80%), sequential in group 2 (68%) and global in group 1(42%).

Conclusion: It is recommended that educators take learning style preferences of medical students into consideration so that teaching-learning methods are designed to suit the learning styles of all or most of the students.

Key Words: Index of Learning Style Questionnaire

Introduction

The transition from an undergraduate science student to a first year medical student can be difficult because of the enormous increase in the volume of content (Heidi & Stephen, 2006).

Moreover, each medical student differs in their levels of motivation, attitude towards teaching-learning and also their responses to the change in environment. The more the instructors understand the differences, the better the chances are that they meet the diverse learning needs of all their students.

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Learning style or preference is the complex manner in which, and conditions under which, learners most effectively perceive, process, store and recall what they are attempting to learn (James & Gardner, 1995). Since students have significantly different learning styles, it is the responsibility of the instructor to address this diversity of learning styles among students and develop appropriate learning approaches (Tanner & Allen, 2004). Student motivation and performance improves when instruction is adapted to suit the student's learning style and preferences.

Both India and Malaysia are South East Asian countries and there is not much ethnic differences between the two countries. The educational qualifications and the age at which students enter medical school are similar in both the countries. There are many medical schools in Malaysia which have twinning programmes with Indian medical schools and the students are exposed to teachers from India as well as Malaysia. Similarly the teachers need to teach Indian as well as Malaysian students. Knowledge of the learning style of students of both countries could possibly help develop uniform teaching approaches relevant to students of both the countries. Hence identifying preferred learning styles of students may improve the quality of medical education and produce knowledgeable and competent doctors for the society. Thus, the aim of this study was to compare the learning styles of medical students in an Indian and a Malaysian medical school.

Materials and Methods

Design

The index of learning style questionnaire was developed by Felder and Solomon (Richard & Linda, 1988). This questionnaire was selected due to its free availability online for both students and the researchers, and its

simplicity of online usage for the students to know their learning styles. The questionnaire has 44 items and assesses the preference on four dimensions i.e. processing (active/reflective), perception (sensing/ intuitive), input (visual/ verbal) and understanding (sequential/global).

Process

The index of learning style questionnaire was administered to the 2nd year medical students in an Indian and a Malaysian medical school with a sample size of 91 and 100 respectively. Informed consent was taken from all the students who participated in the study.

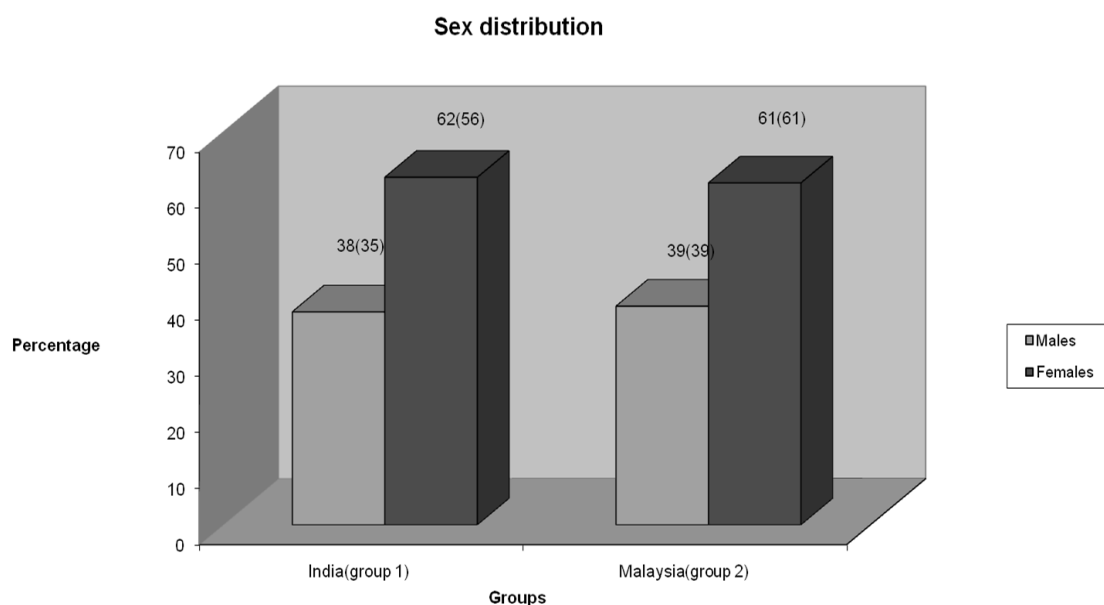
Analysis:

Data was analyzed using descriptive statistics. The data is reported as percentage of students in each category of preferred learning style.

