

# Trend and Usage of Internet for Self Directed Learning in Phase I MBBS Students in an Urban Medical College: Observations and Challenges

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## ABSTRACT

### Introduction

GMR 2019 have suggested fixed hours of self-directed learning (SDL) for all subjects for helping the students to develop their learning skills and sense of responsibility for a better learning in future. Presently, the trend of SDL is becoming more e learning centric in comparison to use of text books with its consequent advantages and disadvantages. The present study aimed to analyze the challenges associated with this trend in the phase 1 MBBS students.

### Methods

In an interventional educative study 203 phase 1 students from an urban medical college were assessed for an SDL based project on clinical aspects of the urea cycle at the end of the topic ammonia metabolism in Department of Biochemistry. Output from students were analysed for their trend for using resource materials, selection of relevant materials and originality of their inputs during the SDL process. Data obtained were analysed for their percentage distribution and difference of mean values as applicable.

### Results

Out of 197 students who submitted their SDL projects in completed form, 61% students used internet information only, 20% used books only while 19% used both their resource materials. 32% of them could not use right key words for search and produced irrelevant materials in their topic. About 58% adopted copy and paste process without any change. Interestingly, the marks obtained by text book users were significantly higher than those using e resource materials.

### Conclusions

The present study reveals that in spite of having a higher inclination to use e learning resources most of the students are yet to coordinate between their study topic & internet information. Moreover, the trend for copying without comprehension was found to be significantly higher among e learners. Hence, the investigators suggest that for proper use of SDL, guidance by expert faculties regarding how to search internet properly using appropriate keywords and how to comprehend the core information of the e-resources into their own language are necessary to make it a successful component of CBME.

**Keywords:** phase 1 MBBS students; self directed learning (SDL); autodidacticism; e-resources; plagiarism.

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## INTRODUCTION

GMR 2019 have suggested fixed hours of Self-directed learning (SDL) for all subjects which will help the students to develop their learning skills and sense of responsibility for a better learning. SDL also called auto-didacticism can be defined as learning on one's own initiative with learner having primary responsibility for planning, implementing and evaluating the effort.<sup>1</sup> In the present time period the more the students engage themselves in SDL the more they gain in terms of improving themselves knowledge and skill wise. This is particularly relevant when a constant change in learning environment is concerned. At the same time it must be guided and instructed properly from teachers end as its role in learning clinical skills and learning skills have been found to be more effective under a proper supportive environment.<sup>2</sup> More precisely, use of SDL should be always be done in the context of its advantages and disadvantages. While the major advantage of SDL are noted to be freedom of choosing source of study material, time management, sense of responsibility and pleasure of doing something worthy for gaining knowledge for attaining the target career; the disadvantages lie in the fact of difficulty in selecting source, wastage of time in absence of proper guidance and language barrier.<sup>4</sup> India at present has the second largest base for internet users<sup>5</sup> and young people are more inclined to use it. Students of current scenario are using internet as an important tool of learning as information can be downloaded in very short time. Although, SDL is a useful technique for improvising the student's learning skill, however there is substantial gap between knowledge regarding the use of different sources of SDL by the students and use of their own judgement and effort throughout the process. Studies show 80% of the students feel the need of supplementing books with internet from smart

phone or laptop.<sup>3</sup> More discrepancies arise when the use of electronic resources are analyzed. It has been suggested that use of technologies involve the students more with SDL both in the context of time and involvement, but fails to show a direct relationship with their final examination results.<sup>6</sup>

In this background our research question was to analyze the trend of phase 1 MBBS student for selecting resource materials for SDL and to assess their effectiveness. Hence, our hypothesis for this study was that the students would properly use the relevant source materials to develop their own learning skill during the process of SDL.

## METHODS

**Study design:** The present study was undertaken as a cross sectional interventional educational study.

**Study settings :** The study was undertaken in the Dept. of Biochemistry of an urban medical college of West Bengal, India.

**Study subjects-** Students of Phase 1 MBBS.

**Sample size:** All students admitted in the first year of phase 1 MBBS (n = 251) were included in the study. Students were given instruction of doing SDL on a given topic. Out of them 203 students complied and submitted their projects. 197 projects were found complete according to the pre-fixed guidelines and were finally selected for data analysis.

