Development of professional confidence in health education: Research evidence of the impact of guided practice into the profession

Introduction

The development of professional confidence during the educational journey from student to professional depends on a range of factors and opportunities. These may include non-academic factors such as age, gender, and previous life experiences. But most importantly for health educators, are the opportunities emerging from classroom success and exposure to specific forms of instruction, such as problem-based learning and guided practice in clinical environments. Understanding fully the impact of these opportunities is critical because, unlike demographic factors and entry characteristics, these opportunities can be designed, controlled and continuously enhanced as an integral part of curriculum development. Gaining a better understanding of how specific learning opportunities contribute to increased professional confidence is therefore of paramount importance because confidence has long been recognised as a desirable characteristic of physicians (Ytterberg *et al*., 1998) and other health professionals.

According to Davis and Bove (2008), at the core of the healing process is the complex interaction between provider and patient, and vital to productive interaction is the provider's professional confidence. Davis and Bove claim that this interaction can have a pronounced impact on patient health and recovery, as it offers opportunities for the provider to respond to the biopsychosocial needs of the patient. In other words, the provider needs to connect effectively with the patient physically and psychologically, since this facilitates the healing process. Similarly, Mason and Ellershaw (2004) and

Haghaghery *et al*. (2004) claimed that if a clinician is confident they have the skills to assess a patient's concerns, and the outcome of their assessment will lead to improved quality for the patient, it is more likely they will engage in a successful assessment of the patient's condition. Possessing high levels of confidence in the areas of patient communication and clinical skills are considered of paramount importance, given that greater patient outcome expectancies are seen by those who are assessed and treated by providers who posses higher levels of confidence (Bandura, 1997; Parle *et al*., 1997).

Confidence with a particular clinical skill has been studied to a limited degree, but the relationship between an individual's perception of their skills and objective measures of competence has hardly been explored (Gardner, Pinsky and Schaad, 2002; Lynch, Parsons and Gardner, 2005). Some research has pointed to a lack of direct relationship between confidence and competence (Morgan and Cleave-Hogg, 2002; Wayne *et al*., 2006), therefore using confidence as a measure of competence may not be a reliable indicator of actual competence (Stewart *et al*., 2000). Key to this argument is the issue of validity of self-assessment, the means by which confidence is measured (Eva and Regehr, 2007). A review by Eva and Regehr (2005) suggested little or no relationship between self and externally generated assessments. Furthermore, Kruger and Dunning (1999) found that all but the highest performers tended to overestimate their performance and ability, and the worst offenders were in the lowest quartile of performance, with most of these believing that they were above average in performance. This does not mean, however, that confidence in clinical skills is not important and should not be routinely promoted and assessed in health education. Eva and Regehr's (2005) concerns about the low correlation between self- and externally generated assessment, contribute to making a

case for the importance of measuring the relationship between the two in order to identify students whose confidence levels are not on par with their actual competence (under- or over- confident). This is essential given confidence has been reported as a central component for effective clinical performance (Mavis, 2001) due, in part, to the relationship between increased levels of confidence and increased motivation to practice the skills that students have learnt (Mann, 1999). Evidence has also shown (Mullen, *et al*., 1988) that amongst allied health professionals, a higher level of confidence was found to be associated with greater professional development.

For students, learning new information and skills and dealing with challenging situations can be negatively impacted by a lack of confidence. Students with low confidence often visualize defeat before it occurs (Lundberg, 2008). Additionally, disempowering experiences can lead to fragile levels of confidence which can result in students disengaging from placements or leaving a programme (Bradbury-Jones, Samsbrook and Irvine, 2007). In contrast, increased confidence and empowerment are related to improved motivation for learning and a better outlook on a situation (Bradbury-Jones, *et al*., 2007). Overall, fostering and measuring students' confidence appears important due to its effect on learning, but the conditions under which students' levels of confidence match their levels of competence need to better understood. Clark *et al*. (2004) found that when students have a higher sense of confidence about their skills, they are more likely to think of these skills as important, which may indirectly affect competence, because as argued by Bandura (1997), people fail to apply what they have learned, or do so half-heartedly, if they distrust their ability to do it successfully. This was illustrated in a recent study by Watson *et al*. (2010), where increased levels of confidence

for a particular procedure were found amongst a group of junior doctors taught with the use of a manikin, which translated into an increased use of the procedure, and potentially improved clinical outcomes.