Results

The study included a total of 191 students, with 91 and 100 students from an Indian and a Malaysian medical school respectively. Indian students were designated as group 1 and Malaysian students as group 2. Sex distribution of the participants is illustrated in figure 1.

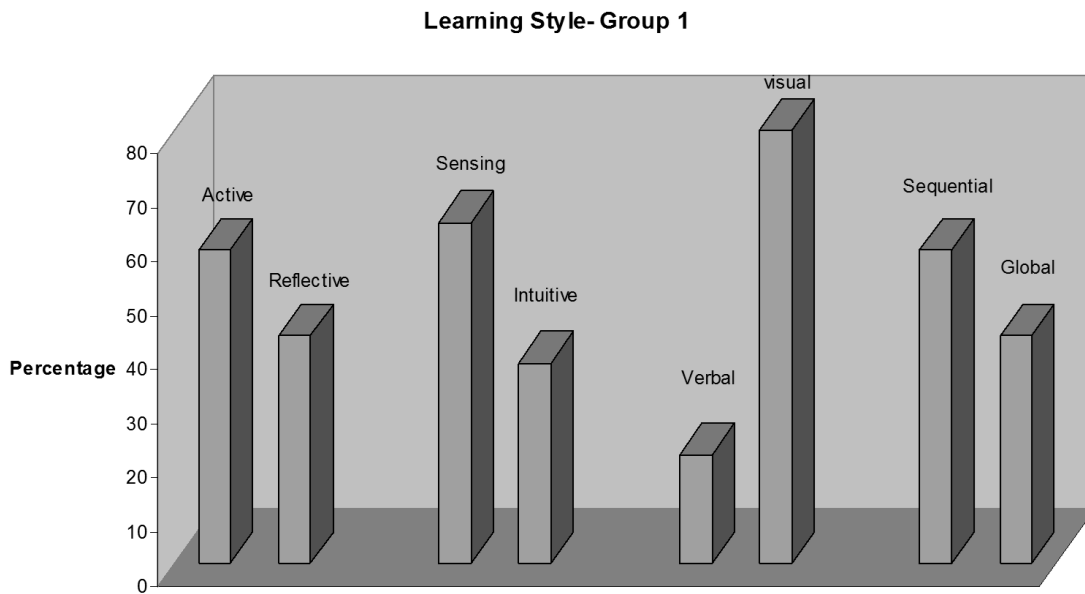
Figure 1: Sex distribution*



*Numbers are reported as percentage (actual number of students)

Female students were more than male students among both the groups i.e. 62% and 61% in group 1 and group 2 respectively (Figure1)

Figure 2: Learning styles of Indian students



As shown in Figure 2, we observed that in group 1 there were more active learners in the processing dimension (domain 1, 58%), sensing learners in the perception dimension (domain 2, 63%), visual learners in the input dimension (domain 3, 80%) and sequential learners in the understanding dimension (domain 4, 58%). We also noticed that the majority of students preferred the visual learning style. In group 2 the learning style pattern was similar to that of group 1. The percentage of preference was 64%, 64%, 74%

and 68% for active, sensing, visual and sequential learning respectively (Figure 3).

As shown in Figure 4 the comparison of the learning styles between both groups shows that group 2 had a larger proportion of active learners, sensing learners, verbal learners, and sequential learners than group 1; while group 1 had a larger proportion of reflective learners, intuitive learners, visual learners, and global learners than group 2.

