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A Follow-up of an Occupational Therapy Programme based on Problem-Based Learning (PBL)

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Abstract

A follow-up study explored how graduate occupational therapists valued quality aspects of their undergraduate education on a Problem-Based Learning (PBL) occupational therapy programme. One hundred and fifty of 195 graduates completed a questionnaire. The survey focused on factors such as: specific occupational therapy content combined with practical skills and preparation for future work; problem-solving and critical thinking; ability to communicate and collaborate; personal and professional development; and life-long learning. The respondents rated items after considering them from two aspects: acquired skills and objective importance. The main results show that the respondents rated their skills as above average in the quality aspects of the programme. A discrepancy was evident between the rated acquired skills and the rated importance of key qualities of the curriculum. Student-centred learning with PBL is evaluated as having value but is rejected.

Key words: problem-based learning, occupational therapy education, curriculum design

Introduction

Follow-up studies are generally rare, and only a few were found in literature search concerning occupational therapy programmes (e.g. Ilott & Kenyon, 1997). The World Federation of Occupational Therapy (WFOT) has formulated certain minimum standards for the education of occupational therapists (WFOT, 2002). The process for approval of educational programmes and the monitoring of existing programmes WFOT recommends, for example, investigating the graduates' capacity to meet local health needs. This follow up can form part of such monitoring

Problem-Based Learning (PBL) is often cited as an effective approach for promoting the development of self-directed, autonomous learning, and the values, attitudes and skills that students require for successful learning (Barrow, 1996). The global growth of PBL programmes during the 1970s and 1980s was due to the recognition of the need for educational reforms in many professional fields. The concept of PBL is widely interpreted and occurs in a variety of shapes and implementations (e.g. Maudsley, 1999). The basic assumption for implementing PBL in the early 1970s was the vision of students becoming qualified practitioners and life-long learners, who were prepared to meet the complex reality and the demands of a constantly changing society (Barrows & Tamblyn, 1980). Problem-based curriculum design emphasises context. Problem-solving will never be a generic skill; it will always be context-dependent (Savin-Baden, 2003). When applying PBL, the main features are a shift from teaching to learning, from teacher responsibility to student responsibility, using student-centred learning.

Research findings on the outcome of PBL differ. Some researchers maintain that there is no evidence to show that PBL is an effective educational model (e.g. Colliver, 2000). Others recommend PBL and claim it is a beneficial model for learning (Albanese, 2002; Berkson, 1993; Norman & Schmidt, 2000), despite the difficulties in measuring PBL outcomes. The results from a systematic review of the effectiveness of PBL (Newman, 2003) fall between these poles. The literature search showed that most studies and research have been conducted within medicine and nursing, while few findings were available from occupational therapy education.

The occupational therapy programme at the University of Linköping, Faculty of Health Sciences has used PBL since 1986. The occupational therapy programme consists of three years of study divided into six semesters. In each semester, 24 students are admitted to the programme. The main subject is occupational therapy, with a focus on function and dysfunction with respect to human occupation. On successfully completing the programme, the students receive a bachelor of science degree. Core aspects of the programme include early client contact, vertical (between basic science subjects and practice) and horizontal integration (i.e. interdisciplinary integration), development of communication skills, and integration with other programmes at the faculty such as programmes for physiotherapy, caring, medicine and social work.

Specific occupational therapy content is combined with practical skills and preparation for future professional work, an understanding of health promotion, problem-solving skills and critical thinking, the ability to communicate and collaborate, personal and professional development, and encouragement of life-long learning. Self-directedness, a "tool" for learning, is considered a prerequisite for being a change agent in society. The need for students to develop and integrate meta-cognitive skills, such as identifying the relation between forms of evidence, judging relevance and making choices, is important in order to be a successful practitioner (Silén, 2000).

Aim

The aim of this study was to investigate how occupational therapy graduates evaluated their undergraduate problem-based learning curriculum.

Method

Data collection

The university database, which is regularly updated with the help of the national population register, was used to identify all students who had graduated from the occupational therapy programme at Linköping University between January 1996 and January 2001. The study population consisted of 195 graduates - one male and 194 females. In total, 195 questionnaires were mailed. A reminder was distributed after three weeks to those who had not responded. In order to administer the reminders, the questionnaires were identified by a code, which was subsequently erased.

