How do postgraduate qualifications in medical education impact on health professionals?

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Abstract

Background and Purpose: The number of degree-awarding programmes in medical education is steadily increasing. Despite the popularity and extensive investment in these courses, there is little research into their impact. This study investigated the perceived impact of an internationally-renowned postgraduate programme in medical education on health professionals’ development as educators.

Methods: An online survey of the 2008–12 graduates from the Centre for Medical Education, University of Dundee was carried out. Their self-reported shifts in various educational competencies and scholarship activities were analysed using non-parametric statistics. Qualitative data were also collected and analysed to add depth to the quantitative findings.

Results: Of the 504 graduates who received the online questionnaire 224 responded. Participants reported that a qualification in medical education had significantly (p < 0.001) improved their professional educational practices and engagement in scholarly activities. Masters graduates reported greater impact compared to Certificate graduates on all items, including ability to facilitate curriculum reforms, and in assessment and feedback practices. Masters graduates also reported more engagement in scholarship activities, with significantly greater contributions to journals. These qualifications equally benefited all participants regardless of age. International graduates reported greater impact of the qualification than their UK counterparts.

Conclusion: A postgraduate medical education programme can significantly impact on the practices and behaviours of health professionals in education, improving self-efficacy and instilling an increased sense of belonging to the educational community.

Introduction

Due to increasing societal demands, commercialism and economic constraints in health care, significant curricular and organisational changes are taking place in training institutions (Armstrong et al. 2003; Steinert et al. 2010a). Educational models promoting student-centeredness, collaborative learning and self-directed learning are replacing traditional apprenticeship structures and didactic teaching (Bleakley et al. 2011). Health professionals are required to be critical thinkers and lifelong learners, continuously updating their clinical knowledge and technical skills; faculty staff are required to become leaders, facilitators, assessors, mentors and role models (Steinert et al. 2009). In response to this rapidly changing medical education environment and to help faculty maintain academic vitality, various provisions for professional development have been initiated (McLean et al. 2008; Swanwick 2008). These activities aim to make teaching and learning effective by keeping the educators informed and proficient in modern educational practice (Pugsley et al. 2008b). They also aim to equip healthcare educators with a grounding in educational theory and practice (Cohen et al. 2005), thus developing a core group to lead curricular and organisational change (Steinert 2012).

The growing trend towards the professionalisation of medical education and accreditation requirements of educators by regulatory bodies (Eitel et al. 2000; GMC 2006; PMETB 2008; GMC 2012a) has resulted in the evolution of medical education as a speciality (Bleakley et al. 2011). Many universities have formally linked promotion with scholarship and research in education (Gruppen et al. 2003; Gibbs & Coffey 2004; Hefflin et al. 2009). Medical education associations, journals and books add to the existing body of

Practice points

- A degree-awarding programme in medical education significantly improves self-efficacy in educational practices.
- These qualifications provide a sense of legitimacy with an increased sense of engagement and belonging in an educational community of practice.
- Masters graduates reported more confidence in their abilities and had more educational research publications/presentations than those graduating at Certificate level.
- These qualifications help educators fulfil their learning needs and subsequent accreditation requirements in the rapidly evolving medical education landscape.
knowledge, supporting scholarship globally (Steinert 2005; Cohen et al. 2005; Pugsley et al. 2008b).

The most common professional development activities are workshops, seminars and short courses. Such events assist in developing faculty networks and improving organisational culture (Steinert 2005). Steinert et al. (2006), carrying out a systematic review on faculty development initiatives in medical education, reported high satisfaction rates among participants, resulting in a positive change in attitudes towards teaching. However, 72% of the studies reviewed were based in the USA, with the majority being centred on seminars, short courses and workshop-type faculty development interventions. Only five of the studies included longitudinal programmes (e.g. Fellowships). Moreover, the focus of this review was limited to faculty development activities designed for teaching effectiveness only.

University-accredited programmes are offered in medical education, providing a broad foundation in educational theory and practice and an academic degree upon successful completion (Geraci et al. 2010). Globally, they have increased in number from 6 to 121 and in the United Kingdom from 2 to 31 over the last two decades (Tekian & Harris 2012; FAIMER 2013; Tekian & Artino 2013). Despite the popularity and extensive investment in these courses, there is little research in this area, and detailed information about their influence and effectiveness remains surprisingly sparse (Cohen et al. 2005; Pugsley et al. 2008b). The only studies published on postgraduate qualifications from the UK were scoping studies to give an overview of medical education programmes and the quality of Masters’ research to inform educational interventions (Pugsley et al. 2008a, b). The General Medical Council, UK is currently implementing an ‘approval of trainers’ process (GMC 2012a), making it mandatory for all named roles involved in educating medical students and trainees to have minimum competencies/qualification in education. Hence, there is a need for rigorous studies on the impact of these degree awarding programmes to inform policy and practice (Steinert et al. 2010b).