Figure 3: Learning styles of Malaysian students

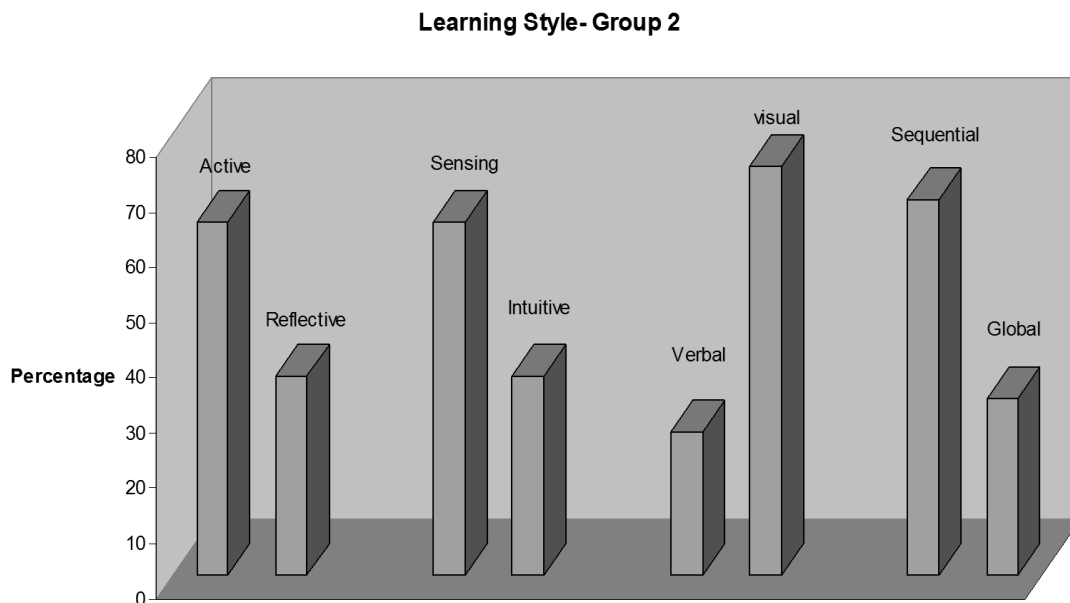
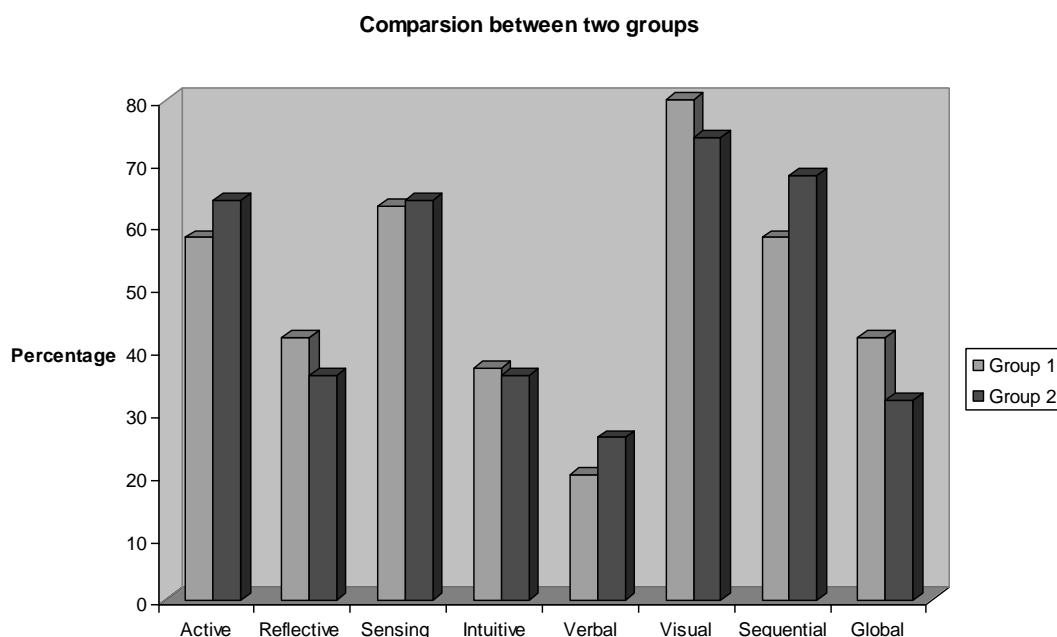


Figure 4: comparison of learning styles between groups



With the predetermined p value of 0.05, Chi square test was done to check the differences in each learning style between the two schools. The assumptions of Chi square test were also checked. There were no statistically significant differences between the two groups.

Discussion

Medical schools all over the world are engaged in a continuous process of maximizing the quality of their graduates so as to enhance their readiness for the job market and further education. Thus, it is important to focus on improving the critical aspects of teaching and learning. In this attempt, one area which has received increasing attention is the learning style of students (Richard & Linda, 1988).

