ORIGINAL ARTICLE

Study guide usability survey: Perception of students and teachers of an undergraduate medical college

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Abstract

Objectives: To explore the perception about usability of study guide from students and teachers of an undergraduate medical college.

Methods: The cross-sectional study was done at Bahria University Medical and Dental College, Karachi, in May 2012 and comprised 2nd, 3rd and 4th year medical students and faculty members. Data was analysed on SPSS 16. Analysis of variance was used for looking at differences in perceptions of the three groups of students and among different cadres of faculty, while tukeys test was used for individual differences.

Results: Of the 300 students initially enrolled, 257(85.6%) represented the final study sample. There were 147(57.2%) females and 110(42.8%) males. Reliability of the questionnaire by Cronbach's alpha was 0.889. Besides, 150(58.3%) students agreed that layout and content of the study guide helped in self-directed learning, while 128(50%) said that information about books and resources was not mentioned in it. The faculty overall appreciated the study guide except on information about identification of resources in it.

Conclusion: The perception about the usability of study guide was well appreciated by both students and teachers. Their content will be reviewed and improved based on the results of this study.

Keywords: Study guides, Perception, Medical-students, Usability. (JPMA 64: 1114; 2014)

Introduction

According to the General Medical Council (GMC), it is recommended that undergraduate medical education should be more student-centred and that the aim of education should be to produce graduates who are self-directed learners.[1] To achieve this, the GMC proposed a radical reduction of factual content of the course with emphasis on self-directed study, group work and problem-based learning (PBL).[2,3]

A study guide is an aid, in printed or electronic format, designed to assist students with their learning. A study guide can be viewed as a tutor sitting on the student's shoulder 24 hours a day, advising at every stage of his/her study. It allows the teacher to exercise his/her responsibilities while at the same time giving the student an important part to play in managing their own learning.[4] Study guide is an important tool in the educational process because of information overload, curriculum change, spiral curriculum, distance learning, work-based learning and self-directed learning.[4-7] One study identified that guides help students to "manage their own learning".[8] This is a key educational requirement when developing student-focused learning environments.[8] Another study stated that the "guides support students in learning their material and focus their attention on important topics and help them review for quizzes and tests." Another study claimed that effective study guides should be designed 'to help students as a good tutor might if they were present whilst a student studies.[6] It stated that "a study guide should include far more than merely a list of detailed curriculum objectives and a copy of the course timetable, for how else will teachers know what to teach, students know what to learn and examiners know what to examine." Others have stated the importance of giving students 'white space'. They said providing space for students to make notes was 'likely to be more effective at promoting effective learning by doing'.[4,5] Still others suggested that written information should include a clear list of aims and objectives and what will happen week by week, and that assignment material 'should indicate exactly what the student will achieve upon its completion, and have a set of assessment criteria for the student to chart his/her progress through the course, making study guides one of the strategies for increasing academic success of students even with disabilities.[9]

A survey was conducted to explore the effectiveness of a published study guide in an introductory psychology course that uses multiple-choice exams. The majority of the students shared their appreciation for the study

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guides, reporting that they kept them focused on the readings, helped them identify important concepts, and compelled them to read more regularly.[10]

Another study provided a description of the study guides that were implemented as part of the Fluid Mechanics and Hydraulics course taught at the Griffith campus of the Griffith School of Engineering.[8] A student survey of the effectiveness of the study guides was also presented which showed that study guide appeared to be an ideal resource for students when undertaking summative assessment and also an important driver in management for their learning. Majority of students surveyed believed that the study guide helped them to learn the material covered in the course.[8]

A study guide template for integrated cardiovascular module was prepared in the medical school of King Abdul Aziz University, Saudi Arabia. The aim was to introduce more independent learning and PBL among students. The study guide was highly appreciated by the students.[11]

A pocket-sized training guide to support on-the-job learning was developed for senior house officers in paediatrics in Scotland. The guide adopted a task-based approach, using common clinical problems (tasks) as the focus for learning. A combination of clinical information, practical management and treatment instructions and suggestions for further learning opportunities were included. Some sections of the guide had portions of self-study and the users were encouraged to note local information, document progress and add personal comments. Guides were distributed to over one hundred senior house officers in paediatric units throughout Scotland, with the support of local tutors. Its design encouraged the trainee to adopt a self-directed approach to learning, through use of prompts, hints and references, which stimulated further study.[12]

Study guides are in use in various medical colleges of Pakistan and a lot of resources are spent in their preparation (human and financial). Very few studies have been published to identify the perception about the usability of study guides for learning and teaching. The objective of the current study was to explore the perception about usability of study guides from students and teachers of an undergraduate medical college.