**Procedure for conducting the SDL:** After conducting lecture classes on protein metabolism (Competency-B.15.4, knowledge domain) the students were given an outline about ammonia metabolism in human body. They were then instructed to prepare a project on "Ammonia-Its Sources, Toxicity and Clinical importance" with the relevant biochemical explanations using the techniques of SDL and to select the

source of their own choice. Guidelines were provided by the instructors as needed. Students were advised to put more stress on the clinical importance of this topic. This would promote an early clinical exposure in them. The students were also instructed to compose their SDL projects including the basic components i.e. the Introduction, Aims and objectives, Methodology, Result analysis, Discussion and Bibliography. But the length of the project and word limitations were not defined strictly. They were given seven days time for submission of the completed project (hard copy). Finally, they were explained about the advantages and disadvantages of SDL to make them more comfortable and competent with the process.

## RESULTS

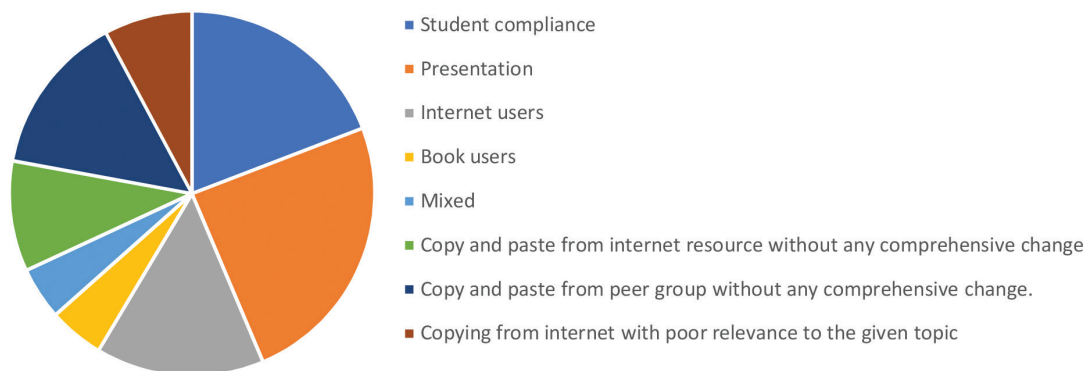
As the major aim of the present research was to find out the general trend for use of resource materials and effectiveness of SDL among students, results were analysed accordingly. After completion of the projects and their submission within the given time period, following observations are highlighted:

**Table 1.** Data analysis for finding out the common trend for use of resource materials of the submitted SDL projects in phase I MBBS students.

Student compliance	78.48%
Presentation (Neatness, diagram and binding)	100%
Use of internet as resource material only	61%
Use of reference books as resource materials only	20%
Use of both internet and books as resource materials	19%
Number of internet websites used as resource material	2 - 4
Copy and paste from internet resource without any comprehensive change	40%
Copy and paste from peer group without any comprehensive change.	58.4%
Copying from internet with poor relevance to the given topic	32%

The pie chart in figure 1 and data in the Table 1 revealed that student compliance was more than expected as majority of them submitted it on time. The presentation of the majority

Pie chart showing the distribution of study parameters in percentage



**Figure 1.** Pie chart showing the distribution of study parameters in percentage

(neatness, use of diagram, binding and filing) was good. Regarding the consultation of internet as resource material for SDL almost 78% students consulted internet as their major resource material during the whole process while only 22% opted for books. However, the number of students using imitation without any change was found to be significantly high as approximately 40% among them copied internet thoroughly, majority being copied from two to three sources. Interestingly, 32% of the total internet users copied aimlessly, mostly searching through the key word *ammonia* and/or *clinical importance*; These were full of irrelevant information and far from metabolic explanations. Some of the aimless internet copiers included Heber's Process of ammonia synthesis, ammonia content of different industrial disposals etc. Same is true about the comments regarding the clinical importance where irrelevant information from internet sources were found to be incorporated quite frequently (10.5%).

Copy and paste phenomenon from the peer group was also found to be significantly high as 58.4% students were found to be copied from their peers. It was impossible to understand who copied whom. Few of them (4%) were 100% plagiarized. Moreover, while copying, they did not comprehend what they are copying because all the irrelevant points were exactly copied from each other. Ironically, those who depended solely on books including the diagram were more to the point and secured higher marks (Table 2). Results from the post hoc ANOVA showed that marks obtained by the students using books only and internet only were respectively highest and lowest. The students who used both sources obtained marks in between.

