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Pharmacy students' attitudes and views about portfolio-based learning: A questionnaire survey

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Abstract

The introduction of a prescribing module in the undergraduate pharmacy curriculum at the University of Manchester instigated a search for assessment methods that would appropriately assess the students' achievements in terms of the learning outcomes. Portfolio assessment has previously been used in other subject areas for this purpose and was been adopted for the summative assessment of students at Manchester. Hundred and fifty four final year undergraduate pharmacy students completed a questionnaire survey (75.5% response rate) that explored their attitudes and views about a reflective portfolio assessment of their knowledge about prescribing. The majority of students felt that the portfolio was not only an effective means of assessing and supporting their learning, but also helped to prepare them for their future continuing professional development (CPD).

Keywords: *Assessment, pharmacy, portfolio, prescribing*

Introduction

Portfolios have been used for a number of years in higher education in a variety of formats and serving a wide range of purposes. The term portfolio learning, derived originally from the graphic arts, has come to mean the collection of evidence that learning has taken place (Davis et al., 2001). In practice, portfolios consist of two major components: Firstly, a collection of evidence of events and experiences, and secondly, a reflection by the student on what has been learned (Baume, 2001; Friedman et al., 2001; McMullan et al., 2003). This may include written reflective accounts on the submitted evidence or personal reflections kept in the form of a journal or diary. Typically, these would include reflections on problem areas, what has been learned, what has still to be learned and plans for how new learning will be tackled (Snadden & Thomas, 1998).

Previous research suggests that portfolio-based learning has a number of distinct advantages: namely, portfolios can promote self-development, encourage reflective practice and self-evaluation, contextualise learning and link experience with personal interpretation, provide an on-going basis for planning and goal setting, and they can also provide a framework for continuing professional development (CPD) and revalidation (Baume, 2001; Davis et al., 2001; Friedman et al., 2001). It has also been suggested that the use of portfolios as a means of summative assessment not only measures the desired learning outcomes, but also enhances the development of strategies, skills and cognitive processes necessary for lifelong learning (Friedman et al., 2001). Nonetheless, there are also a number of recognised drawbacks in the use of portfolios in that they can be time-consuming for both students and staff, students may not see the relevance in reflective learning, and if used in summative assessment then issues of ownership, reliability and validity need to be addressed (Snadden & Thomas, 1998).

For a number of years, portfolio-based learning has been actively promoted within the professions of

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medicine and nursing at both undergraduate and postgraduate levels, and various interpretations have evolved ranging from the use of logbooks to deeply reflective personal accounts (Finlay, Maughan & Webster, 1998; Mathers, Challis, Howe & Field, 1999; Harris, Dolan & Fairbairn, 2001; Lonka et al., 2001; Dornan, Carroll & Parboosingh, 2002; Wilkinson et al.; 2002; Gordon, 2003; McMullan et al., 2003). In the UK, the use of portfolios in the pharmacy profession is a relatively new development. However, they are currently being introduced to support the CPD of pharmacists, and to assess competence and re-certification.

In 2003, a taught module focussing on prescribing was introduced into the final year of the undergraduate pharmacy degree course at the University of Manchester (Hall & Ashcroft, 2005). The aim of this module is to teach students the principles of appropriate prescribing, namely, selecting medicines that are effective, safe, cost-effective and respect patient choice (Barber, 1995). The module was designed to complement the subjects concurrently taught in other modules, such as pharmaceutical care, therapeutics and the students' clinical placements. Indeed, our intention was to encourage students to understand concepts, processes and ideas, and to evaluate and build on previous knowledge by integrating their learning across different modules in the undergraduate course. To facilitate this, we developed a prescribing portfolio that directed students to gather, document and reflect on evidence that demonstrated that they understood how these areas linked with prescribing. The aim of this study was to examine the attitudes and views of pharmacy students towards portfolio-based learning about prescribing.

