Research Article

Evaluation of the self-directed learning readiness of medical undergraduates in pediatrics department: a study from medical college in Uttarakhand state of India

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Abstract

Background: Self-directed learning originated in the field of adult education and has been referred to as self-direction in learning, self-instructed learning, autonomous learning, self-planned learning, self-regulated learning, self-managed learning, self-education, and independent learning. Self-directed learning (SDL) is significant for health care professionals to develop during their tertiary and professional education, and could potentially be the dominant mode of ongoing education for practicing health care professionals.

Objective: The objective of this study was to determine undergraduate medical students' attitudes and readiness, determinants towards self-directed learning.

Materials and Methods: The cross-sectional study was designed and executed accordingly. This study solicited the perceptions of the final year cohort of students in the MBBS programme. A survey instrument was administered to 86 volunteer, which represents a response rate of 86%. Attitudes and readiness for self-directed learning were elicited by the self-directed learning readiness scale (SDLRS) consisting of a 5-point Likert scale (1=strongly disagree to 5=strongly agree).

Result: Data relevant to participants of 86 graduate students registered at Swami Rama Himalayan University, Dehradun through a pre-described questionnaire were taken. The majority of the students were female (72.10%) and most of them were from central board schools. More than 60% of the students have no other medical professional in their family. In this study high readiness was reported more often in central board students than state board students and distance in <100 m and >100 m. Presence of an other medical professional in family and gender did not affect high readiness. SDL scores were lower among MBBS students than reported elsewhere in the literature.

Conclusion: This study points out the need to address the students' SDL skills, and need for ways to build SDL skills in the students.

KEYWORDS: Self-directed learning readiness, medical students, Uttarakhand

Introduction

Possessing self-directed learning qualities is important to the growth and success in the medical profession. Knowles[1] describes self-directed learning as a process where each individual takes the initiative, with the help of others or not, to determine their own needs of learning, set the goal of learning, determine the raw materials and human resources of learning, choose and implement suitable learning strategies, and evaluate the outcomes of the learning.

Self-directed learning research has widened the conceptual domain of adult learning and awakened professional consciousness to a broader range of adult learning efforts. Self-directed learning originated in the field of adult education and has been referred to as self-direction in learning, self-instructed learning, autonomous learning, self-planned learning, self-regulated learning, self- managed learning, self-education, and independent learning.[2]

It is important that health care professionals develop the skills required to undertake SDL in the face of an ever

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changing body of medical knowledge and increasing application of technology in every day clinical practice.[3]

Currently, there is limited investigation of SDL in medical education, both at the undergraduate education stage and upon entry into the profession, with continuing education once qualified as a doctor. Thus, in this article, the author proposes to evaluate the SDL readiness of medical students. To achieve this objective, a questionnaire survey of 86 students completing the MBBS programme at Himalayan Institute of Medical Sciences, Swami Rama Himalayan University, Dehradun, Uttarakhand in the subject of pediatrics was conducted. The present study reports the finding of readiness for SDL among medical students and also notes the differences in readiness for SDL according to students' demographic and background characteristics.

Materials and Methods

The literature analysis confirmed that SDLRS was the most appropriate instrument for determining SDL readiness. The 40-item SDLRS was first developed by Fischer et al.[4] 2001 and is designed to assess students' readiness for self-directed learning that consists of three subscales: self-management (13 items), desire for learning (12 items), and self-control (15 items). The items are rated on a 5-point Likert style scale (1=strongly disagree and 5=strongly agree). Four items are negatively phrased, and are reverse scored for data analysis. After the selection of the instrument, the cross-sectional study was designed and executed accordingly. This study solicited the perceptions of the final year cohort of students in the MBBS programme. A survey instrument was administered to 86 volunteer, which represents a response rate of 86%.

Data Analysis

The data analysis was conducted by using SPSS, version 20. Prior to conducting data analyses, questionnaire internal-consistency reliability, construct validity, and content validity examined were assessed. Descriptive statistics were performed to assess the assumption of normality. The assumptions of homogeneity of variances and independence of observation were also examined before running inferential statistics. To examine the levels of self-directed learning readiness, means and standard deviation were performed.

Ethical Considerations

The process for conducting the present study was approved by the Institutional Research Committee and Ethical Committee. Participation in this study was voluntary. Prior to completing the survey, the participants read a consent form and granted permission to use their responses for research purposes.

Result

This study was designed to identify and describe the self-directed learning readiness and learning styles among final year MBBS students during their posting in pediatrics in a teaching institution across selected demographic variables (gender, board of pre-university schooling, other medical professional in family and distance) and to investigate the relationships of the demographic variables to learning styles and readiness for self-directed learning. Demographic data relevant to 86 graduate students was collected through a pre-described questionnaire. This portion presents a description of the data and results of statistical tests of the hypotheses of the study. The majority of the students were female (72.10%) and most of them were central board schools. More than 60% of the students have no other medical professional in their family. This portion consists of 4 sections in which section 1 shows the demographic details of the student. Section 2 shows SDLRS items range with mean and standard deviation. From section 3 it shows self-directed learning readiness of the study participants. The last section is of domain specification of the students in the SDLRS assessment. The demographic details of the study participants are shown in Table 1.

