Original article

The impact of Masters education in manual and manipulative therapy and the 'knowledge acquisition model'

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ABSTRACT

This study aimed to explore the professional and personal impact that a clinical Masters program of manipulative therapy education had on the lives of individuals who had undertaken the course and was a follow-on study of participants' career pathways following Masters education (Green et al., 2008). Seven graduates from the program took part in a focus group. The narrative data obtained was independently verified prior to two researchers conducting a systematic, thematic content analysis. Three key themes were identified and the 'knowledge acquisition model' developed. Findings revealed that studying at Master's level is a 'life changing' and rewarding experience that develops individuals in three key domains; professionally, personally and intellectually. During Masters education students described a journey of multi-compartmental development whereby their knowledge-base was challenged and their existing cognitive framework deconstructed. Progression through the program resulted in the development of a new, clearer framework for thinking and understanding that extended, universally, into all aspects of their lives; clinically, managerially, emotionally, politically and intellectually. Participants also described two cultures for career progression in the UK National Health Service (NHS). Findings could help students considering undertaking Masters level education, employers and clinical mentors of these practitioners and academic educators.

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1. Introduction

The benefits of postgraduate study, such as enhanced professional confidence, knowledge, teaching and clinical skills alongside the development of a positive attitude to change are well recognised (Stathopoulos and Harrison, 2003; Craik and McKay, 2003; Conneeley, 2005; Green et al., 2008). Stathopoulos and Harrison (2003), Craik and McKay (2003), Conneeley (2005), Green et al. (2008) and Drennan (2008) also identified work barriers and negative changes that occur following postgraduate education, namely, resistance to change and increased expectations from other colleagues, the valuing of quantity rather than quality in-service delivery and a lack of management vision and subsequent under-use of potential.

The Bologna Declaration (an internationally recognised agreement highlighting the importance of a common framework for standardised Higher Education provision) recognises that structured comparable postgraduate study is an important factor facilitating employability and mobility for citizens internationally. Postgraduate study offers opportunities for students to explore, develop and question practice and knowledge through the processes of critical analysis, knowledge synthesis, clinical reasoning and problem solving (Alsop and Lloyd, 2002). These findings have been replicated by Drennan (2008) and Spencer (2006) whose studies on nurses, midwives and health visitors, found that the students had become more analytical, and ready to challenge not only their own practice but the practice of others. Rushton and Lindsay (2008) utilised a Delphi technique with postgraduate tutors for health programmes, to identify student behaviours within a construct for master's clinical practice. The culmination of three rounds of Delphi ranked the top three behaviours as; high levels of clinical reasoning; critical analysis of practice and of evidence to inform practice. Stavropolous and Biley (1997) found that their nurse participants engaged in a cyclical process of developing knowledge and skills with corresponding benefits in personal development.

In 2003, Meyer and Land explored, in their theoretical paper, the generative notion of 'threshold concepts' suggesting that within disciplines there are 'conceptual gateways' that can be opened up and lead to a previously inaccessible (or 'troublesome') way of thinking about something. They argue that Masters education facilitates an irreversible, integrative transformation of an individuals internal perspective with a concomitant extension of the students breadth of discourse and personal/professional identity. Meyer and Land (2005) also suggest the existence of a 'liminal' state that exists between the initial starting point and the desired transformed

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state. Pedagogically, this state of liminality is where educationalists can have the most impact in facilitating the learners' transformation over the 'threshold' into a new realm of understanding. Spouse (1998) describes this, within a clinical nursing context, as 'scaffolding' of student learning from a theoretical perspective into clinical/practical application.

Despite this knowledge of how postgraduate education influences professional development, there remained a paucity of research that explores the impact that Masters level study in manual and manipulative therapy has on other aspects of the graduates' lives and any potential implications that embarking on career enhancement opportunities might have on employers and colleagues. The findings could offer insights for students considering postgraduate education, their families and/or associated support networks, for educators of students undertaking Masters level manipulative training as well as employers looking to develop musculoskeletal services.