Aside from clinical skills another vital aspect of confidence is its importance in the development of psychomotor skills. A widely accepted theory of motor skill acquisition (Reznick and MacRae, 2007) is that there are three stages to skill acquisition, one being an integrative stage consisting of practice and feedback during which the conceptual knowledge is translated into appropriate motor behavior. Confidence is vital in this stage because in perfecting skills, people need informative feedback about how they are doing. If performance feedback is to produce good results, it must direct attention to the corrective changes that need to be made and should be given in such a way as to build confidence in one's capabilities. With the importance of confidence in effective clinical performance and therefore clinical outcomes and its association with the development of psychomotor skills, it is imperative that the development of professional confidence, with particular regard to patient communication and clinical skills, be fostered effectively during university study. Therefore examining the extant literature on the development of professional confidence during university study was viewed as particularly important in the context of health profession education looking to evidence-based learning to teach the content of their courses.

Arguably all health care educators would agree that professional confidence is a desirable attribute of graduates, but how the various learning opportunities offered to students during their education shape that development is not well documented. In particular, there is a paucity of research-based evidence on the effectiveness of guided

forms of learning into the profession. Given guided learning into the profession represents the bridge from student to professional, gathering research evidence of its potential for the development of professional confidence is important.

The aim of this paper was to critically review published research investigating how guided practice into the profession contributes to increased professional confidence in health care students, with a view to identifying the impact of guided practice on its development.

Method

The literature search was performed using MEDLINE and ERIC (1980-2010). An initial search aimed to determine the magnitude and type of literature that examined the development of professional confidence in university contexts. These results were then further refined to the field of health care education, and finally, to health care students' development of confidence in communication and clinical skills. It became apparent that learning opportunities which placed the student into clinical situations or environments produced the greatest results.

Before undertaking the successive key-term searches and outputs, a preliminary examination of the construct of confidence in health education research was undertaken. Much of that research was grounded in Bandura's (1977) self-efficacy theory (Hays *et al.*, 2007). Due to the overlapping nature of the two concepts, *confidence* and *self-efficacy*, and their often interchangeable use in research, it can be difficult to distinguish the two terms. However, self-efficacy appeared mainly in educational psychology literature, while confidence was predominantly used in the professional education literature. In terms of their respective meaning, Bandura (1997) defined self-efficacy as

the belief in one's ability to perform a specific behaviour or skill. He distinguished between the two terms by noting that confidence is a nondescript term that refers to strength of belief, but does not necessarily specify what the belief is about.

Similarly, Pajares (2002) defined self-efficacy as the confidence people have in their ability to do things they try to do, while Sanders and Sanders (2003) noted that self-efficacy is the parent concept of academic confidence, and may stem from the same sources as self-efficacy. Although this article focuses on the notion of confidence, it was necessary to also include the term self-efficacy in the literature search.

Literature search

The initial key-term search used various combinations of the following words: university (and college) student; confidence (and self-efficacy); educational opportunities (and experiences); and, learning opportunities (and experiences). This initial search yielded a substantial and highly diverse range of publications (>1000). It included both empirical and anecdotal studies from a variety of university programs, including engineering, medicine, computer science, biological sciences and education. This search provided insight into the magnitude and range of studies conducted in this area. Over 500 publications from the field of medical education (including medicine, nursing, dentistry, physical therapy, athletic training, chiropractic and occupational therapy) addressed the issue of professional confidence (and self-efficacy) development. From these, approximately 300 were found to have partly addressed the specific focus on professional confidence in patient communication and skills. In order to further refine the output, and identify more specifically the types of learning opportunities influencing the development

of professional confidence in the areas of patient communication and skills, a follow-up search was conducted.

The second key-term search used various combinations of the following key words: health care student (and medical, dental, nursing, athletic training, chiropractic, physical therapy); confidence (and self-efficacy); skills; communication; education methods; and teaching methods. This search produced a more focussed selection of publications. Some empirical studies were explicitly designed to assess the effectiveness of a particular learning opportunity on students' development of professional confidence, while others described how learning opportunities were found to impact on the development of professional confidence incidentally, or were reported as anecdotal evidence. Overall, the number of publications describing anecdotal evidence of increased professional confidence outnumbered those reporting empirical studies. In that regard, a large proportion of studies emerged from the medical profession, but most of the anecdotal studies appeared relevant to other allied health professions.