Subjects and Methods

The cross-sectional study was done at Bahria University Medical and Dental College (BUMDC), Karachi, in May 2012 and comprised 2nd, 3rd and 4th year medical students and faculty members.

The BUMDC was established in 2008. It has 400 medical students enrolled in year one to four. Enrolled students are form traditional and teacher-centred backgrounds. At Bahria, a combination of didactic and student-centred teaching strategies are used. The study entailed a survey of second, third and fourth year medical students and the faculty responsible for the three years.

Ethical approval was obtained from the institutional ethics and research committee. Purposive sampling was done. Second, third and fourth year MBBS students were invited to participate in the study. The students of first year were excluded as they were new to the study guide and had used it for less than a year. All faculty members of the college were also invited to participate in the study.

The survey questionnaire was prepared after literature review and discussion with the faculty and staff about the use of study guides. Written informed consent was taken and 15 minutes were scheduled at the end of a lecture for the students to complete a self-administered questionnaire.

All questions were close-ended type. The student version of questionnaire consisted of two parts: first section had demographic data consisting of three questions; and the second section dealt with data of perception about the use of study guide as a learning tool consisting of 27 questions. Several themes were generated regarding the use of the study guide to aid learning. The themes were outlook, content, assessment, self-directed learning and information about resources. For each question reported in the paper, there were five possible answers, ranging from 1 to 5 indicating 1= strongly disagree and 5= strongly agree. Questionnaires were coded as B for second year, C for third year and D for fourth year MBBS.

The faculty version of the questionnaire also consisted of two parts: the first section was about demographics consisting of four questions regarding gender, designation, department and teaching experience; while the second section was about perception of the use of the study guide as a teaching tool. It consisted of 15 questions. It was distributed to all faculty members.

Few students and faculty members were absent during the collection of data. Responses were fed into SPSS 16. Data analysis was done separately for each questionnaire. Reliability of the responses for the questionnaire was Cronbach's alpha 0.889. Analysis of variance (ANOVA) was applied on data to find the difference in perceptions among the three groups of students, and the faculty designations. For multiple comparison between the groups, tukey test was applied on significant differences ($p<0.05$).

Results

Of the 300 students initially enrolled, 257(85.6%) responded (Table-1), while among the faculty members 50(79.3%) of the 63 were part of the final sample size.

The highest 'Agree' response 190(74%) was seen on the statement "the layout is student friendly", and the least 'Agree' response 64(24.5%) was seen on "Identifies books available in the library". The highest 'Disagree' response 139(54%) was seen for the statement, "helps in seeking knowledge other than textbooks". In addition, a highest 'Neutral' response 80(31%) was observed for the item "explains the exam format".

The questions regarding the outlook of the study guide were appreciated by all three groups of students. Majority, 193(75%) of the students found the layout of the study guide student-friendly, 183 (71%) considered the information provided was logically organised and 170(66%) opined that its organisation helped them to follow instructions easily. Response rate was good 159(61.8%) on questions regarding information about large and small group session clearly given in the study guide. Most of them 156(60.7%) agreed that information about self-directed learning and PBL was clearly given 153(59.5%). Significant differences ($p<0.05$) in perceptions were found between all groups of students for three questions: 'the format adopted help me follow the instruction easily', 'the information about the mentors' and 'small group session is clearly given'.

Out of the total 257 students, 193 (75%) agreed that the study guide helped in providing guidelines and 183 (71%) in covering course content. These responses indicate that most of the students seem to be satisfied with the content of study guide (Table-2).

The set of questions related to information about assessment in the study guide had mixed responses. In responses of study guide being helpful in explaining the format of assessment, almost 80 (31%) students responded in the neutral section (Table-3).

In terms of perception on identification of resources in the study guide, 132(51%) disagreed on the statement that information about the books available in the library was given in the study guide. Total 136(53%) of the students responded that other resources beyond textbooks were

Table-1: Gender distribution of students by year of study.