Methods

Our sampling frame comprised all final year undergraduate pharmacy students at the University of Manchester over two consecutive years (2003/2004 − 2004/2005). Following the submission of their prescribing portfolio, students were asked to complete a questionnaire. The questionnaire comprised four broad sections designed to elicit students' views on the impact of the portfolio on their learning, their experience of building the portfolio, and their attitudes towards the use of portfolios as a means of assessment and to support CPD. To inform the questionnaire development, four semi-structured interviews were conducted with members of academic staff at the University of Manchester to ensure that the statements used within the questionnaire were judged to be of relevance.

The students were asked to rate their level of agreement with each statement. Responses were indicated on a five-point scale with endpoints labelled "strongly agree" (1) to "strongly disagree" (5). Completed questionnaires were entered into SPSS version 11.5 and analysed using simple descriptive statistics.

Results

In all, 154 questionnaires were returned (75.5% response rate) from 107/141 female students (75.9%) and 47/63 male students (74.6%).

Students' views on the impact of the portfolio on their learning

The students' views on the impact of the prescribing portfolio on their learning are shown in Table I. Ninety-eight students (63.8%) felt that completing a portfolio was a good method of developing their knowledge about prescribing, and 97 students (63.4%) stated that the portfolio allowed them to reflect and build on their learning from other modules in the undergraduate pharmacy degree course. Ninety-one students (59.5%) stated that they had gained further insight into their approach to learning by completing the portfolio, and 89 students (58.2%) felt that it allowed them to identify their strengths and weaknesses. In addition, 73 students (47.8%) stated that they could see some opportunities to modify their approach to learning as a result of completing the portfolio.

Students' views on building the portfolio

Seventy-two students (46.7%) stated that building the portfolio was a useful learning experience, as shown in Table II. Sixty-nine students (45.1%) felt that building the portfolio gave them a sense of achievement and helped them to develop their organisational skills. Nonetheless, 123 students (79.8%) stated that they would have liked more information about building the portfolio, and 62 students (40.3%) felt that building the portfolio involved completing too much paperwork.

Students' views on the use of portfolios as a means of assessment

Only 27 students (17.7%) felt that they would prefer to be assessed via a conventional written examination rather than completing the portfolio, as shown in Table III. In the prescribing module, the students are currently assessed via a written examination and the completion of the portfolio; 75 students (49.4%) felt that this was an effective approach to assessing their learning and knowledge about prescribing.

Use of portfolios to support continuing professional development (CPD)

One hundred and eight students (71.1%) stated that using a portfolio would be a good means of documenting

Table I. Students' views on the impact of the portfolio on their learning.

	Strongly agree (%)	Agree (%)	Uncertain (%)	Disagree (%)	Strongly disagree (%)
A portfolio is a good method of developing my knowledge about prescribing ($n = 153$)	4 (2.6)	94 (61.4)	29 (19.0)	23 (15.0)	3 (2.0)
The portfolio allowed me to identify my strengths and weaknesses ($n = 153$)	7 (4.6)	82 (53.6)	30 (19.6)	30 (19.6)	4 (2.6)
The portfolio allowed me to reflect and build on my learning from other modules ($n = 153$)	7 (4.6)	90 (58.8)	26 (17.0)	24 (15.7)	6 (3.9)
I have gained further insight into my approach to learning by completing the portfolio ($n = 153$)	4 (2.6)	87 (56.9)	23 (15.0)	34 (22.2)	5 (3.3)
I can see some opportunities to modify my approach to learning as a result of completing the portfolio ($n = 153$)	1 (0.7)	72 (47.1)	31 (20.3)	43 (28.1)	6 (3.9)
The portfolio provided a useful means of documenting personal feelings about my learning ($n = 152$)	0 (0)	74 (48.7)	34 (22.4)	35 (23.0)	9 (5.9)
I find this form of learning too woolly and undirected ($n = 152$)	5 (3.3)	26 (17.1)	36 (23.7)	80 (52.6)	5 (3.3)

their CPD, as shown in Table IV. Likewise, 80 students (52.9%) felt that the use of a portfolio would be a good tool for judging the re-certification of pharmacists.