In the final stage, the search was further narrowed to include only studies which: 1) embodied the explicit aim of the present study, therefore only those studies that focused exclusively, or in greater depth, on the development of confidence in patient communication and clinical skills, or the development of professional confidence, through learning opportunities which guide students into the profession; and 2) represented a range of health care professions which included medicine, dentistry, physiotherapy, chiropractic, nursing, and athletic training. The final selection of papers (n = 13) represents a broad selection of studies discussing the effectiveness of guided into the profession learning opportunities on students' development of confidence in patient

communication and skills, across health care fields of study. Seven of the studies pertained to short, intensive, practical opportunities that varied in duration and methodologies and six pertained to the longer-in-duration preceptorship. The initial aim was to retain for the in-depth review empirical studies that had rigorous research design and methods. However, in light of the paucity of research overall, it was decided to keep a few studies that reported change in professional confidence but were not very strong methodologically.

Guided practice into the profession

As previously noted, confidence in patient communication and clinical skills starts during university study for health care providers. It is during this time that students are exposed to a variety of learning opportunities that may contribute to the development of their professional confidence. Some of these learning opportunities are provided through specific instruction, while others emerge through participation in guided activities aimed at exposing students to clinical situations or environments.

Research-based studies focusing on short, intensive, practical sessions or courses, and preceptorship programs are reviewed in turn. Both types include real-life clinical contexts, providing students with an opportunity to develop their professional confidence. The main differences are in their duration and in the availability of sustained personal guidance provided by a mentor or clinician. The studies selected for review reflect a combination of empirical research, and anecdotal accounts.

Short, intensive, practical opportunities

The short, intensive, practical opportunities are often implemented prior to entering a preceptorship, or clinical placement, with a vision to enhance students' competence and confidence in specific skills or procedures. These differ from preceptorship programs by being shorter in duration and more focused on specific content or skills. This is vital because the lack of confidence at this stage is typically attributed to insufficient hands-on training, the result of insufficient contact hours addressing specific skills required for their profession (Esterl *et al*., 2006).

In the following section we review studies which explored the effect of this learning opportunity on professional confidence at differing time durations.

Effect of short, intensive, practical opportunities on professional confidence

Research-based evidence of the significance of these learning opportunities to enhance students' professional confidence has been established in a number of studies. The seven papers selected for in-depth review of this type of research report empirical studies that varied in duration (several hours to one month) and methodologies (pre- and post-test design, experimental design, alternative methods of delivery) (Esterl *et al*., 2006; Peyre *et al*., 2006; Robb *et al.,* 2009; Ferrini and Klein, 2000; Stewart *et al*., 2007; Ault *et al*., 2002; Leapold *et al*., 2005). The reason for selecting studies that varied in duration was to examine if there is a point in time that is more likely to effect confidence.

The first study (Esterl *et al*., 2006) used a pre- and post-survey design to determine how participation in a 4-week series of clinical and didactic sessions enhanced confidence in multiple areas including clinical skills, a component of professional confidence. The aim of the sessions was to prepare students for surgical internship. At the conclusion of the study, students reported an increase in their level of confidence in all 57

categories surveyed, providing strong empirical support for the effectiveness of this learning opportunity on the development of confidence including clinical skills. However, this study did not use a control group, nor collect any follow-up surveys, to assess its true impact over time.

A similar design was used in studies by Peyre *et al.* (2006), and Robb *et al* (2009). Peyre *et al.* study assessed evidence of change in confidence levels in surgical skills following a 3-week surgical course while Robb *et al.* surveyed final year medical students before and after a 2-week period of guided supervision in a surgical sub-internship As with the previous study, student confidence in all the surveyed skills significantly improved, but the authors noted the need to further elucidate the effects of the course by assessing the retention of skills and reassessing confidence at a later date. These studies provided evidence that a two to four week skills specific opportunity can foster professional confidence, specifically in clinical skills, but the authors could not determine whether these learning opportunities were more effective than others, nor their long-term benefits.

Empirical evidence of enhanced professional confidence following shorter and more intensive courses was reported in two studies (Ferrini and Klein, 2000; Stewart *et al*., 2007). Ferrini and Klein measured the effect of an intensive 16-hour community-based rotation taken by third year medical students in a palliative (end-of-life) workshop. At the conclusion of the rotation, post-survey data reported evidence of increased student confidence in attitudes, knowledge and skills, and in particular, their ability to communicate with patients. This result provided experiential evidence that this type of learning opportunity is an effective way of building professional confidence. However, as

noted in the previous three studies, the authors acknowledged the need to assess whether the changes reported were sustainable.

