Integrating medical communication skills with library skills curricula among first year medical students at the University of the West Indies, St. Augustine

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Abstract

A two-year study designed to integrate the medical communication skills and library skills curricula at the University of the West Indies, St. Augustine is reported. Given that an integrated approach to curriculum development offers benefits to learners and staff1,2. The objective of this study was to explore the feasibility of implementing this approach among Year 1 pre-clinical students in 1997 and 1998. Student performance on an essay question that integrated the application of students’ knowledge of written communication and library skills in a final examination performance was assessed. Pre- and post-test results of students’ library skills were compared within each year. ANOVA analysis indicated that there was a significant increase in mean scores from pre-test to post-test which suggests that students performed better on a test of their knowledge and application of library skills after instruction, but the unavailability of a control group made this finding inconclusive. The findings are discussed in relation to practical and intellectual issues in curriculum integration. It is concluded that this type of curriculum integration is feasible, creates linkages in the curriculum and does not increase demand on student time.

Introduction

Medical school curricula make huge time demands on students and staff. Wherever possible, the integration of curricula offerings presents an opportunity to staff and students to make effective use of available time and resources. An effort to integrate communication skills and library skills curricula, over a two-year period, at the Faculty of Medical Sciences (FMS), University of the West Indies, St. Augustine, is the focus of this paper.

Setting the scene: the medical curriculum, medical undergraduate programme, medical students and library skills training at UWI

Students from four disciplines (medicine, dentistry, pharmacy and veterinary medicine) complete a common pre-clinical curriculum in the basic health sciences. The common curriculum is taught using problem-based and traditional lecture methods. Students are drawn from a variety of geographical and ethnic backgrounds, originating from the
Caribbean, North America, Europe, Africa and Asia. Pre-medical school experiences are diverse as some students may have completed first degrees, while others are recruited directly from the secondary school. Consequently, students come to the programme with a range of information literacy skills.

From its inception in 1989, the Medical Sciences Library (MSL) has provided a bibliographic instruction programme which has included: (i) instruction in the use of manual reference sources, (ii) the online public access catalogue, and (iii) biomedical CD ROM products. In addition, the MSL took an active role in preparing students for a compulsory University of the West Indies course Research, Reporting and Documentation. This course, one of two in the use of English, was supported by librarians who helped students become acquainted with relevant sources for researching assigned topics and provided assistance in bibliographic citation and elements of style. Despite this involvement of medical librarians, there has been advocacy for the inclusion of formal library skills into the curriculum.

In 1994, the Computer Advisory Committee of the FMS requested a brief position paper on the computer/information education needs of medical students. The paper submitted by the MSL included the need for skills such as retrieval of information and training in the use of databases and the automated library catalogue. A strategy was sought to successfully integrate these skills into the curriculum.

Educators generally regard the acquisition of library skills as an appropriate curricular goal. However, attempts to include such courses in the formal curriculum, especially if the curriculum is perceived as already crowded, may present challenges, especially as students attach greater significance to those elements of their curriculum which are examined and for which academic credit is awarded. As this is often not the case with library skills programmes, the perception that the skills are immediately applicable is a critical factor in fostering acceptance. This has been demonstrated in previous experiences at the FMS by students who were taught bibliographic database searching as a component of in-course preparation for research electives. The students were very receptive. On completion of training, a number of them immediately began to source information for their research projects by using the databases.

The approach to medical education adopted at the FMS, St Augustine ‘aims to provide a method of education which does not draw sharp divisions between the traditional disciplines or sections of the course’. But achieving integration in medical education curricula is not easy. At St. Augustine, a medical education workshop recommended the adoption of ‘an integrative curriculum, utilizing problem-based strategies’. The problem-based learning approach (PBL) is useful in keeping students’ ‘skills and information contemporary with their chosen fields’. In 1992, the advantages and disadvantages of the hybrid form of the problem-based approach in use at St Augustine were considered and a recommendation was made to view PBL as ‘a learning tool and not as a definitive educational strategy’.