Discussion

This study investigated pharmacy students' experiences and satisfaction about using portfolios and reflecting critically on their learning experience about prescribing. It is clear that the principle of portfolio-based learning was accepted by the pharmacy students, and considered an appropriate method of assessment alongside more traditional approaches. The students' responses confirmed expectations that the portfolio would help them to reflect on their approach to learning, and develop a clearer understanding about their personal and professional development. Similar findings have previously been reported with medical students (Gordon, 2003).

Although pharmacists have only taken on a prescribing role recently, there are many aspects of the prescribing process that are central to the more traditional functions of pharmacy practice, such as counter prescribing and providing prescribing support to other healthcare professionals. During the undergraduate pharmacy degree course, students will encounter many references to prescribing and it was not our intention that these should be relocated to the prescribing module or that they should be repeated. Instead, one of the key objectives of the portfolio was to encourage students to think laterally across different modules and document and reflect on this learning. Reassuringly, a majority of the students stated that the portfolio had improved their knowledge about prescribing and allowed them to build on learning from other modules.

Table II. Students' views on building the portfolio.

	Strongly agree (%)	Agree (%)	Uncertain (%)	Disagree (%)	Strongly disagree (%)
Building the portfolio was a useful learning experience ($n = 154$)	3 (1.9)	69 (44.8)	41 (26.6)	35 (22.7)	6 (3.9)
Building the portfolio gave me a sense of achievement ($n = 153$)	2 (1.3)	67 (43.8)	31 (20.3)	48 (31.4)	5 (3.3)
I would have liked more information about building the portfolio ($n = 154$)	33 (21.4)	90 (58.4)	19 (12.3)	9 (5.8)	1 (0.6)
Building the portfolio helped me to develop my organisational skills ($n = 153$)	2 (1.3)	67 (43.8)	49 (31.8)	31 (20.3)	4 (2.6)
Building the portfolio involved completing too much paperwork ($n = 154$)	12 (7.8)	50 (32.5)	33 (21.4)	58 (37.7)	1 (0.6)

Table III. Students' views on portfolios as a means of assessment.

	Strongly agree (%)	Agree (%)	Uncertain (%)	Disagree (%)	Strongly disagree (%)
I would prefer a conventional written examination rather than completing the portfolio ($n = 152$)	4 (2.6)	23 (15.1)	35 (23.0)	70 (46.1)	20 (13.2)
The combination of a written examination and the completion of a portfolio is an effective approach to assessing my learning and knowledge about prescribing ($n = 152$)	8 (5.3)	67 (44.1)	55 (36.2)	19 (12.5)	3 (2.0)

Table IV. Students' views on the use of portfolios in the CPD and re-certification of pharmacists.

	Strongly agree (%)	Agree (%)	Uncertain (%)	Disagree (%)	Strongly disagree (%)
Using a portfolio would be a good means of documenting my continuing professional development (CPD) ($n = 152$)	8 (5.3)	100 (65.8)	30 (19.7)	9 (5.9)	5 (3.3)
The use of a portfolio would be a good tool for judging the re-certification of pharmacists ($n = 151$)	4 (2.6)	76 (50.3)	18 (11.9)	43 (28.5)	10 (6.6)

Building on this initial experience, it is expected that the prescribing portfolio will continue to evolve and changes will be made in line with developments in the pharmacists' prescribing role and in light of feedback from both staff and students. Not surprisingly, the amount of paperwork involved in completing the portfolio was considered excessive, and regarded by the students as one of the least attractive parts of portfolio-based learning. In the future, we plan to explore whether an online system would be more appealing to the students. Using online technology could allow portfolios to be searchable, arranged in different ways, and provide students with much greater flexibility, ensuring secure access to their own personalised records from a range of locations. In addition, we propose to introduce some open access workshops to further support the students in preparing their portfolio.

Portfolios provide a novel approach to assessing a range of learning outcomes that are not easily assessed by other methods, such as the use of reflective skills in order to analyse and synthesize experiences (Friedman et al., 2001). Interestingly, there are indications that the students believe that the skills they have learned in developing the portfolio will support their future CPD. Qualitative research may have an important role to play in exploring pharmacy students' views further. Consideration needs to be given to determining what the students have learned by completing the portfolio and to what extent this has enabled the students to identify factors that have helped them to learn about prescribing.

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