This study’s research questions are:

- What is the impact of qualifications in medical education on graduates’ practices and involvement in education?
- Are there differences between those graduating at different levels?
- Is the impact influenced by age and nationality?

Methods

Subjects and settings

The target population was graduates from the Centre for Medical Education, the University of Dundee between 2008 and 2012. The one-to-five year’s interval between graduation and the follow-up questionnaire allows for the long-term effects to be measured. The programme has three levels: Postgraduate Certificate, Diploma and Masters (60 Scottish Credit and Qualifications Framework credits each). The Certificate and Diploma comprise four modules each (two core + two optional) plus a research dissertation for the Masters. Modules cover topics on teaching and learning, assessment, curriculum and research methodology to meet the needs of the diverse range of health professionals. The mode of learning is flexible and can be taken face-to-face, distance or a combination over a period of one to nine years.

Ethical approval was granted by the university’s Research Ethics Committee. Study participants (1006 graduates) were invited to participate in an online survey by the university alumni office, who shared with the researcher the statistics on number of e-mails sent, received and opened. Two reminders were sent one month apart to encourage participation. Only the first-named researcher had access to the responses. The study was carried out over three months (Aug–Oct 2013).

Questionnaire

A questionnaire was developed using the Bristol Online Survey (University of Bristol 2013). It comprised of both closed and open-ended questions. Two Likert scales were used. A five-point scale (1: not at all prepared through to 5: very well prepared) was used to ask graduates to rate their degree of preparedness to practise six competencies. The items were based on the domains underpinning the professional practice of medical educators set out by the Academy of Medical Educators (2012) and adapted with reference to the approval of trainers’ document (GMC 2012b). A four-point scale (1: never through to 4: frequently) was used to rate the extent of respondents’ involvement in educational research and scholarship activities. Participants’ involvement in scholarly activities measured their sense of belonging to the educational community of practice (Wenger 1998). The open-ended questions provided insight into participants’ motives and experiences and were used to add depth to the quantitative findings.

The questionnaire was piloted with 10 colleagues to clarify issues related to wording, sequencing and layout. As a result of feedback from the pilot all questions were made optional and “Medical Educator” was added to the professions category. The questionnaire took approximately 10 minutes to complete. The survey was anonymous to encourage freedom in responses. However, there was an optional field for respondents to share their name and e-mail for future contact.

Data analysis

Each questionnaire was numbered sequentially (R*). The quantitative data from the questionnaires were entered in IBM SPSS Statistics 21. The data were found to be not normally distributed (Kolmogorov–Smirnov and Shapiro–Wilk tests). The Wilcoxon signed-rank test was carried out to compare and determine any significant differences in preparedness and involvement, before and after the qualification (Field 2009). Mann–Whitney U and Kruskal–Wallis tests were used to compare subgroups. A content analysis was carried out on the qualitative data (Vaismoradi et al. 2013).

Results

Of the 1006 e-mails sent, 50 were undelivered, 452 unopened, and 224 responded (44.4% of opened e-mails). The response rate was higher for recent graduates. The predominant
professional background was medicine. Educational roles included deans, directors, senior consultants, lecturers, professors and heads of department. Half of the participants were UK nationals and the others were mainly from Canada (n = 21), Thailand (n = 9), Pakistan (n = 9), Kenya (n = 9), Ireland (n = 6) and Australia (n = 5). As all questions were optional, respondents choosing not to answer certain questions resulted in missing data (Table 1).

Impact on educational practices
A vast majority of participants (94.5%) reported that the qualification had influenced their educational practices. There were highly significant (p < 0.001) differences between perceptions of practice before and after the qualification. Many participants who perceived themselves as being not at all or a little bit prepared before the qualification rated themselves as quite a bit or very well prepared afterwards. Examples of impact are represented by the following quotes: Overall-one of the high points of my professional career (R=22): It opened a new world (R=50). The greatest difference was in their increased ability to conduct a needs assessment for planning a curriculum.