2. Method

This was a follow-on study from a postal questionnaire that explored the participants' career pathways following Masters education in manual and manipulative therapy (Green et al., 2008). Because of the nature of the inquiry an atheoretical pragmatic qualitative approach was utilised within an interpretivistic paradigm employing a focus group method in order to facilitate exploration and understanding of the lived experiences of graduates from a clinical Masters (MSc) programme in manipulative therapy (MT) at Coventry University. The purpose of the current study was to explore the participants' experiences and to interpret and develop a model in order to inform other students considering masters level study and to gain insights to guide educators, managers, peers and families in how best to support the individuals embarking on post-graduate musculoskeletal education.

3. Participant recruitment and the focus group process

All of the forty-eight respondents to the initial questionnaire phase of the research (Green et al., 2008), were invited to attend this follow-on study of which 11 expressed an interest to take part but only 7 were able to attend on the day due to work commitments. Prior to the study, approval was gained from the Coventry University Ethics Committee and the focus group was held in an informal meeting room at Coventry University. The involvement of seven participants was considered appropriate for the chosen method (Kruegar, 1994; Morgan, 1998; Carpenter and Suto, 2008).

The nature of the open-ended answers from the questionnaire (Green et al., 2008) informed the research process. The most recurring feedback guided the development of the questions for the focus group (Table 1).

All participants were informed about the study purpose and the nature of their involvement. Each participant signed a consent form and granted permission for the discussion to be recorded. At the commencement of the session, participants were given time to read the questions and the opportunity to make notes on their thoughts. The 'facilitator' (KH), a co-author and an experienced focus group coordinator, introduced the purpose of the study, and the ground-rules, emphasising that all experiences are valid and legitimate.

On completion of the focus group the facilitator summarised the main emergent issues for confirmation and clarification by the group thus aiding understanding and facilitating an initial identification of tentative themes. Immediately following the focus group, the facilitator (KH) and the co-researcher (JP - a co-academic and an MSc manipulative therapy graduate) debriefed and recorded initial impressions of the group discussions and examined their notes of the proceedings. The tape-recorded narrative data obtained was transcribed and then verified by an independent qualitative research academic (AG) and the transcripts and the notes made by the facilitator (KH) and the co-researcher (JP) became the data for analysis.

4. Data analysis

Qualitative data analysis was conducted in accordance with the process described by Miles and Huberman (1994): data reduction (development of themes and categories), data display (Table 3), and conclusion drawing and verification. Throughout the process the strategy of researcher triangulation was adopted with the two researchers initially working independently before coming together and reviewing their findings.

Independent analysis by each researcher resulted in very similar abstractions and theme/category identifications (Table 2). On completion an independent assessor (AG), a programme tutor with knowledge and expertise in qualitative data analysis, read the transcript and developed categories and themes, and her findings were compared to the researchers' analysis. Between the researchers there was very strong consensus with all themes and categories being successfully identified.

5. Findings and discussion

The profile of the focus group participants are summarised in Table 2.

The impact of undertaking a clinical Masters in manual and manipulative therapy had wide-reaching implications on many facets of the participants' lives. Emergent themes where the impact was most influential included their musculoskeletal *professional practice*, their *career progression* (previously detailed in Green et al., 2008) and their *personal lives*. On deeper analysis of these three themes, additional patterns of participant development became evident and an emergent 'knowledge acquisition model' was developed, consisting of five phases of advancement that started with 'expectancy' (prior to initiation of the programme) progressing through 'incredulity' (on commencement), 'deconstruction' followed by 'reconstruction' (as they progressed further towards completion) to the last phase of 'actualisation' (following completion). The knowledge acquisition model is unique to this paper and interpretive of the participants' experiences on the course. The rationale for its development was a desire; to inform those who are considering undertaking Higher Education (HE) of the potential benefits and sacrifices; to be recognised and of use to those who are currently undertaking HE; as well as providing insight into the lived experience of students for academics who provide the educational opportunities and for managers who support their staff through the process. The focus on knowledge acquisition was because the overriding experience was that the course challenged the participants' knowledge-base & restructured their cognitive abilities thereby permitting advanced knowledge application.

The findings are summarised, using the participants' words to highlight the emergent themes/phases, and the developed model is illustrated in Table 3.