Students' Gender	Study Groups Second year (n=85)	Third year (n=90)	Fourth year (n=82)	Total
Male	34 (40%)	41 (45.6%)	35 (42.7%)	110 (42.8%)
Female	51 (60%)	49 (54.4%)	47 (57.3%)	214 (57.2%)
Total	85 (33.1%)	90 (35%)	82 (31.9%)	257 (100%)

Table-2: Comparison of Students' perceptions on Content of Study guide.

Content	Second Year B Group (n=85) Mean ± S.D	Third Year C Group (n=90) Mean ± S.D	Fourth Year D Group (n=82) Mean ± S.D	P value
Provides guideline for the course/module	4.2 ± 0.81	3.8 ± 0.98	3.8 ± 0.98	0.003*
Helps in covering course content	4.1 ± 0.77	3.6 ± 0.99	3.7 ± 0.80	0.000**
Learning objectives help me to prioritize the important topics for learning	3.9 ± 0.90	3.7± 0.98	3.5 ± 0.95	0.028*
Learning objectives Identify depth of the contents to be learned	3.9 ± 0.84	3.5 ± 0.93	3.4 ± 0.96	0.002*
Identifies learning strategies for every objective beforehand	3.9 ± 0.82	3.6 ± 0.92	3.4 ± 0.97	0.011*
Indicates the duration of the course	4.1 ± 0.81	3.7 ± 0.89	3.6 ± 0.96	0.000**
Facilitates in managing time effectively	4.1 ± 0.81	3.5 ± 1.02	3.3 ± 1.05	0.002*

Table-3: Comparison of Students' perceptions on information about assessment in Study guide.

Assessment	Second Year B Group (n=85) Mean ± S.D	Third Year C Group (n=90) Mean ± S.D	Fourth Year D Group (n=82) Mean ± S.D	P value
Identifies dates for examination	4.7± 5.3	3.6± 1.07	3.5 ± 1.05	0.000**
Explains the examination format(theory, practical, viva)	3.7 ± 1.1	3.3 ± 1.16	3.0 ± 1.05	0.000**
Helps in identifying the marks distribution	3.3 ± 1.2	2.9± 1.18	2.7 ± 1.00	0.004*
Provides information about the assessment tools(MCQ, OSPE, SAQ)	3.1 ± 1.2	2.7 ± 1.2	2.4 ± 0.98	0.001*

MCQ: Multiple-choice questions
OSPE: Objective structured practical examination
SAQ: Self-assessment questions
Statistically significant ** $p<0.01$, * $p<0.05$.

Table-4: Comparison of Students' perceptions on identification of Resources in Study guide.

Identification of Resources	Second Year B Group (n=85) Mean ± S.D	Third Year C Group (n=90) Mean ± S.D	Fourth Year D Group (n=82) Mean ± S.D	P value
Identifies the books available in the library	2.7 ± 1.1	2.7 ± 1.18	2.25 ± 1.08	0.012*
Helps in seeking knowledge from other resources beyond textbooks	2.8 ± 1.2	2.7± 1.14	2.1 ± 1.05	0.000**
Identifies faculty members responsible for the management of the module	4.0 ± 4.5	2.9 ± 1.18	2.6 ± 1.12	0.000**

Statistically significant ** p<0.01, * p<0.05.

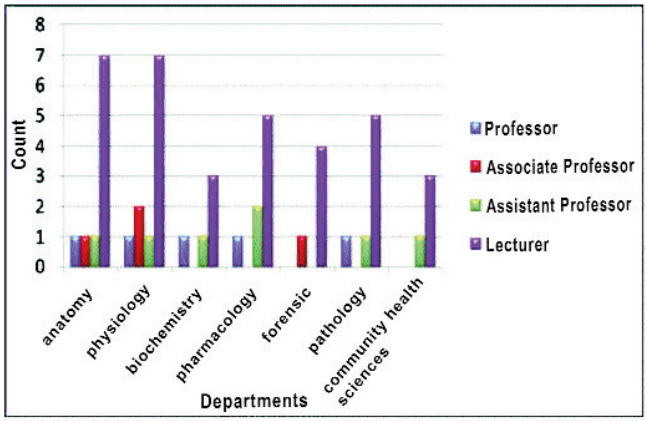

Figure: Distribution of samples.

also not identified in the study guide (Table-4). Majority 132(51) of the students responded that the study guide facilitated active learning, and 147(57%) helped in planning learning and day-to-day learning. Significant difference in perception was found in different batches of medical school from second year to fourth years (p<0.05) on two items: 'identifies time available for self-directed learning', and 'helps to prepare test on my own'. There was significant difference in perception which may signify that older batches were familiar with the use of the study guide.