From Table 2 it is shown that in self-management the average is 31.61 with standard deviation 4.30. In desire for learning, the average is 48.25 with standard deviation 5.91. In last portion of self- control, the average is 67.36 with standard deviation 6.37.

In this study high readiness was reported more often in central board students than state board students and distance in <100 km and >100 km. Presence of another medical professional in family and gender did not affect high readiness. Author did not find any prior studies with findings of low readiness to learn scores similar to present study. Both board of pre-university schooling and distance shows statistically significant with *p*-value 0.013 and 0.016, respectively (Table 3).

In this study, domain specification of the students in the SDLRS assessment in self-management for boys with mean 32.29 and standard deviation 4.40 were found. In desire for learning, mean value for boys are 48.87 with 6.52 standard deviation. For self-control, the mean value for boys is 69.0 with standard deviation 6.32. For girls, the mean value of self-management is 31.33 with 4.26 standard deviation. In desire for learning, the mean value is 48.01 with 5.70 standard deviation. For girls in self-control, the mean value is 66.72 with 6.33 standard deviation. According to board of

Table 1: Demographic details of the student

Characteristics		Number of students
Gender	Boys	24(27.9)
	Girls	62(72.1)
Board	Central Board	58(67.44)
	State Board	28(32.55)
Distance	<100 km	32(37.20)
	>100 km	54(62.79)
Other medical professional	No	53(61.6)
	Yes	33(38.4)

Table 2: SDLRS items range, mean and standard deviation

Domain	Factor/ Sub-factor (item)	Mean	SD
Self-Management	I solve problems using a plan	3.430	1.1836
	I prioritize my work	3.802	.9308
	I do not mange my time well	3.407	1.1207
	I have good management skills	3.337	1.2040
	I set strict time frames	2.721	1.0917
	I prefer to plan my own learning	3.942	1.0885
	I am systematic in my learning	3.395	1.0435
	I am confident in my ability to search out information	3.581	.9389
	I prefer to set my own learning goals	4.000	.9701
	Total Mean Score	31.61	4.30
Desire for learning	I am able to focus on a problem	3.547	1.0918
	I need to know why	3.988	.9881
	I critically evaluate new ideas	3.547	1.0700
	I learn from my mistakes	3.698	1.0745
	I am open to new ideas	4.116	.7884
	When presented with a problem I cannot resolve, I will ask for assistance	3.547	1.1947
	I am responsible	3.837	.9562
	I like to evaluate what I do	3.709	.9563
	I do not enjoy studying	2.477	1.2052
	I have a need to learn	3.733	1.0224
	I enjoy a challenge	3.802	.9680
	I want to learn new information	4.244	.8108
	I enjoy learning new information	4.012	.9640
	Total Mean Score	48.25	5.91
Self- Control	I have high personal expectation	4.221	.9506
	I have high personal standards	4.047	.9063
	I have high beliefs in my abilities	3.779	1.0890
	I am aware of my own limitations	3.919	1.1190
	I set specific times for my study	3.081	1.1704
	I am self-disciplined	3.349	1.0929
	I like to gather the facts before I make a decision	3.756	1.0509
	I am disorganized	2.942	1.2957
	I am logical	3.837	.9313
	I am methodical	3.686	.8713
	I evaluate my own performance	3.593	1.1101
	I prefer to set my own criteria on which to evaluate my performance	3.802	.9433
	I am responsible for my own decisions/actions	4.267	.7424
	I can be trusted to pursue my own learning	4.116	.7099
	I can find out information for myself	4.012	.7112
	I like to make decisions for myself	4.151	.7595
	I prefer to study my own goals	4.360	.6845
	I am not in control of my life	2.442	1.4920
	Total Mean Score	67.36	6.37

pre-university schooling, mean value of central board students for self-management is 31.75 with standard deviation 4.78. The mean value for central board students of desire for learning is 48.56 with 6.62 standard deviation. For self-control the mean value of central board students is 67.53 with 6.64 standard deviation. Similarly, for state board students the mean value of self-management is 31.32 with 3.16 standard deviation. For desire of learning the mean value of state board students is 47.60 with 4.13 standard deviation. In case of self-control, the mean value of state board students

Table 3: Self-directed learning readiness of the study participants

Characteristics		Mean SDLR Score ±SD	*p*-value
Gender	Boys	150.16±14.06	0.212
	Girls	146.09±13.23	
Board	Central Board	147.53±15.08	0.013*
	State Board	140.25±9.59	
Distance	<100 Kilometer	148±13.52	0.016*
	>100 Kilometer	136.55±13.66	
Residential Boarding (up to 10th or 12th class)	No	146.849±14.46	0.745
	Yes	147.848±12.02	
Day Scholar	No	146.36±15.03	0.811
	Yes	148.65±12.37	
Other Medical Professional in family	No	143.91±14.75	0.050*
	Yes	149.51±12.06	
Interest in Pediatric	No	133.82±12.34	0.048*
	Yes	147.23±14.65	