5.1. Phase 1—Expectancy

This phase began prior to commencement of the programme with participants expressing a number of motivational factors for wanting to undertake an MSc in manual and manipulative therapy. Their reasons were divided into three key themes; development of musculoskeletal *professional practice* (clinical skills); *career progression*; and *personal* motives. Underpinning all three was

Table 1
List of the focus group questions derived from a postal questionnaire (Green et al., 2008).

Focus group question
What made you decide to undertake a Masters degree?
What has been the impact of these studies on your practice and how has your practice changed as a result?
How has your Masters degree impacted your general career progression?
What factors enabled you to optimise the benefits of the Masters education?
What factors would you identify as being a barrier to your skill optimisation?
What areas do you feel the Masters degree had a detrimental effect on your life?
What other areas of your life do you feel the Masters degree had an impact?
Overall would you say that the Masters process was worthwhile?

a perception of inadequacy. In some cases this was expressed as a *professional* practical skill deficit:

"I wanted to treat patients more effectively….I knew I didn't have a wide range of skills or techniques and my clinical reasoning wasn't good…that's why I applied." (P5)

Others felt *professionally* inadequate when they compared themselves to others…

"Because I only had a diploma, I felt very left behind and talking a different language from all the students and the junior Physio's coming through."(P6)

Participants recognised that their motivation to do the program was about reaching a stage in their lives whereby they desired a challenge that facilitated development beyond the realm that their current 'roles' allowed. As one participant said regarding their *career progression*:

"I realised that if I wanted to carry on being a Physio to the end of my career? I needed something that was going to challenge me." (P7)

This desire to learn, to achieve and to engage in the stimulation of academic work is not unique to this study and has been reported by Spencer (2006), Conneeley (2005) and Stathopoulos and Harrison (2003). Stavropolous and Biley (1997) and Whyte et al. (2000) conceptualised that post-graduate nurses embarked on MSc's as a means of achieving personal and professional recognition and development. Spencer (2006) found that respondents were influenced by both external motivational factors (from the work environment to achieve career progression and update qualifications) and internal motivators (the desire for academic stimulation). Within the context of Meyer and Land (2005) 'threshold concept' the participants, although senior physiotherapists and experienced musculoskeletal clinicians at the commencement of the programme, had reached a point in their careers where they recognised that their future development would only occur if they challenged the limitations of their position on the career ladder.

5.2. Phase 2—Incredulity

After commencing the programme a number of participants reported a second stage of 'incredulity' in the high level of academic performance expected of them and their realisation of the level of sacrifice (both at work and at home) required to advance at Masters level. The participants also described feelings of insecurity and a sense of exposure that was most often related to the fear of failure both in terms of the assessment components of the program but also at home in relation to balancing academic workloads with family commitments. One participant articulated their *career progression* insecurities within this phase:

"I remember when I first started the programme I had sleepless nights worrying about the coursework assignments…. I felt that I was at the upper end of my career and the fear of failure was huge….and I'm not used to failure…. That side of things needs careful managing." (P7)

Within the *professional* work environment the participants were divided into two groups, those who felt supported at work by managers and peers and those who felt their managers and co-workers had unrealistic expectations. One participant said:

"My immediate line manager did exactly the same MSc so she knows what I should know….So with regards to opportunities within the department she's really supported me."(P3)

Participant 5 expressed an alternative experience:

"I think there are still quite a few Trusts that don't support people properly through their course…. people on the programme that I was on had to give up their jobs because of the pressures of combining unrealistic work expectations and coursework deadlines….particularly placements."

Others felt the impact of this phase more within the *personal* arena, within their home and family lives where they described the guilt they felt at not achieving a work-life balance and their sense of selfishness.

"I felt there was incredible stress on the family. Feeling guilty that you're not doing your assignment or feeling guilty that you're not with the kids. It was difficult to get the right balance." (P6)

Spencer (2006) also found that 75% of the nurse participants reported a negative impact upon family life with feelings of guilt, particularly, about spending less time with their children.

5.3. Phase 3—Deconstruction

All participants identified a phase, during their studies, when their previously established view of the world and *professional practice* was challenged and this process instigated a period of cognitive disorientation during which time they described feelings of isolation, insecurity and self-doubt that undermined all areas of their lives and made them feel intellectually vulnerable.