The impact of an even shorter learning opportunity was examined by Stewart *et al*. (2007). In this study, the researchers assessed changes in students' confidence in clinical skills, competence, and anxiety following an intensive 4-hour procedural skills workshop. As expected, the results revealed that students who had initial low levels of confidence, competence, and high anxiety with respect to the skills assessed, displayed significant improvements on all three measures following the workshop. The authors concluded that this type of learning opportunity should continually be assessed for effectiveness in influencing student confidence, as it may result in students performing procedures more skillfully later on. Additionally, the authors noted the need to assess actual competence against confidence, due to the results relying on self-assessment and whether this course would ultimately have lasting effects.

These four studies highlight the need for further research to determine the long-term impact of these types of learning opportunities on the development of professional confidence building. Follow-up measurement, the inclusion of a control group, and actual measurements of competence will enable a stronger case to be made of the effectiveness of short, intensive clinical courses on the development of professional confidence in future research. In the absence of an experimental design, it is not possible to claim that professional confidence gained through participation in these learning opportunities was more effective than other learning opportunities that happened in parallel, nor whether the increase in professional confidence was maintained into the next learning opportunity, a preceptorship, clerkship, or internship. Furthermore, the issue of how to best present the

instructional material during these shortened educational opportunities will need to be established. Our search produced two studies that addressed these two issues: experimental design and alternative method of delivery (Ault *et al*., 2002; Leopold *et al*., 2007).

The study by Ault *et al*. (2002) is reviewed first because it was one of the only studies emerging from our search that used an experimental design. The authors compared the effectiveness of an experimental group of third year students participating in a two and a half hour focused breast-skills workshop, with a control group of peers participating in a traditional 4-hour ambulatory teaching experience in an outpatient breast clinic, on their ratings of self-efficacy in these skills, using a self-report confidence scale. The results showed higher gains in self-efficacy by those who participated in the workshop, and significantly better performance in clinical skills, but interestingly no significant differences in retention of skills assessed at a later date. Arguably this learning opportunity may have been too short to have any long-term impact, and yet the study discussed previously by Stewart *et al*. (2007), also reported improvement in students' levels of clinical skills confidence following a four hour workshop. Another issue, which needs to be established, is the most appropriate way to deliver the content material.

In practice, the impetus for the implementation of short, intensive clinical learning opportunities is often the students' lack of hands-on experience before they undertake a significant clinical placement. This practice was questioned in a study by Leopold *et al*. (2005). In their empirical research with practising doctors, they assessed the extent of change in levels of confidence in performing knee joint injections on an anatomical model between three groups of participants exposed to different instructional material:

printed guide; CD-ROM video; and, hands-on, all limited to 5 to 10 minutes duration. Contrary to expectations, it was found that the hands-on instruction group did not report higher gains in confidence and competence levels than those who participated in either the printed technique or CD-ROM tutorial. The value of this study is to show that a hands-on approach, when very short, does not produce greater levels of confidence and competence in comparison to an exposure to study materials for the same duration. The authors commented on the lack of published work investigating the required level of resource intensity of an educational intervention to teach a psychomotor task effectively.

It is evident that these opportunities help build professional confidence, but more empirical data is required to support their effect and to establish what points in time are most likely to produce such effect. Issues such as duration, long-term benefits, the correlation between confidence and actual competence, specific focus on professional confidence, and delivery of educational material need to be examined in order to implement the most appropriate short, intensive practical opportunity. Similar to this type of experience, except longer in duration, and with more encompassing expected outcomes, is the second learning opportunity, the preceptorship. It too is reported as being influential on the building of student professional confidence.

The preceptorship

The preceptorship is a placement that provides students in professional health care programs the opportunity to integrate theoretical knowledge with practical skills (Moeller, 1984). It exposes them to real patients in a supervised clinic or similar environment, often with a one-to-one clinician (preceptor)-to-student-ratio (Lacy *et al*., 2005). This provides them with the opportunity to record histories, assess, treat, and

counsel on a myriad of issues such as diet, medication, and to work with patients under the guidance of an experienced and competent role model, or preceptor (Kaviani and Stillwell, 2000). The dynamic interaction between student and preceptor is integral to the preceptorship experience (Yonge, 2007), but so is the role of peer-mentoring (Kiessling *et al*., 2004). Both forms of guided practice into the profession are inseparable components of the preceptorship and may be key factors in students' development of professional confidence. Other factors, such as the amount of hands-on care that is provided and the location of the preceptorship, also contribute to building student professional confidence.