The literature on curriculum integration, with specific reference to library skills

In reviewing the literature for this study, four main ways of integrating curricula were identified: (1) ‘integration within a broad field of study; (2) correlation of two or more fields of study; (3) interdisciplinary studies; and (4) transdisciplinary programs’ (p. 1222). The approach taken in the present study is to correlate content in library skills with concepts in communication skills. We were mindful that an important challenge identified by curriculum specialists is to ‘pay appropriate attention both to the separate disciplines and to the integration of those disciplines’ (p. 1223).

The perceived benefits of curriculum integration include: (i) increased opportunities to increase learner motivation, (ii) likelihood that attention is paid to areas that are sometimes ignored, (iii) reinforcement of concepts, and (iv) efficient use of time. The main arguments against integration are that motivation and interest can be generated in any discrete discipline and that each discipline has its ‘“syntax of inquiry” which innovative curricula unwisely ignore’ (p. 1223).

There is evidence of mixed success in library skills instruction in various contexts. Success in overcoming obstacles associated with instruction in information skills courses was achieved by
focusing on individual year 2 students’ deficiencies and providing individual students with a self-paced learning module. An instruction unit in medical information retrieval was designed and tested at the University of Illinois College of Medicine at Rockford. The researchers utilized the self-paced individual learning (SPIL) approach. It was found that in a subsequent post-test, students who used the self-paced modules scored significantly higher than those who did not utilize the modules. Similar success in improving the information technology knowledge and attitudes of year 1 students was reported by Chan et al. Their 1996 study indicates successful implementation of an Information Technology course introduced into the first year of the medical curriculum at the University of Leeds. A project to provide general education students with an introduction to scientific method, scientific writing and scientific bibliographic databases was piloted and refined at the California State University, USA. This effort resulted in ‘a valuable finished product’ at the expense of a significant commitment of time by staff and students. Although there are instances of schools trying to incorporate the computer in their teaching programmes, limited evidence of integration has been found in courses for pharmacy students, medical students and veterinary medicine students. Greater success has been recorded in an integrated informatics curriculum in an undergraduate nursing programme. The evidence suggests that while the knowledge and uses of information technology among entering medical students has been improving, little is known about the feasibility of integrating curriculum areas such as medical communication and library skills which are related but usually taught separately.

Communication skills and library instruction curricula objectives at UWI

Since 1995, undergraduate students in the FMS have been taking a compulsory programme in communication skills comprising two, one-semester courses in their first year of common study. From 1997, library skills were integrated into the communication course taught in the first semester.

The first semester course, Communication Skills for Health Personnel, uses a skills approach to the practice of effective communication in health settings. The stated objectives of the course are that participants will be able to:

- identify the major elements in the communicative process and their purposes;
- analyse the communicative process specific to the needs of health personnel;
- recognize the application of the principles of effective communication in a variety of health contexts;
- communicate effectively in the oral mode with: other health personnel, patients/clients/other members of the public;
- conduct an interview and participate effectively in a discussion group;
- communicate effectively in written modes necessary to the health professions.

To summarize, the overall objective of this collaborative effort at curriculum integration was to provide students with the knowledge and skills to improve their command of written communication in an academic context using the information technology resources available to them.

Methods

How we sought to integrate communication skills and library skills

In 1997 staff from the Centre for Medical Sciences Education (CMSE) and the MSL attempted to integrate a module in library skills into the existing medical communication skills introductory course. It was agreed that the sessions should cover:

- information searching and retrieval;
- referencing and documentation;
- styles in academic reports and articles;
- the use of multimedia.

When preparing their assignments, students would be expected to demonstrate an ability to use the Vancouver style; consistency in the use of style; report-writing skills; literature searching...
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skills; as well as ability to locate information. As consistent use of approved bibliographic style was known to be a frequently undervalued skill, it was suggested that students would be asked to show they could construct a bibliography. Table 1 presents the structure of the modules.

Course delivery: our experience of integration

Library skills were taught within the communication skills curriculum in both years. Teaching for large groups lasted from Weeks 2–4 and hands-on sessions were held in Weeks 5–9 for small groups as shown in Table 2.

The basic goals of the small group sessions were to:

- reinforce the concepts covered in the OVID MEDLINE demonstration;
- allow the students opportunities to ask specific questions about the use of the database;
- attempt actual searching.