"There was a time [during the programme] where I actually had less regard for research than I had before…. I thought the printed word was 'it'….and I believed everything I read…then you realise a lot of it was complete junk and you start to question everything you read and see on the TV. I found it quite an anxious period.." (P1)

Table 2
Participants profile.

Participant number	Age (Years)	Gender	Year of MSc graduation	Yrs from UG training to MSc Grad	Role/job title
P1	38	Female	1994	5	Senior I
P2	39	Male	2000	16	Clinical team lead
P3	38	Female	2005	16	Senior I pain triage
P4	40	Female	2005	18	Supt extended scope practitioner - spinal
P5	41	Female	2000	13	Superintendent out patients department
P6	42	Female	2004	20	Senior I & private practitioner
P7	40	Female	2004	18	Lecturer & sports physio

Table 3
The knowledge acquisition model.

Major emergent themes	The sequence of development within the knowledge acquisition model				
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
	Expectancy	Incredulity	Deconstruction	Reconstruction	Actualisation
Professional	Motivational factors for undertaking the programme included the development of • Practical skills • Cognitive skills • Academic skills Improvements were anticipated in • Scope of practice • Knowledge Consolidation of current and future knowledge and skills	Time off work was a reward Getting together with peers Time pressures & WL/prioritisation Working alone Getting something back I felt supported by my manager with opportunities within the department	Knowledge-base challenged Practice questioned Less regard for research Isolation Frustration with the inadequacies of others & lack of management vision Intolerance and highly critical	**Practical Domain** **Cognitive Domain**	IT skills Using and developing acquired skills Supporting of others Confidence; clinically, academically, educationally At ease with colleagues Language development Asking for help	Tolerance of ambiguity Guru status Skills to focus on multiple issues Acceptance Clarity of thought Other reasoning skills (audit, reports, presentations)
Career Progression & Development	Career advancement was expressed as • Get a degree • Improvement of prospects • Fear of being left behind Needing a challenge to sustain them until the end of their career	Disbelief that employer had allowed opportunity Fear of failure was huge and at this point in my career I'm not used to failure Combining unrealistic work expectations and coursework deadlines resulted in some giving up their jobs	Self-doubt Fear of failure Doubt in ability to progress Being 'tested' Questioning of 'Guru' approaches and evidence underpinning professional courses	**Practical Domain** **Cognitive Domain**	Others seeing changes in knowledge-base, clinical skills and ability to apply to practice Ability and confidence to take students & keep up! Confidence to apply for position considered unachievable before MSc	Promotion AfC recognition Change in career pathway Dependent on Trust/manager Philosophy Involvement on CIG's
Personal	Needing a challenge Something for me! A stage in my life	Family pressures to get the right balance Self-surrender Insomnia Worse than childbirth Guilt about not doing assignments or not being with kids	Guilt Anger & frustration Insomnia Insecurity & fear of failure Questioning one's own self-worth	**Practical Domain** **Cognitive Domain**	Confidence at home and problem solving skills Questioning, politically Confidence to say No! Self-motivation	Feeling more alive Stimulated again Self-worth Confidence to take on any challenge Development of higher level of thinking, to pick issues from rhetoric

This finding has not been reported in other articles but was universally acknowledged by the participants in this study. The participants described, within an academic context, a transient period of disregard for musculoskeletal research and a degree of scepticism and cynicism about learning received on other in-service manual and manipulative therapy training courses. Others perceived this exigent period within a *career progression* context, as a process of questioning their own and others' practice.

"I found I became very critical on courses… because you go on a course and you're now expecting things to have some evidence base and people are still running courses where they're using the Guru approach and they just expect you to sit down and take it and they don't like it when you start questioning…I think it's quite frustrating you pay a lot of money to go on a course, and you think 'this isn't how it should be running at all'….and that's quite negative." (P4)

Spencer (2006) reported that participants experienced conflicts with managers, particularly if they perceived that there was lack of management vision accompanied by frustration at the constraints placed on their scope of practice. In the present study, the impact of this transition also extended into their *personal* lives. Participant 4 described, through reflection, that the programme had addressed previously sub-conscious and unchallenged issues of self-worth and that the process of undertaking and (importantly) completing the MSc in manual and manipulative therapy had enabled them to confront and to contest these barriers to improvement:

"With me it was a big issue of self-worth, I found myself with no self-worth so it had been completely destroyed and only when I looked back on the course did I realise that it [the process of doing the programme] gave me a life back."

