

Comparison of readiness for self-directed learning in students experiencing two different curricula in one medical school

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ABSTRACT

Objective: The study was done to compare the readiness for self-directed learning between students experiencing conventional curriculum and those experiencing integrated organ system based curriculum at the end three years of medical training.

Materials and Methods: A Quasi-experimental Posttest only study was conducted among students of College of Medicine. Students of the last batch of the Conventional curriculum and the first batch of the new IOSBC participated in the study. Data was collected using the Self Directed Learning Readiness Scale/ learning preference assessment instrument (SDLRS-A/LPA); an instrument with a reliability coefficient of 0.87.

Results: The study included 33(49%) students from the new IOSB curriculum and 46 (58%) from the conventional curriculum; 28 (35%) males and 51 (65%) females. The overall mean SDLRS score was 214 ± 25.7 which is consistent with the mean scores reported for general adult learners. The mean SDLRS score was higher among the students in the conventional curriculum 216.9 ± 28.6 and 37% had above average SDLRS-A/LPA scores when compared to those in IOSBC where the mean score was 211 ± 21.09 and 27% had above average scores however this difference was not statistically significant. There was no significant difference in the scores of males and females. SDLRS scores were compared in students from different high school curricula and the Wilcoxon rank sum test showed that students from the American curriculum had significantly higher scores than those following other curricula.

Conclusion: The overall SDLRS-A/LPA score is similar to the mean scores reported for general adult learners and the study found no difference in the readiness for self directed learning between medical students experiencing conventional curriculum and those experiencing integrated organ system based curriculum

Key words: self-directed learning, medical students, curriculum change

INTRODUCTION

The practice of medicine demands that its practitioners are self-directed, life-long learners¹, and as medical students they are expected to make decisions about the extent and depth of their study, and so self-direct their learning². Self direction in learning exists along a continuum; it is present in each person to some degree, and students differ in their readiness for self-directed learning (SDL). To teach individual self-directed learning competencies, the following are important: (1) situate learners to experience "real" problems; (2) encourage learners to reflect on their own performance; (3) create an educational atmosphere in clinical training situations³.

Self-directed learning is best defined by Malcolm Knowles, as "a process in which individuals take the initiative, with or without the help of others," to diagnose

their learning needs, formulate learning goals, identify resources for learning, select and implement learning strategies, and evaluate learning outcomes⁴. Self-directed learners demonstrate a greater awareness of their responsibility in making learning meaningful and monitoring themselves⁵, they view problems as challenges, desire change, and enjoy learning, and they are motivated and persistent, independent, self-disciplined, self-confident and goal-oriented⁶. Self-directed learners in a Concept-Oriented Reading Instruction (CORI) program demonstrated the ability to search for information in multiple texts, employed different strategies to achieve goals, and represented ideas in different forms such as drawing and writing⁷.

Studies indicate that being an effective, independent, and self-directed lifelong learner is critical for graduates

of undergraduate medical programs^{8,9}. The AGCME-TRI report also included reference to skills related to self directed learning, as it identified that the “Faculty members first goal should be to foster Medical students life long learning” by helping them develop these skills¹⁰.

The most frequently used instruments for measuring self-directed learning are, Dr. Guglielmino’s Self-Directed Learning Readiness Scale (SDLRS)¹¹ and The Oddi Continuing Learning Inventory (OCLI)¹².

The SDLRS uses a 58-item 5-point Likert scale. Higher scores occurring from using the scale represent higher readiness for self-directed learning¹¹. Since development of the scale by Guglielmino, a number of studies have supported its reliability and validity, and according to Guglielmino and Guglielmino “This instrument has consistently demonstrated strong reliability and validity in identifying those who are ready for self-directed learning in its 26-year history”¹¹.

As cited by Shoker¹³ a meta-analysis done by McCune, Guglielmino and Gracia of 10 years of research using SDLRS on various adult learner populations found it to be a valid and reliable instrument with a mean of 227.7 and a range of 62 points from low to high scores. A study among 2056 Japanese students of six universities and six vocational nursing schools, in Hokkaido using SDLRS showed a reliability coefficient of 0.914 using Cronbach’s alpha indicating that the Japanese-SDLRS is valid and reliable¹⁴.

However, one recent study conducted by Hoban et al.¹ conflicts with this statement. They found that SDLRS cannot truly assess medical students’ self-directed learning. However the Chinese edition of SDLRS supports the reliability and validity just as the western studies did¹⁵.

Gulf Medical College (GMC), the place where the study was done, undertook a major curriculum change from a conventional curriculum to an Integrated Organ Systems-Based

Curriculum (IOSBC) in 2008, based on recommendation of the accreditation body of the Ministry of Higher Education and faculty feedback.