The six papers selected for in-depth review of the role of the preceptorship in the development of professional confidence are discussed next but before, the role of professional and peers in instilling professional confidence is briefly examined.

Role of the preceptor and peers in the mentoring process

Finding that professional confidence is affected during a preceptorship period may be attributed to a range of factors. One that stands out, however, is the role of the preceptor and of students' peers given the dynamic social relationships taking place in such environments. Therefore it is imperative to gain insight into their respective role in the development of professional confidence.

The professionals who supervise and monitor students' learning during a preceptorship program are given different titles across the health professions and in the literature; for example, preceptors, clinical educators, clinical supervisors, clinical instructors or professional mentors (Driscoll, 2002). Common to their job description is the responsibility for educating, supervising and guiding students while students are out

in the field (Rodger *et al*., 2008). Cahill (1996) argued that mentoring with a preceptor can influence how students prepare and develop various values, skills, knowledge, and attitudes throughout their whole academic and professional careers. According to Ryan and Brewer (1997), the concept of preceptorship is widely accepted as a powerful strategy for facilitating the professional growth and development of students while they are socialised into a discipline. Successful student experiences are frequently connected to mentoring processes (Waldeck *et al*., 1997) and may serve to help students achieve their optimal potential, not only as health care providers, but also as organisational leaders (Allen, 1998; Platt, 2002).

Also vital to the mentoring process and influential in the building of confidence is appropriate and accurate mentor feedback. Early work by Ende (1983) claimed that this is a critical component of the mentoring process because without it mistakes go uncorrected, good performance is not reinforced, and learning can be compromised. Furthermore, Pitney and Ehlers (2004) stressed how mentor accessibility, approachability, and student initiative need to be enforced, including supportive behaviors such as assisting with clinical education and non-clinical educational or personal issues. Components such as these can create an environment that encourages student participation, assisting in the building of confidence (Curtis *et al*., 1998). Therefore, it is imperative that assessment of the preceptorship experience includes the preceptor or professional mentor (Goldenberg *et al*., 1997).

Another form of mentoring, peer-mentoring, has also been found to be an important component of the preceptorship experience. Research on peer-mentoring (Aston and Molassiotis, 2003; Cason *et al*., 1977; Yates *et al*., 1997; Escovitz, 1990;

Ladyshewsky, 1993) revealed how the inclusion of student collaboration with their peers is an essential experience, as it may help reduce anxiety, improve confidence, and create a more positive and productive learning experience. However, according to Henning *et al* (2006), peer-mentoring should be strategically implemented, and not carry the same weight or replace the roles of the professional mentor in regards to assessment, teaching, and leadership.

Mentoring from either a trained professional or fellow student can therefore be expected to positively affect confidence but warrants careful planning when implementing a preceptorship experience. Overall, the literature on relationships between students and preceptor clinicians converges to suggest that the preceptorship may have a profound impact on the development students' professional confidence. The need to better understand how these professionals influence professional confidence must therefore be researched and continually assessed in practice. This is also true for peer-mentoring. In the next section, we examine studies that investigated the impact of preceptorship on the development of students' professional confidence.

Effect of the preceptorship on professional confidence

Preceptorship initiatives are found in most health care education programs and have often been the focus of studies assessing the development of student confidence in patient communication and clinical skills. This is due to one of its primary aims, that is, the development of confidence in all areas of clinical endeavors, including patient communication and clinical skills (Kilcullen, 2007). The bulk of this research has been carried out with students in medicine, but some studies are found in other health care related fields such as nursing, physical therapy, dentistry and athletic training.

There is extensive empirical and anecdotal evidence within the medical literature (Harrell *et al*., 1993; Lai and Ramsesh, 2006; Levy and Merchant, 2005; Morgan and Cleave-Hogg, 2002; Wimmers *et al*., 2006) that student professional confidence is enhanced through a preceptorship experience. More specifically, there is evidence that a preceptorship experience can help reduce anxiety by encouraging students to focus on professional problem solving, making them less susceptible to emotional responses while dealing with patient's complaints (Tryssenaar and Perkins, 2001). Conversely, undue stress and anxiety may also be increased, which can subsequently reduce students' level of general confidence (Spegman and Herrin, 2007). However, of greatest concern for professionals is overly confident students, and their potential danger to patients. There is some evidence to suggest that students may feel confident in procedures in which they have no clinical experience as a result of a preceptorship experience (Clayton *et al*., 2005).