All students who attended the large group sessions were given a pre- and post-test. These tests consisted of a set of 10 questions and were scored out of a maximum of 10. The purpose of the exercise was to test the students’ knowledge of the major concepts covered in the sessions. Some examples of the items are shown in Fig. 1.

The pre-test was administered at the first session, before the commencement of the lecture. As a means of reinforcing the concepts that had been covered, students corrected completed questionnaires under

Table 1 Relationship between modules, skills/concepts and assessment.

<table>
<thead>
<tr>
<th>Modules and their related concepts</th>
<th>Library skills</th>
<th>Assessment</th>
<th>Due date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication skills</td>
<td>Library skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Differences between oral and written communication</td>
<td>• Retrieving information for report writing and research</td>
<td>Essay</td>
<td>Week 5, Semester 1 CM 10 A*</td>
</tr>
<tr>
<td>• Effective written communication: letters, memoranda, instructions, reports</td>
<td>• Styles in academic writing</td>
<td>Written report</td>
<td>Week 10, Semester 1 CM 10 A*</td>
</tr>
<tr>
<td>• Effective written communication: letters, memoranda, instructions, reports</td>
<td>• Retrieving information using OVID MEDLINE</td>
<td>Examination</td>
<td>Week 14, Semester 1 CM 10 A*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Case conferences</td>
<td>Weeks 8–9, Semester 2 CM 10B**</td>
</tr>
</tbody>
</table>

*CM 10A = Communication skills for health personnel.
**CM 10B = Communication skills for the health professions.

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<tbody>
<tr>
<td>Week 2</td>
<td>Information retrieval</td>
<td>Lecture and handouts to large group</td>
<td>197</td>
<td>235</td>
</tr>
<tr>
<td>Week 3</td>
<td>Styles in academic writing</td>
<td>Lecture and handouts to large group</td>
<td>197</td>
<td>235</td>
</tr>
<tr>
<td>Week 4</td>
<td>OVID MEDLINE introduction</td>
<td>Short lecture and demonstration</td>
<td>197</td>
<td>235</td>
</tr>
<tr>
<td>Weeks 5–9</td>
<td>OVID MEDLINE</td>
<td>Hands-on practice with two small groups weekly in library</td>
<td>25 x 2</td>
<td>25 x 2</td>
</tr>
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the guidance of the librarian delivering this module. The questionnaires were then collected and checked by the facilitators for inaccurate scoring. Any inaccuracies were corrected. The post-test (which consisted of the exact items used in the pre-test) was administered at the end of the third session. The completed post-tests were collected, checked and scored by the facilitators. Both pre-test and post-test were administered in each year. The results are presented as Table 3 and Table 4.

Final exam performance of students on information retrieval, academic writing and citation items in 1997 and 1998

All students who participated in the first semester communication skills course, which integrated library skills content in 1997 and 1998, wrote a final examination. Students were required to answer one question in section 2 of the paper. The final examination in the course, CM 10A Communication Skills for Health Personnel, tested students’ knowledge and application of communication principles in health settings (Section I). This examination used essay and/or structured short answer responses that involved both cases studied in class and new situations.
requiring application of knowledge, skills and attitudes (Section 2). In December 1997 and 1998, students answered an optional question which tested their use of library skills (information retrieval, research, report writing and bibliographic citation) in written communication. Student performance on the library skills question was analysed to determine the level of knowledge and application of skills for communication purposes in health. The students’ responses earned achievement grades according to the following scheme: A, 70% and above; B+, 60–69%; B, 50–59%; C, 40–49%; F, 0–39%.

Results

Comparison of pre-test and post-test mean scores for 1997 and 1998 cohorts

Tables 3 and 4 show that in general there was an increase in the scores for all the groups from the pre-test to the post-test scores. This pattern occurred in both 1997 and 1998. These scores reflected student’s knowledge and application of the major concepts (such as information retrieval and bibliographic citation, structure of an academic report, and the use of OVID MEDLINE) covered in the module.

Table 3 also shows the number of students who took the post-test as a percentage of those who took the pre-test for 1997–98 and 1998–99, respectively.