The conventional curriculum was more teacher-centered and heavy on didactic lectures. In the new IOSBC an attempt was made to make the curriculum more student-centered and the educational environment more conducive to self-directed learning by changing the infrastructure, providing more resources and incorporating different teaching learning methods such as problem-based learning, case-based learning, computer-aided learning, project-based learning, small group learning and allotting protected time in the time table for self-directed learning. When compared to the conventional curriculum it provides more opportunities for self-directed learning. The present study is being conducted to assess if the provision of such opportunities improved the students’ readiness for self-directed learning after experiencing it for three years.

There have been no reports of any similar study in this region though many of the medical schools went for curriculum change from conventional to integrated curricula. The ongoing curricular changes in GMC need to be evaluated, and the results of this study would contribute towards these efforts.

MATERIALS AND METHODS

A quasi-experimental post-test only study was conducted in the College of Medicine Gulf Medical College from July 2009 to July 2011. All students of the last batch of the traditional curriculum and all students of the first batch of the new IOSB curriculum were invited to participate in the study.

The last batch of student in the traditional curriculum finished the third year of their training in July 2010; the first batch of students in the New Integrated Organ System Based Curriculum finished the third year of training in July 2011. SDLRS was administered to these students in the first week of September in 2010 and 2011 respectively during the clinical orientation week.

Table 1. Age and gender distribution of students in the traditional and integrated curriculum

Curriculum Type	Age	Gender		Total No(%)
		Male No(%)	Female No(%)	
Integrated Curriculum	less than and equal to 23	5	18	23
		62.5	75.0	71.9
	24 and above	3	6	9
		37.5	25.0	28.1
Total	8	24	32	
		100.0	100.0	100.0
Traditional curriculum	less than and equal to 23	10	19	29
		50.0	73.1	63.0
	24 and above	10	7	17
		50.0	26.9	37.0
Total	20	26	46	
		100.0	100.0	100.0

Table 2 shows that majority of the participants were from the Indian subcontinent mainly India, Pakistan and Bangladesh, followed by Africans

Table 2. Nationality of students in the traditional and integrated curriculum

Nationality	Type of curriculum		
	Integrated Curriculum	Traditional curriculum	Total
Arab	1	12	13
	7.7	92.3	100.0
Indian subcontinent	19	19	38
	50.0	50.0	100.0
African	8	7	15
	53.3	46.7	100.0
Others	4	8	12
	33.3	66.7	100.0
Total	32	46	78
	41.0	59.0	100.0

SDLRS, a self report instrument, is a Likert style scale with five response options. It is a widely used instrument for assessing readiness for self-directed learning and is has been translated into several languages. In a factor analysis Guglielmino reported that eight constructs are measured, namely: 1. Openness to learning opportunities, 2. Self concept as an effective learner, 3. Initiative and independence in learning, 4. Informed acceptance of responsibility for one's own learning, 5. Love of learning, 6. Creativity, 7. Positive orientation to future, 8. Ability to use basic study and problem solving skills. The instrument is reported to have a 0.94 Pearson split half reliability and a Cronbach-alpha reliability coefficient

of 0.87. A rating scale is also provided with the questionnaire. Readiness for self directed learning is considered to be below average if the score is 58-201, average 202-226 and above average 227-290. Independent variables included were type of curriculum, age, gender, nationality, schooling, performance in the last examination. Data was collected after obtaining approval form the Ethics Committee of Gulf Medical University. Data was analyzed using SPSS-19. To find the association between dependent variables and independent variables, Chi-square test was performed. Wilcoxon Rank Sum test was done to see if there was a significant difference in readiness for self-directed learning between students in the

Table 3. SDLRS scores with different demographic variables

MBBS Curriculum	N	Mean SDLRS score	SD	p-Value
Integrated curriculum	32	211.4	21.4	NS
Traditional curriculum	46	217.0	28.6	
Gender				NS
Male	28	214.3	28.9	
Female	50	215.0	24.3	
School curriculum				<0.005
African	14	215.4	31.9	
American	7	238.7	27.2	
Arab	12	222.8	20.8	
British	27	200.4	20.5	
Indian	12	220.5	15.5	
Others	6	221.7	30.1	
Age in years				
less than and equal to 23	52	212.8	25.4	
24 and above	26	218.6	26.8	
Class grades				NS
Good	30	221.03	27.980	
Average	25	209.16	27.533	
Poor	23	212.52	19.702	

traditional curriculum and those in the traditional curriculum.