There were significant differences among those graduating with a Certificate, Diploma and Masters (p < 0.05). The Masters graduates felt better prepared than Certificate graduates on all items, with the greatest perceived impact being on their ability to carry out medical education research. The Masters graduates reported being recognised as an educational expert in their department: Get called upon for everything – assessment, teaching/learning, curriculum development, research, quality processes, etc. (R=133).

International participants started at a lower baseline but reported a greater increase than home students (UK nationals) in their abilities after the qualification. The difference was most evident in curriculum planning (p < 0.01) and feedback abilities. One overseas graduate mentioned: I have been able to plan and implement over 40 short courses per year (R=57), while another felt he had a better understanding of good feedback principles: I value the provision of timely, appropriate and individualised feedback to students (R=99). Participants over the age of 45 years started the course with a higher baseline mean rating than their younger counterparts yet still reported similar impact of the qualification. The differences were significant both before and after the qualification for all age groups, with the older participants reporting even more change in teaching abilities (p < 0.001) (Table 2).

Impact on involvement in education
Participants also reported highly significant (p < 0.001) increased involvement in various educational scholarship and research activities in medical education after the
qualification. The vast majority of participants who had never or been rarely involved before the qualification rated their engagement as occasionally or frequently after the qualification. A Certificate graduate reported: I have expanded into educational activities I had not previously participated in (R=13). The greatest influence was reported over their engagement in educational dialogue and attendance at conferences. A comparison of graduates’ engagement in educational scholarship showed a significant (p < 0.05) increase in those graduating with a Masters or a Diploma compared to a Certificate. The Masters graduates compared to Certificate graduates reported significantly (p < 0.001) greater contributions towards educational conferences presentations and journal publications. An Australian graduate stated she was: Motivated to attend medical education conferences (R=65).

One UK Masters graduate mentioned: I am now involved in education research even more and I now work with medical students regarding education research (R=18). Another explained how the qualification met his needs: I was able to conduct a research project of direct relevance to some of my training responsibilities... the project has... provided a sound scientific basis for changes that I have made (R=193).

International participants had a higher baseline mean rating of their involvement in scholarship activities before the qualification than UK participants. They reported more impact on their involvement after the qualification as well. These differences are significant (p < 0.05) for engagement in educational dialogue, presentation at conferences and contribution to journals. In the words of an Indonesian doctor: I got to understand many aspects of medical education that I didn’t have any idea before and I was able to develop a strong network among fellow medical educators (R=62). Participants over 45 years showed higher baseline mean ratings for their involvement in scholarship activities both before and after the qualification than their younger counterparts. These significant differences suggest a similar increase in their involvement in education. However, the younger participants showed more engagement in educational dialogues (Table 3).

### Discussion

The current study assessed the impact of a postgraduate qualification in medical education on the graduates. The findings showed that the vast majority of participants perceived an improvement across the Academy of Medical Educators competencies (2012). They reported improved self-efficacy, i.e. their belief in their ability to complete educational tasks and reach goals. This is in line with a USA survey on a Harvard Macy Program for developing physicians as educators (Armstrong et al. 2003). However, their programme was limited to applicants already having a strong commitment to education, good credentials and potential for productivity in the workplace. Our findings also resonate with other studies on faculty development initiatives in medical education, where the graduates reported more confidence in educational abilities (Pugsley et al. 2008b) with an improved ability to lead an educational change (Gruppen et al. 2003; Gibbs & Coffey 2004; Hanbury et al. 2008; Steiniert et al. 2010). The participants also reported experiencing a positive change in their behaviours since the qualification, and they embraced their educational roles with increased involvement in various educational scholarship activities. This increased involvement after the qualification in educational discussions, conferences and research publications also complements the literature (Simpson et al. 2006; Steiniert et al. 2006; Geraci et al. 2010) and may be associated with an increased sense of belonging in the educational community (Levett-Jones et al. 2007).

### Influence of level of qualification

The impact of the qualification increased with the increasing level of qualification attained by the participants. The Masters