All participants found this to be extremely 'dark' often traumatic but deeply powerful period of time that they came to realise was essential to their development as an individual and to their emergence into the next phase of 'reconstruction'. In Meyer and Land (2005) 'threshold concepts' model this might be considered the transition from the 'liminality state', defined as a conceptual space within which the learner transforms [and is transformed by] their newly emerging cognitive framework, through the 'threshold' towards new understanding. Meyer and Land (2005) believe this is an essential component in the development of cognitive creativity, innovation, problem solving and reasoning skills. Spouse (1998) suggests that it is the role of the educator to 'scaffold student learning' in order to facilitate the transition of the learner from

formal and academic understanding to practical application of knowledge and reasoning. For these individuals it is vital, for their emergence from the destruction and reconstruction phases, that they not only receive the most appropriate academic support, and musculoskeletal *professional* clinical mentorship on placement, but that this learning coincides with the appropriate managerial and peer support at work *(career progression)* and family support at home *(personal)* to facilitate their continued development.

This 'emergence' from the darkness of the 'deconstruction phase' into the 'reconstruction phase' is best highlighted by the following *professional skills* quote:

> "It all started to make sense when we came to do the clinical placement, up until then it was hard to put it all together, but I think going on that [the placement] and bringing arguments into the exams, I could see then the benefits from the course completely." (P5).

Some participants seemed to pass through this phase quicker than others with some identifying a clear relationship between the clinical placements and emergence from this 'deconstruction phase' whilst others appeared to emerge from this phase only after completing the programme.

5.4. Phase 4—Reconstruction

This phase was categorised by a further subdivision of the three themes into two distinct domains; a 'cognitive' domain and a 'practical' domain (see Table 3). In the 'cognitive domain' participants described an increase in their confidence, *personally* at home; with *career progression* at work, and *professionally* in communication skills. In the 'practical' domain participants expressed enhanced confidence in taking on tasks that they would have previously considered beyond their capabilities. Participants also acknowledged an enhanced ability, and confidence, in interpreting and communicating at a higher level, and enhanced skills in 'thinking' and problem solving (musculoskeletally and generically) despite, in some cases, not having all the pieces of the 'puzzle'. Participant 7 described this within a *professional* context:

> "I found that the course gives you confidence to think. You actually enjoy the complicated patient that comes through the door….. you think "oh yes" where it used to be "oh no!".

Meyer and Land (2005) conceptualised that transition through the liminal stage and the 'threshold' requires the learner to challenge their internal view of the world or their professional 'landscape' in order to transform professional thinking and discourse. The participants in this study described improvements in their *professional* and *personal* confidence with accompanied willingness to take on tasks that they would have previously rejected as beyond their ability. These changes reflect the process that Meyer and Land (2005) describe as the reconceptualising of 'troublesome knowledge', a process that facilitates the integration of previously unmanageable ideas into the cognitive realm of the individuals' everyday discourse.

5.5. Phase 5—Actualisation

This phase was also clearly identified by the participants but was a phase that occurred some time after graduation. The 'Actualisation' phase was typified by two symbiotic components; 'internalisation' of the participants new *professional* 'abilities' and their new, clearer and all-encompassing *personal* world view; and 'externalisation' by others (managers, colleagues and family) of the participants new musculoskeletal and cognitive abilities which were either embraced and utilised by *career progression* or not.

Internal actualisation was acknowledged as being integrated into all aspects of the participants' lives. Within the *professional* arena participants described significant improvements in their musculoskeletal working practices. This was expressed as an enhancement in their ability to problem-solve complex clinical cases, to focus on multiple issues and to better reason especially where information was either absent or ill-defined:

> "You tolerate ambiguity much better, both clinically and personally. Clinically, I see quite complicated cases and a lot of information that patients give you is quite ambiguous and the [MSc] programme allows you to wade through the ambiguity to put it in a less ambiguous context. It allowed me to focus on several issues at once." (P7).