**Table 2.** Post hoc ANOVA with Bonferroni correction showing the difference in marks obtained by the students out of 10 using different resource materials during their SDL

Resource material with marks (mean $\pm$ SD)		Mean Difference	Sig.
Books only (7.6 $\pm$ 0.89)	Mixed	1.40000*	.000*
	Internet only	1.96667*	.000*
Mixed (6.2 $\pm$ 0.66)	Books only	-1.40000*	.000*
	Internet only	.56667*	.035*
Internet only (5.6 $\pm$ 0.96)	Books only	-1.96667*	.000*
	Mixed	-.56667*	.035*

\* P value is considered to be significant at  $< 0.05$  for a 95% confidence interval

## DISCUSSIONS

The present study consisted of analysis of partially guided SDL in the form of project where 203 students of 1st phase MBBS participated. Among them 197 projects were analysed for proper utilization of e-learning. India is the third largest in the world when internet usage is concerned,<sup>7</sup> with about 700 million users majority being within 12-29 yrs age. The use of internet resource to heighten knowledge & skill is the aim of e-learning.<sup>7</sup>

Compliance of students was good with a percentage of about 78.5% (Table 1). Overall presentation was also up to the mark for every student in the context of inclusion of components of projects, neatness and grammatical aspects. Most students sought help from internet as evident from a data of 78% for internet user and 22% for the book users (Table 1). This is in accordance with the study of Swapnil Saurabh et al from India<sup>3</sup> & Jadoon et al from Pakistan which revealed a tendency of high internet users among the medical students for their study purpose other than the class teachings.<sup>7</sup> However, we noted an absence of attitude for

use of individual and higher cognitive levels of interpretation in internet usage by most of the students for their SDL purpose as copying without any comprehensive changes were found to be 40% and 58.4% from internet resources and peer groups respectively. Our findings about this trend for usage of internet resources among students have been supported also by several studies worldwide. A study from Anglo-Saxon hemisphere has shown that almost 75% of the medical students are used to electronic plagiarism applying at least for once in their student period.<sup>8</sup> The same study concluded that “ They plagiarize because they want good grades.” This substantially higher values of copy and paste technique indicated that many learners used more of their lower cognitive abilities in comparison to the higher cognitive levels i.e comprehension, creation and synthetic abilities according to the Bloom’s taxonomy.<sup>9</sup>

Another important trait observed was the use of wrong key words and downloading of irrelevant materials as 32% of the candidates were found to download irrelevant materials regarding the topic given in the present study (Table 1). This is the reason why the students who depended solely on text and reference books for their resource materials obtained higher marks in their SDL projects in comparison to both exclusive internet users as well as who used internet along with books. This is evident from the statistical analysis using the post hoc ANOVA that compared the marks obtained among all three groups (Table 2).

The main purpose of SDL is to enable the students to become an independent and potent learner with development of an internal guidance capability. But in contrast to this goal, it is evident from the findings of the present study that at present the 1<sup>st</sup> year MBBS students have not matured yet when appropriate

e-learning was concerned regarding their SDL. The learners battle with proper key word, selection of the relevant materials and showing a self-dependent attitude for comprehending the core materials of their own interest from e resources. Furthermore, most of them have lack of initiative and intention to present the required information from the e sources in their own language and prefer to simply copy and paste them. This is substantially detrimental in developing their SDL capability. They may be developing an idea that whatever is downloaded is authentic. Moreover they have the tendency to think that teachers might not go through their work & might put an average score that will enable them pass.

## CONCLUSIONS

The present study reveals that in spite of having a higher inclination to use e learning resources most of the students are yet to coordinate between their study topic & internet information. This can be minimized by a sustained and more frequent instruction & guidance from the teachers to find relevant material and increasing the frequency of SDL. The investigators also believe that majority of students don’t feel that copying is unethical. The very basic moral practice must start from school level otherwise this copy-pasting habit will continue. Once rectified students would benefit substantially from SDL.

## Implications

Findings of our present study implies some important aspects of SDL in the era of an emergent importance of e-learning along with the weightage on SDL in the recent CBME. For a proper use of SDL the guidance by expert faculties regarding how to search internet properly, using appropriate keywords and how to comprehend the core information of the e-resources into their own language are necessary. Learners also need to be explained how to supplement textbook &

class notes with e-learning. The students need to be warned as well against copying as it is easily identifiable during examination and the need to develop the attitude to gain knowledge in a self dependent manner and develop self learning capability that is the hallmark of a successful SDL program.

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