### Table 3. Involvement in scholarship among graduates – Broken down by qualification, nationality and age.

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Before qualification</th>
<th>After qualification</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Engage in education related dialogue</td>
<td>Certificate (n = 92)</td>
<td>2.61 (0.91)</td>
<td>3.55 (0.63)*</td>
</tr>
<tr>
<td></td>
<td>Diploma (n = 64)</td>
<td>2.52 (0.93)</td>
<td>3.68 (0.56)*</td>
</tr>
<tr>
<td></td>
<td>Masters (n = 62)</td>
<td>2.76 (0.92)</td>
<td>3.79 (0.41)*</td>
</tr>
<tr>
<td></td>
<td>UK Nationals (n = 118)</td>
<td>2.63 (0.95)</td>
<td>3.57 (0.61)*</td>
</tr>
<tr>
<td></td>
<td>International (n = 101)</td>
<td>2.61 (0.84)</td>
<td>3.76 (0.48)*</td>
</tr>
<tr>
<td></td>
<td>30–45 years (n = 116)</td>
<td>2.50 (0.93)</td>
<td>3.62 (0.60)*</td>
</tr>
<tr>
<td></td>
<td>&gt;45 years (n = 101)</td>
<td>2.78 (0.88)</td>
<td>3.73 (0.49)*</td>
</tr>
<tr>
<td>2. Contribute to journals or books on education</td>
<td>Certificate (n = 92)</td>
<td>1.47 (0.78)</td>
<td>1.84 (1.03)*</td>
</tr>
<tr>
<td></td>
<td>Diploma (n = 64)</td>
<td>1.45 (0.69)</td>
<td>2.14 (0.96)*</td>
</tr>
<tr>
<td></td>
<td>Masters (n = 62)</td>
<td>1.65 (0.81)</td>
<td>2.98 (0.66)*</td>
</tr>
<tr>
<td></td>
<td>UK Nationals (n = 118)</td>
<td>1.47 (0.78)</td>
<td>1.93 (1.01)*</td>
</tr>
<tr>
<td></td>
<td>International (n = 101)</td>
<td>1.56 (0.74)</td>
<td>2.64 (1.02)*</td>
</tr>
<tr>
<td></td>
<td>30–45 years (n = 116)</td>
<td>1.35 (0.70)</td>
<td>2.13 (1.07)*</td>
</tr>
<tr>
<td></td>
<td>&gt;45 years (n = 101)</td>
<td>1.70 (0.79)</td>
<td>2.42 (1.06)*</td>
</tr>
<tr>
<td>3. Attend seminars and conferences on education</td>
<td>Certificate (n = 92)</td>
<td>1.92 (0.97)</td>
<td>2.73 (0.94)*</td>
</tr>
<tr>
<td></td>
<td>Diploma (n = 63)</td>
<td>1.90 (0.91)</td>
<td>3.05 (0.99)*</td>
</tr>
<tr>
<td></td>
<td>Masters (n = 62)</td>
<td>2.19 (0.92)</td>
<td>3.50 (0.62)*</td>
</tr>
<tr>
<td></td>
<td>UK Nationals (n = 117)</td>
<td>1.98 (0.84)</td>
<td>2.71 (0.93)*</td>
</tr>
<tr>
<td></td>
<td>International (n = 101)</td>
<td>2.12 (0.94)</td>
<td>3.44 (0.77)*</td>
</tr>
<tr>
<td></td>
<td>30–45 years (n = 116)</td>
<td>1.17 (0.89)</td>
<td>2.90 (0.99)*</td>
</tr>
<tr>
<td></td>
<td>&gt;45 years (n = 100)</td>
<td>2.33 (0.90)</td>
<td>3.24 (0.83)*</td>
</tr>
<tr>
<td>4. Present in education seminars and conferences</td>
<td>Certificate (n = 92)</td>
<td>1.53 (0.73)</td>
<td>2.16 (1.07)*</td>
</tr>
<tr>
<td></td>
<td>Diploma (n = 64)</td>
<td>1.64 (0.78)</td>
<td>2.75 (1.02)*</td>
</tr>
<tr>
<td></td>
<td>Masters (n = 62)</td>
<td>1.69 (0.86)</td>
<td>3.11 (0.94)*</td>
</tr>
<tr>
<td></td>
<td>UK Nationals (n = 118)</td>
<td>1.54 (0.79)</td>
<td>2.20 (1.09)*</td>
</tr>
<tr>
<td></td>
<td>International (n = 101)</td>
<td>1.68 (0.77)</td>
<td>3.09 (0.93)*</td>
</tr>
<tr>
<td></td>
<td>30–45 years (n = 116)</td>
<td>1.42 (0.67)</td>
<td>2.46 (1.15)*</td>
</tr>
<tr>
<td></td>
<td>&gt;45 years (n = 101)</td>
<td>1.83 (0.85)</td>
<td>2.80 (1.01)*</td>
</tr>
<tr>
<td>5. Conduct professional development workshops</td>
<td>Certificate (n = 92)</td>
<td>1.40 (0.70)</td>
<td>2.02 (1.17)*</td>
</tr>
<tr>
<td></td>
<td>Diploma (n = 64)</td>
<td>1.52 (0.69)</td>
<td>2.64 (1.07)*</td>
</tr>
<tr>
<td></td>
<td>Masters (n = 62)</td>
<td>1.58 (0.86)</td>
<td>2.98 (1.12)*</td>
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<td></td>
<td>&gt;45 years (n = 101)</td>
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</tr>
</tbody>
</table>