Our search for publications on the effectiveness of preceptorship experiences on the development of confidence in patient communication and clinical skills highlighted a variety of research foci. We classified the six selected studies into four categories, which are reviewed in turn: 1) investigations of the effect of a preceptorship experience on both preceptors' and preceptees' level of professional confidence (Goldberg *et al.* 1997); 2) research on the relationship between amount of hands-on or active care practice and level of professional confidence (Lai *et al.* 2007); 3) studies exploring the importance of exposing students to a variety of preceptorship environments on their development of professional confidence (Lyon *et al.* 2008; Smith *et al.* 2006); and, 4) investigations of

the effect of peer-assisted mentoring on level of professional confidence (Haist *et al.* 1997; Henning et al, 2006).

Effect on preceptor and preceptee

The value of investigating both preceptors' and preceptees' development of confidence was investigated in a study by Goldenberg *et al*. (1997). The researchers measured changes in confidence in psychomotor and physical assessment skills with nursing students, and changes in preceptors' confidence in assisting their students. As high preceptor confidence was reported as an important factor in student achievement (Gibson and Dembo, 1984), the inclusion of the preceptors' change in confidence was also investigated. The Goldenberg *et al* study reported significant increases in student confidence levels (psychomotor and physical assessment skills), and yet no significant increases were found in the post-scores of the preceptors who had high initial pre-scores. The authors concluded that high initial preceptor confidence may have been produced through preceptorship preparation and development programs, thus creating a ceiling effect and no scope for further improvement. The authors also concluded that nurse educators should continue with this type of experience, but suggested that self-efficacy, defined in this study as a level of confidence, and clinical performance be investigated in order to determine if there is a relationship. In addition, they noted that further research on the role of the preceptor is warranted because high preceptor self-confidence is vital and it may be necessary to implement strategies, rewards and benefits to maintain preceptor self-confidence.

Amount of hands-on and active care practice

Providing more hands-on or active care is another area which has been reported as being vital to the building of student professional confidence. For example, Lai *et al.* (2007) measured change in confidence and competence in a range of practical skills before and after a 6-month medical preceptorship. Their findings reveal that the greatest improvements in confidence, following extensive hands-on and active care, were in "managing sick patients as part of a team" and "prioritising cases". In contrast, students' levels of confidence in history taking (patient communication) and physical examination (clinical skills) did not change. The authors concluded that these students may have attained the expected level of confidence in these skills prior to their preceptorship and therefore no further improvement at the final stages could be expected. It was speculated that additional clinical experience, with the pressure of clinical responsibilities, might be needed to further improve students' competence in history-taking and examination skills, but without impacting on already high levels of confidence. Interestingly though, there were no significant improvements on initial low levels of confidence in the areas of "answering questions on admission and dealing with difficult patients". This finding stresses the need for students to be offered more opportunities and to take an active role in patient care.

This study therefore highlights the potential of a preceptorship experience in preparing students for all aspects of professional practice, including mundane activities such as admission questions, but also potentially risky activities such as dealing with difficult patients. Research into how students' confidence in various communication and clinical skills can be challenged and guided through taking more clinical responsibility is still limited.

Variety of preceptorship environments

Different types of preceptorship experiences may exist within a health care program, each developing student professional confidence differently; for example, university-based, community-based, and athletic event-based. Two studies that compared the impact of distinct preceptorship experiences on students' development of professional confidence were selected for review. The first study (Lyon *et al*., 2008) compared students' perceptions of their preceptorship experiences in rural and metropolitan clinical settings. In order to develop an appropriate questionnaire the authors invited students to join an exploratory focus group. They used open ended questions to capture the students' ideas on what helped them to learn. Data from this initial focus group informed the development of the questionnaire used in the study. Four categories emerged form the data: 1) good clinical teaching; 2) opportunities to develop clinical skills; 3) supportiveness; and 4) the development of confidence emerging from participation in patient care. The questionnaire was then administered to all students who had undertaken their clinical clerkship either in a metropolitan or rural setting. The findings revealed that students rated the rural experience more highly and positively than the metropolitan experience in all four categories.