Following the example of a recent follow-up study of medical graduates (Antepohl et al, 2003), a questionnaire containing 24 questions was constructed to explore how the graduate occupational therapy students evaluated the key quality factors of their undergraduate PBL curriculum. The first 10 questions dealt with demographic data and activities before and after undergraduate studies. For 11 of the 14 questions evaluating the programme a 6-point Likert-type scale ranging from 1 (= not at all) to 6 (= to a very high degree) was used. Each question was considered from two aspects; acquired skills and objective importance and was rated separately. Consequently, each of these 11 questions was double rated. Two open questions mirrored the graduates' views of the professionalism of occupational therapy, and the last question solicited their opinions about whether they would recommend the occupational therapy programme to a prospective student.

Statistical analysis

The mean and SD of the double-rated questions (n=11) that were divided into acquired skills and objective importance was calculated. The correlation between ratings of the acquired skills and objective importance was calculated by using a Spearman rank correlations coefficient (ρ). The data, subjective statements, were analyzed as ordinal data.

Analyses of the open questions

The responses to the open questions were transcribed into a list. Few full sentences were given. However, many answers were complex. Initially a great number of categories emerged. Using content analysis (Patton, 1990), the relationship between the categories was examined and ultimately condensed into the final categories. The authors reached consensus by repeatedly checking and discussing the data and the categories. Consensus was reached between the authors regarding all categories.

The respondents

The mean age of the respondents was 31.7 years (range 25 – 54 years). One male and 149 females responded. Before entering the programme, 136 of the respondents (91 %) had some kind of work experience. The most frequent experience was working in the health care sector or community-based care, or in offices and service. Thirty-four respondents had earlier experience of academic studies.

Results

One hundred and fifty former students returned the questionnaire, an overall response rate of 77 %. After graduating, 92 of the respondents (61 %) had participated in a variety of educational activities. The most

frequent were one-week courses in areas such the assessment of motor and process skills (AMPS), hand rehabilitation, and introduction to cognitive rehabilitation. Nine respondents had completed a Master's degree: five in occupational therapy and four in public health. More than 25 % had completed short academic courses of less than 20 credits.

One hundred and thirty respondents were working as occupational therapists (87 %), five as community-based investigators deciding the needs for service of clients with mental health problems and learning disabilities, five were on parental leave, three were working as technical aid consultants, three were PhD students, and the remaining four had other positions.

Table 1. Ratings of acquired skills and its essential on a Likert scale 1-6

Area/ Item	Respondent n	Mean	SD	Correlation (a-b)
- Good/relevant OT knowledge				
a/ acquired	148	4.59	.808	
b/ important objective	148	5.40	.806	.18
- Good practical skills				
a/ acquired	150	4.18	1.212	
b/ important objective	150	5.48	.806	.20
- Co-operation with other health staff members/colleagues				
a/ acquired	150	4.93	1.103	
b/ important objective	150	5.65	.625	.36
- Good problem-solving skills				
a/ acquired	150	5.07	1.011	
b/ important objective	150	5.58	.648	.52
- Good critical thinking				
a/ acquired	150	5.65	.915	
b/ important objective	150	5.37	.755	.54
- Good communication skills				
a/ acquired	150	4.29	.972	
b/ important objective	150	5.55	.661	.24
- Good skills for working in health promotion				
a/ acquired	149	3.58	1.085	
b/ important objective	149	4.91	.954	.42
- Good management skills				
a/ acquired	150	3.79	1.075	
b/ important objective	149	4.91	.900	.30
- Good skills for life-long learning				
a/ acquired	149	4.98	1.003	
b/ important objective	150	5.45	.782	.58
- Personal development				
a/ acquired	150	4.73	1.157	
b/ important objective	150	4.92	1.084	.56
- Good preparation for working as an OT				
a/ acquired	149	4.85	.928	
b/ important objective	149	5.80	.479	.24

Table 1 shows that all questions regarding acquired skills in the key quality factors were rated higher than 3, which is higher than the mean. The lowest rated item (m=3.58) comprised acquired skills in working with health promotion and management. Most (7/11) acquired skills were rated higher than 4.50. The highest-rated items indicate that the former students considered that they had acquired the ability to solve problems and think critically.

The respondents scored the objective importance of the items highly and no rating was lower than 4.90 on average. The highest-rated area of importance was being prepared for work as an occupational therapist. In all 11 doubled-rated items, except critical thinking, the respondents rated their own acquired skills lower than the rated importance of the objective or the item content.