Among the 50 faculty members, there were 14 (28%) males and 36 (72%) females from various departments (Figure). Overall 43(86%) agreed that the layout of the study guide was easy to understand. The faculty responses agreed on: helped in planning their teaching 41(82 %), helped in identifying important parts of content to be covered 40(80%), helped in coverage of the course 40(80%), organising their teaching 33(66%), identifying teaching strategies available for the particular topic 35(70%) and identifying the time allocated for a particular course 39(78%). The faculty responded positively on the following items: 32(64%) helped in identifying the amount of time given to a particular topic, 30(60%) on time table,28(56%) on assessment dates and 20(40%) on format of assessment like multiple-choice questions (MCQs), self-assessment questions (SAQs) and objective structured practical examination (OSPE). The faculty responses on study guide being helpful in identifying learning resources were: 16(32%) disagreed, 14(28%) neutral and 20(40%) agreed.

Discussion

The study comprised data collected from students based on their perception (three batches) against five themes of the study guide as a learning tool. The themes were outlook, content, assessment, resources and self-directed learning. It also included data of faculty's perception of the study guide as a teaching tool. The students scored higher in the outlook, content and self-directed learning domains. Moreover, varied level of students' perceptions on assessment and resources were found. Students' perception can be a basis for implementing modifications and thus improving the study guide.

The present study showed that more than 70% of the students appreciated the outlook of study guide and that it kept them focused on reading, helped them in identifying the teaching strategies like small and large group sessions and PBL. This finding was in line with the findings of a study which reported that students make very good use of well-produced study guides but they are not interested in reading guides that are unattractive.[13,14] Others have also emphasised that the study guide must be attractive and student-friendly.[4,5] During the preparation of paediatric training guide for senior house officers in Scotland, it was ensured that study guide was easy to use and appeared attractive to the stressed house officers.[12]

In this study more than 70% students liked the content of study guide and appreciated the presence of learning objectives. This is in concordance with studies that reported that learning objectives incorporated into the study guide were useful for the students.[4,5]

We found that study guides helped in identifying dates for examination, but varied responses of students' perceptions were also found in identifying the format of assessment, marks distribution and the format of

assessment tools. This is in contrast to a study which studied the effects of required textbook study guides on students' performance on a multiple-choice exam. The researchers found that students who completed at least a portion of the study guide performed significantly better than students who did not.[10]

In the present study, almost 63% students were not satisfied by the usefulness of the study guide regarding identification of relevant books in the library and other resources beyond textbooks. Annotated list of learning resources is considered an essential component of study guides.[15] One method, used very successfully at St Bartholomew's and the Royal London School of Medicine and Dentistry, was to incorporate lecture handouts into the study guides.[10] In the paediatrics training guide prepared for senior house officers in Scotland, reading references were given with readily available texts and journals.[12] There was significant difference in perception between student groups which signified that older batches were familiar with the use of the study guide.

In this study, the faculty perceived the guide as a good management tool, helping in planning and organising their teaching, helping in making test questions and identifying teaching strategies. However, in the resource identification question, the faculty perception was not very different from that of the students. This was found to be a very useful information as it allowed the faculty to contribute more effectively to the curriculum.[4] The limitation of the current study is that it was confined to one private college with only four batches enrolled. It would have been better if other medical colleges using study guides were also included. Besides, the study comprises students perception only and does not encompass other factors such as effect of study guides on examination results and how frequently the study guide is used.

Despite the limitations, the study adds to the existing research on study guides by using student and teacher perception. The results will also be used to suggest and recommend changes and improvement in the study guides.

Conclusion

The study supports the usefulness of study guides for both teachers and students. The likelihood is that study guides will continue to be an important component of the curriculum in the future. Their content will continue to be developed and their production and presentation might change with the continued application of medical informatics and the next generation of study guides might be electronic ones.

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