Test of significance

The means of the pre- and post-test scores based on students’ library skills knowledge and application of that knowledge were examined using the ANOVA and were found to be significant ($P < 0.001$). ‘A one-way ANOVA is used to examine differences between … two or more measurements for a single group’ (p. 293). Increases from pre-test to post-test were consistent in all schools in both years.

Performance of students on information retrieval, academic writing and citation items in 1997 and 1998. The performances of the 1997 and 1998 students are presented in Tables 5 and 6. A
comparison indicates that in 1997, 71.7% of the students \((n = 62)\) achieved a passing grade (Grade C and above) on the question which tested the integration of library skills with written communication, while in 1998, 61.5% of the students \((n = 16)\) achieved a passing grade on a similar question. In 1997, when the class size was 197, 46.7% of the students \((n = 92)\) attempted the library skills and written communication question. In 1998, a smaller number, 26 out of 235 students (11.1%) attempted the question.

**Discussion**

Comparison of results with previous findings

No comparable work on integrating medical communication skills with library skills curricula was located in the literature. However, there are studies which describe attempts to integrate medical informatics and information technology into the curriculum. The present study sought to make linkages between two disciplines within an existing programme of study. The significance of attempting this linkage should be assessed in the context of a medical education curriculum that has not always managed a seamless fit or integration between disciplines even within a problem-based setting. The results of this study suggest, firstly, that it may be possible to integrate library skills with medical communication skills, whilst at the same time recognizing the distinctive contributions of each separate discipline to a common theme or issue. Secondly, our work suggests that planning and collaboration is an ongoing and recursive process. Course delivery is facilitated by team work and a high level of course organization. Thirdly, it is useful to measure student outcomes by means of a simple pre- and post-test instrument. Fourthly, there should be a means of assessing the students’ application of integrated knowledge and skills to practical challenges as demonstrated in students’ performance in an examination such as the one described in this study.

Interpretation of results

There are two factors that need to be taken into account in interpreting the results. The first factor is that in both years the post-test sample was smaller than the pre-test sample. In 1997 the post-test sample was 48% \((n = 54)\) of the pre-test sample \((n = 113)\) and in 1998 the post-test sample was 79% \((n = 152)\) of the pre-test sample \((n = 193)\). The post-test sample in each year was dependent on class attendance. A related issue is that there is no certainty that the students who took the pre-test were exactly the same ones that took the post-test. (It is highly likely that there was some overlap.) We would like to attribute the better performance on the post-test compared to the pre-test to the instruction provided in the integrated module, but as it was desirable to preserve anonymity in the study, we cannot track individual performance. This means that we must be cautious about attributing improvements in performance to instruction. The second factor to bear in mind is the short time interval (3 weeks) between the pre- and post-test which could account for students’ recall of the same questions used in both tests.

So, can we say that our effort to integrate communication skills and library skills was successful? Ackerman\(^1\) posed two questions about curriculum integration that seem relevant to an evaluation of this effort. The first has to do with whether it is practical to integrate curricula. The second relates to whether there are intellectual criteria for curriculum integration. We have shown that it is possible to integrate communication skills and library skills. As regards Ackerman’s four intellectual criteria, we think that our project has shown that the integration of the two subject domains need not lead to a diminution in the intellectual integrity or coherence of either subject. We have reviewed our experience and our data and we think that the validity of the disciplines was maintained and our integrated course contributed to broader outcomes.

**Conclusion**

This study reported on collaboration between a medical communication skills faculty member and members of the medical library staff and the lessons learned. From the point of view of curriculum organization and time-management, the experience was a successful one. We found that it was essential to have designated persons assume
responsibility for various aspects of the integrated module. The pre-test and post-test instruments were devised, administered and processed by the library specialists, who also took responsibility for large group lectures and small group hands-on instruction. The planning for the module was a joint, ongoing exercise. The students’ ability to apply their knowledge and skills in information retrieval and documentation was assessed and analysed by the communication instructor who analysed students’ essay responses in a final examination.

It is noteworthy that the students completed their work in this module without adding to the time normally required to complete the communication skills course. This suggests that this curriculum integration experience is feasible, makes linkages in the curriculum and does not increase demand on student time.

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