**P* Value <0.05 (statistical significant result)

is 67.00 with 5.87 standard deviation. Although, in distance <100 km the mean value for self-management is 32.00 with 4.48 standard deviation. In desire for learning, the mean value for distance <100 km is 49.15 with 5.05 standard deviation. In case of self-control, the mean value for distance <100 km is 66.84 with 7.05 standard deviation. Similarly for distance >100 km, the mean value for self-management is 31.38 with 4.22 standard deviation. In desire for learning, the mean value for distance >100 km is 47.72 with 6.36 standard deviation. For self-control, the mean value for distance >100 km is 67.66 with 5.98 standard deviation. In case of no other medical professional in family, the mean value for self-management is 31.13 with 4.67 standard deviation. In desire for learning, the mean value of no other medical member in family is 48.28 with 6.22 standard deviation. Similarly for self-control its value is 67.45 with 6.56 standard deviation. If there are any member in medical professional then the mean value for self-management, desire for learning, and self-control are 32.42, 48.21, and 67.21, respectively with 3.56, 5.49, and 6.51 standard deviation, respectively.

Discussion

In this study, domain specification of the students in the SDLRS assessment males shows more readiness than females. Central board students show more than state board students with distance also shows the same result.

A study conducted in Lalitpur, Nepal[4] reported higher mean readiness and individual domain scores among first MBBS students than found for the 5th semester students of their school (152.7 ± 14.6). A likely reason for high scores in this Nepalese school is its implementation of problem based and enquiry driven curriculum in the medical stream. A study (Kar et al.[5] in south India) shows more high readiness among boys than girls. Presence of a doctor in family, board of education, and medium of school instruction and current place of residence did not affect high readiness. In India and South Asia, rote learning and reproduction of factual information predominates within schools. Their assessment indicates that before replacing the traditional teacher centric educational approach with studentcentered learning, students will require proper orientation and sensitization. They did not find any association with other demographic variables like presence of doctor in family, current habitation of the students (hostelite *vs* day scholar) and area of residence (urban *vs* rural) with readiness of the students for SDL. This differs from previous studies that have shown that readiness for SDL increases with age, maturity and as student's progress across a course.[6-9] In this study, authors did not demonstrate an association between readiness for self-directed learning and gender. Previous research in this area is conflicting.[5,10] Other studies have shown positive correlations between higher SDLRS scores and gender, place and other variables although the readiness scales that were used differed. Similar to the present findings, a study of medical students failed to show a positive correlation between the SDLRS score and other medical professional in family using the likert SDLRS. Several factors may have affected the association between readiness for self-directed learning and academic performance in this study. Students performed well in the course overall, which suggests that students are capable of learning foundational knowledge regardless of their readiness for self-directed learning. The results in this study were consistent with previous studies.[11–13]

Table 4: Domain Specification of the students in the SDLRS assessment

Characteristics		Self-management	Desire for learning	Self-control
Gender	Boys	32.292 ± 4.4083	48.875 ± 6.5296	69.00 ± 6.3246
	Girls	31.355 ± 4.2776	48.016 ± 5.7044	66.726 ± 6.3302
Board	Central Board	31.754 ± 4.7841	48.569 ± 6.6230	67.534 ± 6.6444
	State Board	31.321 ± 3.1629	47.607 ± 4.1306	67.000 ± 5.8752
Distance	<100 KM	32.000 ± 4.4865	49.156 ± 5.0552	66.844 ± 7.0579
	>100 KM	31.389 ± 4.2267	47.722 ± 6.3615	67.667 ± 5.9811
Other Medical	No	31.113 ± 4.6767	48.283 ± 6.2215	67.453 ± 6.5650
Professional in family	Yes	32.424 ± 3.5622	48.212 ± 5.4929	67.212 ± 6.5130

This study helps medical educators to assess students' learning needs and to implement best teaching strategies to the students. Study is limited by the use of convenience sampling. This method, while being easier to recruit participants, it may notrecruit a representative sample of students. Consequently, this skewed the results that were obtained due to the sample bias. It is recommended that future studies use larger sample sizes, thus allowing better generalizability.

However, the course provided an opportunity to assess the association between self-directed learning and academic performance because self-directed learning was incorporated throughout the course. Students performed well and grades were similar between groups, thus a ceiling effect for performance in the course may have occurred. For this reason, we could not detect an appreciative difference in academic performance among students who scored high and low using Likert SDLRS. Therefore, readiness for self-directed learning and learning habits may not be important predictors of academic success when students are given exact expectations and told the knowledge and skills to be learned.

Conclusion

This study advances the understanding of SDL by addressing gaps in research and by exploring students' perception of factors influencing their self-direction in learning. Findings from this stage provides insight into students experiences which suggests that students need appropriate facilitation and support from the teacher and the learning environment during the process of these SDL activities. SDL scores were lower among the MBBS students than reported elsewhere in the literature. This study points out the need to address the students' SDL skills, and need for ways to build SDL skills in the students.

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