The differences in rating acquired skills and objective importance resulted in low correlations between the items in each area. The highest correlation was found in life-long learning and personal development. In no case, however, was the correlation higher than $r = 0.60$. A low correlation, $r = 0.20$ or less, was shown for knowledge in the main subject of occupational therapy and in practical skills, together with being prepared for work as an occupational therapist, and communication skills.

There were no significant differences between the responders based on current work situation, courses they had participated in, or the number of years they had been working as an occupational therapist.

Professionalism

Among the 150 participants in the study, 128 answered the open question about what constitutes occupational therapy professionalism. Approximately one third of the former students expressed one concept (51/128), while seventeen had a composite view and gave several reasons in their answers. In total, 227 concepts were given (Table 2). The analysis resulted in 4 different categories.

One reflected a client perspective i.e. treatment of clients and meeting their needs, communication, and empathy. Another reflected a scientific perspective, i.e. knowledge as something to discover, even during a lifetime, vertical integration and critical thinking. The third, the interprofessional perspective, covered conceptions such as a confident role identity, satisfactory collaboration with other health professionals and the legitimacy of the occupational therapy profession. The final administrative perspective represented a neutral view of professionalism and included routines, regulations and recommendations.

Table 2. Conceptions of professionalism (n=227)

Category	No.	%
Client perspective	111	49
Knowledge /Scientific perspective	59	26
Inter-professional perspective	52	23
Administrative perspective	5	2

Recommending the occupational therapy programme

One hundred and forty-two graduates reported favourably on recommending the occupational therapy programme to prospective students, while eight former students were reluctant to do so. Reasons for non-recommendation varied from a negative impact on personal development to the competence of the faculty, combined with the view of PBL as an educational model characterised by a heavy workload and the burden of individual responsibility.

The results were organized into five categories of recommendation. The first category, the structural factor, included 141 individual statements and was the largest category including the benefits of PBL, such as vertical integration, and critical thinking. An almost equally large number of statements related to the process, i.e. the amount of practice as well as the quality of practice and multi-professional elements. The third category, which included 25 statements, related to the teacher/tutor, competence in teaching/tutoring and a dynamic and flexible management. The fourth category, individual factors (n= 24), had almost the same number of statements, including preparedness for future professional life and personal development. In contrast to these education-related categories, some responders (n=13) also stressed environmental factors in the city, with its activities and academic atmosphere.

Discussion and Conclusion

Compared with the follow-up of graduate medical students in Sweden (Antepohl et al, 2003⁴), it appears that the occupational therapists rated the acquired skill of collaborating with other health staff somewhat higher than the doctors did. However, the difference was only .47. A greater difference (.80) in the favour of occupational therapists was noticeable with respect to critical thinking. On the other hand, the medical graduates reported a higher mean for acquired communication skills. In summary, the results from the occupational therapy graduates were consistent with the findings in the follow-up among medical doctors regarding quality aspects of the PBL curriculum

However, when contrasting the acquired abilities and the importance of the objectives, it is notable that the occupational therapy graduates considered their acquired abilities during the undergraduate studies to be low, despite rating the importance of the content areas highly. These findings suggest that the content areas in question constitute a high quality curriculum, although, according to subjective statements, these graduates did not fully develop their abilities. It seems that the curriculum satisfactorily fostered skills in critical thinking and problem-solving but did not prepare students well for the future. In this respect PBL did not successfully fulfil the educational expectations of graduates struggling with a new professional identity and without an obvious position in the health-care team. The question is to what extent the occupational therapy graduates succeeded in acquiring a meta-cognitive perspective, such as discernment of different and relevant contexts and their relation to each other in relation to self-directed learning, interactive reasoning and life-long learning (Silén, 2003). One explanation for the discrepancy may be the fact that occupational therapy is a newly established profession in Sweden, not totally incorporated into the health-care system. A Swedish analysis revealed that following the organisation of health teams, the occupational therapists currently lack the presence of other occupational therapy colleagues, and have thus lost their role models and are left as the only ones to argue for the occupational therapy perspective and principles (Haglund & Lindström, 1997). A new academic profession needs competence and a language to argue with and present its professional paradigm in discussions with other professionals outside its field. (Fallsberg & Hammar, 2000; Hane & Vennberg, 2002). Otherwise there is a risk that the professionalism of occupational therapists will be in doubt and they will not be considered suitable as contributing team members.