Students learn in many ways - by seeing, hearing, reflecting, acting, reasoning, memorizing or visualizing. They learn slowly and steadily. Accordingly, teaching methods of the instructors also vary. Some instructors lecture, others demonstrate or discuss, some focus on principles and others on application, some emphasize memory and others understanding. How much a student learns in a class is governed partly by the student's innate ability and prior preparation and partly by the compatibility of his or her learning style and the instructor's teaching style.

In our study we found that there were more females than males, a trend in India and Malaysia where females join the medical course more commonly than males. We found more active learners in both groups. This is in accordance with a study conducted on engineering students which found that engineers are more likely to be active than reflective learners (Dunn & Carbo, 1981). An active learner is someone who feels more comfortable with active experimentation than reflective observations. Active learners do not learn much in situations that require them to be passive and they work well in groups. An effective method for reaching active learners is to organize the students in groups and discuss answers posed by the instructor.

Most of the students in the perception dimension were sensing learners in both the groups. The same finding was reported in the study conducted by Hosford and Siders (2010) on medical students in USA. In his theory of psychological types, Carl Jung introduced sensing and intuition as the two ways in which people tend to perceive the world. Sensing involves observing, gathering data through the senses, intuition involves indirect perception by way of unconscious speculation and imagination. To cater to both the learning styles we should provide a balance of concrete information and abstract concepts (Jung, 1971).

Both our study and the study conducted by Hosford and Siders (2010) demonstrate that most of the medical students are visual in the input dimension. Most of the teaching among medical students is verbal (Hosford & Siders, 2010). The information presented is predominantly auditory or a visual representation of auditory information. Thus a mismatch exists between the preferred input modality and the preferred instruction mode. Irrespective of the extent of the mismatch, presentations that use both visual and auditory modalities reinforce learning for all students (Dunn *et al*, 1981; Barbe & Milone, 1981; Dunn & Carbo, 1981). Liberal use of pictures, schematics, graphs and simple sketches before, during and after the presentation of verbal material would be helpful for the students (Richard & Linda, 1988).

Most formal education involves the presentation of material logically and progressively. Some students are comfortable with this system and they learn sequentially, mastering the material more or less as it is presented. Others, however, cannot learn in this manner. They learn in fits and starts and may be lost for days or weeks, unable to solve the simplest problems until they suddenly get it. They may then understand the material well enough; these are global learners (Richard & Linda, 1988). In our study we found more sequential learners among the students of both countries. A valuable way for instructors to serve the global learners, as well as the sequential learners, is to assign creativity exercises or problems that involve generating alternative solutions, bring in material from other courses or disciplines, and encourage students who show promise in solving them (Felder, 1987; Felder, 1988).

It has been noted that learning style differs with the cultural differences of various ethnic groups. In a study conducted by Park (1997a) it was found that various ethnic groups had different learning styles. In our study we did not find any difference in the learning style in any of the dimensions among students of both the countries. In another study conducted by Park (2000) he found no difference in the learning style among high, middle and low achievers among South East Asian students. He also reported that South East Asian students showed preference for group learning compared to East Asian students who showed a negative preference (Park, 1997a; Park, 1997b). Hence we can infer that South East Asian students are more active learners than East Asian students.

Although the styles in which the students learn are variable, the inclusion of small group teaching techniques will be sufficient to meet the needs of most or all the students in a class. There are many instruments available to study students' learning styles. Irrespective of the instrument used, many studies have shown that learning style plays an important role in the academic performance of college students. The alignment of students' learning styles with the instructors' teaching techniques have resulted in improved scores while a mismatch in learning characteristics and teaching techniques have resulted in poor performance (Andrew, 1990; Dunn *et al*, 1995; Klavas, 1994).

Conclusion

Inevitably, students bring to the classroom a great diversity of learning styles. The problem is not that of faculty/student mismatches, but rather the failure to identify and resolve potential conflicts and misunderstandings that hamper student learning. Faculty members must be self-reflective and explicit about the role of learning styles and this can make teaching more rewarding and enhance student learning at the same time.

As instructors, we need to assess and understand how to reach all students by understanding how to present information in multiple modes. We can help students more effectively both within and outside the classrooms, if we are aware of their learning style and can assist them in determining their preferences. As a student, it is vital to be self-aware of preferences in order to adjust study techniques to best fit each individual, even when the information and instruction provided does not match the preferred style.

Limitations of the study

We feel that the sample size was too small to generalize to medical students of the respective countries as a whole, and students of other medical schools of both the countries could have been included. Further research with a larger sample size may be required to come to more definite conclusions.

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