RESULTS

A total of 78 students participated in the study, 32(41%) from the integrated curriculum and 46 (59%) from the traditional curriculum. The overall group SDLRS score was 214.7 ± 25.8 for both the curricula. The mean SDLRS score in the students following the integrated curriculum (211 ± 21) was lower than and those in the traditional curriculum where it was 217 ± 28.5 . Table 1 shows that most of the students were aged 23 years or below in both the curricula and the majority of the participants in both the groups were females.

Table 3 shows that the SDLRS score was higher in students following the traditional curriculum than those in the integrated curriculum, the scores are higher in those aged 24 years and above in both the curricula, and the scores are better in those whose class grades are good when compared to those with average and poor grades; Wilcoxon rank sum test was done and the difference was

not statistically significant. SDLRS scores were similar in males and females. SDLRS scores were compared in students from different high school curricula and it was seen that students from the American curriculum had significantly higher scores than those following other curricula.

DISCUSSION

The present study was done to assess the readiness for self-directed learning of two groups of students following two different curricula. The overall group SDLRS score was 214.7 ± 25.8 for both the curricula with a score of 211 ± 21 in integrated curriculum and 217 ± 28.5 in the traditional curriculum. There is no significant difference observed in readiness for self-directed learning between students experiencing the conventional curriculum and integrated organ systems-based curriculum at the end of Year 3 in GMC using the Guglielmino's Self Directed Learning Readiness Scale (SDLRS)

A study using the SDRLS questionnaire on 250 Medical students at University of Toronto, which had revised its conventional curriculum into

a hybrid problem-based curriculum, found no evidence that students self-reported SDL is positively influenced by curricular change⁸. The SDLRS score in our study was lower than that in the study on 182 third-year medical students at the University of Texas with a new PBL curriculum, where the observed mean SDLRS score was 235.81 for the combined group. However, our scores were similar to the scores of general adult learners (214)¹³. A preliminary study exploring the use of SDLRS in a clinical setting among 3rd years medical students at School of Osteopathic Medicine, Oklahoma the score was found to be 244¹⁶. Scores reported for nursing students also have a group mean of 234.77¹⁷.

Wilcoxon Rank Sum test showed that there was no significant difference in the mean scores of males and females. Scores were higher in the older students (Table 3) and the good performers of the class, although the differences were not statistically significant. Students whose school curriculum was from the American Board and the Canadian Board had significantly higher SDLRS scores when compared to all other boards.

From the results of the study it can be seen that readiness for self-directed learning falls in the range 202-226, which is considered as average. Although it is similar to scores of general adult learners, it is below the scores of students of other medical colleges. One reason could be the language of the questionnaire; since most of the participants were not native English speakers some of the questions may have been interpreted differently by the participants.

Adult educators have found that some adults are incapable of engaging in self-directed learning because they lack independence, confidence, or resources. Not all adults prefer the self-directed option, and even the adults who practice self-directed learning prefer more formal educational experiences such as teacher-directed courses¹⁸. When Self directed learning is implemented there may be initial reluctance and tardiness on the

part of students as evidenced in the study of teachers' and students' perceptions of self-directed learning by Lunyk-Child et al., which found that students undergo a transformation that begins with negative feelings but ends with confidence and skills in self-direction and during this transformation it is the responsibility of teachers to provide student support¹⁹. Malcolm Knowles in his five step model put the idea of self direction into packaged forms of activity that could be taken by educators and learners²⁰.

Long as cited by Ann Wo Hwan identified three dimensions of self-directed learning: the sociological, pedagogical, and psychological. He contended that the psychological (cognitive) dimension had been generally ignored²¹.

Brockett and Hiemstra have proposed on expanding the self-directed learning construct to include a personality disposition. The emphasis was on cognitive freedom and the ultimate goal was to learn how to learn²². They also developed a Personal Responsibility Orientation Model (PRO), where they combined both the process and personal attribute perspectives and integrated the role of institutions and policies in self-directed learning.

Garrison's Three-Dimensional model of SDL includes self-management, self-monitoring, and motivation. In an educational context, self-management does not mean students are independent and isolated learners. Facilitators provide the support, direction and standards necessary for a successful educational outcome²³.

Another model is Candy's Four-Dimensional Model: where SDL is described as an umbrella concept, encompasses four dimensions mainly personal autonomy, self-management, learner-control, and self-direction. Candy also stated that self-direction might be different in different content areas²⁴.

CONCLUSION

The results of this study with its lower SDLRS scores indicate that the curriculum

(at the time of the study) is not developing or promoting the use of these skills in its students. Universities have a vital role in developing curricula that will aid students in being ready for their own learning responsibilities as medical professionals by incorporating self-directed learning skills early on in the pre-professional stages.

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