*p < 0.001 significant differences before and after the qualification. p value column indicate differences among qualification, nationality and age subgroups.
graduates showed more self-efficacy and sense of belonging than those with a Certificate on all items. A recent discussion at the Association of Medical Education in Europe (AMEE) on the Masters-level programmes in health professions education worldwide highlighted “transformation” as an expected influence of these qualifications (Tekian & Harris 2012). Postgraduate programmes immerse participants in an educational environment, focusing on educational theories and reflection on personal educational assumptions and practices (Hatem et al. 2009; Lown et al. 2009). This long-term engagement may result in transformative learning (Mezirow 1990). An in-depth qualitative study to explore the impact of these qualifications might provide further insights into any such transformations.

It was interesting to find that the Masters graduates reported more contribution towards journals/books in education than graduates of the Certificate and Diploma. This may be due to the Masters graduates being more aware of education research and also having a product (dissertation) to publish by the end of their qualification. In addition, the Masters graduates have research supervision, and its absence is a reported barrier towards research (Pugsley et al. 2008a). Also, those proceeding to Masters may already have an intention to publish in Medical Education. The increasing professional abilities and sense of belonging with the increasing level of qualification as reported by participants in the current study also indicate a “novice to expert shift”, with strengthening of their identity in the educational community of practice (Wenger 1998; Bleakley et al. 2011; Sutherland & Markauskaite 2012).

Influence of nationality

Bland et al. (2002) highlighted that institutional factors such as workplace culture are important determinants of faculty vitality and academic productivity. Our findings also suggest the influence of work environment on the impact of these qualifications in medical education. The international graduates reported more impact on practice than the UK nationals, significantly so for curriculum development. Although surprising, this may be because the amount of change that can be implemented by UK nationals is less, for example UK nationals learning about integrated curricula may already have those embedded. Another possible explanation may be related to motivation for enrolling in a qualification, as competency in medical education is not a requirement in many international countries. These participants enrol as a career path as opposed to those from the UK, who want it for accreditation requirements (Tekian & Artino 2013). The international participants in the current study also reported a higher baseline in their educational involvement both before and after the qualification.

Influence of age

Participants reported a positive impact of qualification on practices and involvement in education irrespective of their age. The baseline competency for participants over 45 years was higher due to more experience as would be expected, but still there was a high level of impact reported. The qualification had impacted the older participants more in developing interactive teaching strategies as teaching effectiveness is associated with increased knowledge and experience in the subject (Singh et al. 2013).

Limitations

The availability of current e-mail addresses for the graduates posed a challenge. Various measures were taken to increase the response rate such as providing a survey web-link in the e-mail, explaining its purpose through an information sheet and sending two reminder e-mails from the course director (Zúñiga 2004). Asking participants to rate both before and after the qualification at the same time was a strength and weakness. Although rating “before” sometime after may be clouded by memory, it does balance the effects of over-rating.

Despite the limitations, the findings from this study report the perceived effectiveness of postgraduate programmes in medical education to address academic skills and institutional priorities. They also provide insights for educators in planning their long term careers in academia. A majority of the respondents are distance learners (86.2%) who take the course while working. Therefore our study may have some implications for longitudinal programmes from USA. Although much of the literature focuses on faculty development initiatives delivered by the recipient’s home institution, this study’s graduates come from a variety of professional backgrounds, experience, work environments and cultures. A concern of such a generic qualification may be lack of generalisability and application of skills. This research suggests otherwise.

Conclusion

This is the first study on the long-term effects of a degree awarding programme in medical education on healthcare professionals worldwide. We found that a qualification in medical education enhances theoretical foundations in educational practices resulting in increased self-efficacy and engagement in scholarly activities. As Certificate graduates reported significant improvement, therefore we recommend maintaining it as an exit point. However, continuing to Diploma and Masters’ qualification does result in further gains and research publications. We also found an influence of work environment on the impact of these qualifications. In addition, these qualifications impact the graduates irrespective of age, with older graduates having long-term experience in education showing significant improvement. Future research needs to look at the impact of these qualifications on transformative learning and professional identity formation as educator.

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Declaration of interest

The authors report no conflict of interest relevant to this article.

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