External actualisation and acknowledgement of their new manual and manipulative skills were also important elements in the participants' *career progression*. They described how their professional standing within their departments was enhanced with an elevated level of professional acceptance and a respect (often unspoken) for their musculoskeletal clinical skills and opinion. For some, this had resulted in grading enhancements. One quote clearly illustrates this phenomenon:

> "I found that once you have your MSc people have a certain amount of respect for you… Once I told them I had done some MSc modules people's eyes lit up because they've done something similar and I think it's an acceptable level of knowledge. I can imagine it will open doors and I've certainly used it with regard to Agenda For Change banding…."(P3)

Some participants felt that their *career progression* and ability to actualise their new manual and manipulative skills was dependent upon the management philosophy in their workplace expressing this as disillusionment and a lack of management 'vision':

> "I got my MSc 18 months ago… despite this, there has been no change at all within the Trust and I've been quite frustrated because I've been really enthusiastic but they [the Trust] don't do anything with you!. So the Trust gains a more efficient, effective physio but a more frustrated person with unutilised skills.."(P6)

Others had a more positive experience of management support, claiming that this support had enhanced their *career* progression and skills further and encouraged actualisation of their abilities beyond the levels achieved by the Masters programme:

> "My managers have been supportive all the way through the programme… I think it's because she [the manager] has just done her Masters degree and she understands what it takes. You give a lot back as a result, which I think works both ways."(P4)

Participants also described 'actualisation' within their *personal* lives as illustrated by participant 5's comments:

> "Doing the programme made me feel more alive. Before I felt like I was just doing work and treading water and my brain had turned into mush, but doing the Master's made me feel kind of stimulated again…. I also felt I developed a kind of more reasoned approach to the rest of my life."

Rushton and Lindsay (2008) also found their students were able to communicate clinically, professionally and personally at much higher levels both in terms of receiving and interpreting information and in their ability to articulate complex issues and engage in high level, multi-faceted analysis and synthesis of material. These attributes are recognised in Extended Scope Practitioner and clinical specialist roles, in Masters level competencies and, nationally, in the QAA definitions of MSc level education (Quality Assurance Agency for Higher Education, 2005) as well as internationally by the European Network of Quality Assurance and the Bologna Declaration

(Bologna Declaration, 1999) Whyte et al. (2000) also reported similar increases in awareness in their 10 year follow-up study of Masters graduate nurses. Whilst the 'internal' nature of the individuals' transformation was universal with our participants, it was interesting to note that their ultimate career outcomes of our musculoskeletal graduates often hinged upon the 'external' influences they experienced during this time, a finding that was not unique to this study (Spencer, 2006). For some there was support and encouragement to grow and develop, whilst for others there were barriers and disillusionment.

6. Conclusion

This research identified three key themes that described the developmental areas that an MSc in manual and manipulative therapy provided. The knowledge acquisition model defines, within each theme, the five phases of progression through the musculoskeletal Masters programme. Additionally, the influence of 'internal' and 'external' factors within the individuals lives were also explored and are important factors to be considered and negotiated within the realms of work, home and academia.

Ultimately, each participant, who undertook Masters education in manual and manipulative therapy, described a life-changing experience characterised by a process whereby their framework of thinking was initially challenged and deconstructed but this was followed by the development of a new, superior level of thinking and clarity of understanding that had far-reaching implications. Two management cultures in the NHS were described, one that embraced and optimised participants with Masters level thinking and one with a lack of organisational vision. Whilst we acknowledge the limitations of this study in that the experiences of this one focus group of participants may not reflect those of other graduates; of programmes; institutions; or countries, we would recommend further research in other manual and manipulative therapy programmes as well as future research exploring the view points of managers, academics, families and support networks.

Within academia, the learning support required to facilitate these students to successful completion of musculoskeletal Masters education, should recognize that the students needs and expectations will be dictated by the phase they are in within the knowledge acquisition model. Key areas where 'scaffold' is required are in the deconstruction and reconstruction phases but it must be acknowledged that for professionals to develop to, and indeed through 'actualisation', further developmental opportunities must be provided across a range of learning environments. The clinical and professional doctorate programmes could offer this seamless learning opportunity and provide continuing challenges both academically and clinically to those wishing to engage in higher learning.

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