A trend in health-care education is to emphasise the importance of personal and professional development (Stephenson et al, 2001; Gordon, 2003). Teaching about this is a modern idea with its roots in greater public demand and a modern client partnership (Cruess & Cruess, 1997), which is underpinned in PBL. The learning environment and admired role models influence the development of personal and professional development as much as the curriculum itself (Gordon, 2003). However, the development does not end with graduation; it is an ongoing process. This creates difficulties in assessing the achievements during undergraduate studies, and emphasises the importance of working with experienced and exemplary colleagues in the early years of practice in the profession (Smith, 2001).

It can be asked if we performed this follow-up at the right time. Did the former students have sufficient time to develop a professional identity? However, there was no difference between responders based on how many years they had been working. This highlights a very important future investigation subject regarding the profession of occupational therapy; do the years of experience in the profession influence professional identity or not?

The PBL curriculum was viewed as the most frequent reason (35%) for recommending the occupational therapy programme, yet it was also the main reason given by 5 % of the respondents for not recommending the programme. However, PBL cannot be expected to suit all students. What is central is that the approach is visible, not a hidden agenda, so prospective students can obtain information before they apply to a program.

⁴ In the study of graduates in medicine the Likert-scale ranged from 0-5; in this OT-study the span was 1-6.

Collaboration with other health-care professionals was a strong factor in recommending the occupational therapy programme. However, it tends to be difficult to combine multi-professional ambitions with aspirations to professional specialization (Bellner, 1997; Fallsberg & Wijma, 1999; Fallsberg & Hammar, 2000). Furthermore, the legitimacy of the occupational therapy profession was named as a factor for professionalism. In addition, nearly half of those who continued with academic studies preferred to study public health rather than occupational therapy. Students on the occupational therapy programme are used to a thematic study design that has helped to blur the boundaries between disciplines. Furthermore, recent graduates are well prepared to handle problems within public health as many occupational dysfunctions border on the public health domain. Savin-Baden (2003 p. 31) argues that PBL “becomes a vehicle” between different forms of disciplinary knowledge.

Can a PBL design curriculum foster a view by which specialization is not valued? Does the lack of boundaries between disciplines de-emphasize specific occupational therapy knowledge? On the other hand, since PBL is student-centered learning, the students should have the opportunity to study in depth in a specific occupational therapy area if they want it.

In a system structured around teamwork, like the practical training, it is by the activities, not the structure, that a person develops his or her professional identity. In a non-hierarchical structure, scientific and critical thinking support a more stable professional role. Expressing uncertainty is a key factor in learning and needs a safe environment and consensus to increase its effectiveness (Savin-Baden, 2003). Medical students in an undergraduate programme in Wales (Drysdale & Robbé, 2003), viewed collaborative learning as a key element in their own personal and professional development. In comparison to all other occupation therapy programmes in Sweden, the current programme requires the most time in fieldwork. So why do former students not have a stronger professional identity? WFOT points out that every occupational therapy program should have at least 1000 hours of fieldwork but it must be asked, what kind of knowledge do students archive during fieldwork? Does it support, for example, professional identity? It would also be of interest to investigate if preparation for professional identity is possible during a bachelor education. Is the scientific education at university a hindrance to reaching professional identity? Furthermore, can professional identity be fostered in other situations such as practice on a training ward, or by working with computer-based cases?

The fact that the occupation therapy graduates consider their acquired abilities during the study period to be low might reflect their perception that life-long-learning is necessary in an ever changing world in which new knowledge is constantly being created. In this case the given value might reflect the graduates' respectful view of their own responsibility as professional practitioners. A professional practitioner always has the opportunity to update his or her own skills.

Follow-up studies are important to gain further knowledge on the impact of PBL on occupational therapist competence. Particular attention in subsequent research should be paid to programme evaluations by alumni. It is vital for the future of the occupational therapy profession and undergraduate programmes to study the effectiveness of the programme in relation to professional development in practice.

Another central question regarding the investigation into health profession education is why no studies could be found that were based on the clients' perceptions of professional education. Does this education meet clients' needs based on the clients' perspective?

More research from many different perspectives is obviously required.

Despite the fact that the responders were able to answer anonymously we cannot rule out the possibility that the 23 % of graduates who did not return the questionnaire may represent a group with generally more negative attitudes toward the programme. This may be a response bias. The result also showed a

positive attitude towards recommending the programme to prospective students; this might result in a bias concerning retrospective evaluation of the programme.

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