These findings provide supporting evidence that rural practice settings can provide an effective alternative experience for medical students. It also has positive implications at a time where major teaching hospitals are becoming more specialised, often have a narrow patient mix, and increased patient turnover. In that regard, a study by Kamien (1996) reported that students placed in rural hospitals were seeing twice as many different medical conditions and were assisting in or performing six times as many

procedures, as their counterparts in urban teaching hospitals. The authors concluded that their study provided additional empirical evidence on the value of the rural clinical experience as a credible alternative to the traditional metropolitan hospital, and supported the need for further development and funding for rural placements.

The second study by Smith *et al*. (2006a) compared the effects of an outreach preceptorship with a traditional, school-based, clinical experience on students' confidence in providing treatment for patients presenting with common dental problems. At baseline, all students self-rated their global confidence on a five-point scale with both groups displaying similar confidence levels. At follow-up, students' confidence was measured using three questions: a global self-assessment; a then-test; and a transition judgment question. The authors justified their approach on the basis that the measurement of confidence may be complicated by a response shift in which the experimental group recalibrates its baseline impression (of confidence) as a consequence of the intervention. Therefore, the use of transition judgments in which subjects assessed the degree of change itself, or assessments known as post-then tests, which retrospectively assessed pre-intervention levels at follow-up, were used. In other words, the questions encouraged students to revise their internal scales of confidence. Results collected at follow-up showed no significant differences between groups; however, the outreach group retrospectively rescored their baseline confidence lower on the then-test than the other group, and rated their increase in confidence significantly higher for the transition judgment. Put simply, they realised afterwards that some of their earlier confidence was misplaced and they had been overly optimistic about their confidence before their placement.

The authors concluded that their study demonstrated that outreach training significantly increased student confidence, confirming anecdotal reports that community outreach experiences increase dental school confidence. In their discussion, the researchers pointed to a few issues that would need to be considered if outreach preceptorship opportunities were used within health care programs more systematically. These included additional costs, appropriate levels of supervision, and students' absence from their educational institution, which may result in lost opportunities to enhance their learning in other areas. However, the use of the post-then test in this study would need to be further investigated in order to determine if rescoring is more accurate on self-assessment.

These two studies highlight the complexity of the preceptorship experience, as although the aims and objectives may be similar for each experience, the outcomes at least in student professional confidence, may differ. The extent to which a wider range of clinical experience has an impact on levels of confidence in communication and clinical skills was not examined in either study, and should be the focus of future research. In light of the rural and outreach experience studies reporting students' repeated opportunities to reapply skills in a more intimate working environment (Kamien, 1996; Smith *et al*., 2006b), with more approachable teachers and greater opportunities for hands-on practical experience (Parry *et al*., 2002), one could speculate that professional confidence is more likely to be enhanced. Since many health care programs have a mix of preceptorship experiences available, and often need to diversify, it will be essential to determine their respective value on the development of students' professional confidence.

Peer-assisted mentoring

A substantial amount of research has examined the influence of peer-assisted learning or peer-mentoring on student professional (Burnside, 1971; Flynn *et al*., 1981; Hart, 1990; Kerr and MacDonald, 1997; Topping and Ehly, 1998), and general confidence (Kiessling *et al.*, 2004). Kiessling *et al*'s work (2004) revealed that when students are unable to access peer support during preceptorship experiences their general confidence levels may suffer. They argued that peer support helps reduce student anxiety and stress. Other researchers found that the use of peer-assisted learning, which may include peer tutoring, peer monitoring, peer modelling, peer education, peer counselling, and peer assessment, improves communication skills (Burnside, 1971; Flynn *et al*., 1981; Kerr and MacDonald, 1997; Topping and Ehly, 1998), and confidence in clinical skills and decision making (Flynn *et al*., 1981; Hart, 1990).

One critical issue for professional educators is the extent to which peer-assisted learning and mentoring contributes to improving fellow students' performance. This was examined in a study with first-year medical students mentored by fourth-year students (Haist *et al*., 1997). The researchers reported that mentees performed as well on written final and practical examinations (clinical skills), as first-year students whose mentors were full-time staff. They also found that fourth-year mentors were rated as favourably as staff by first-year students, indicating that peer-mentors can be effective mentors of first-year students.

Although peer-assisted mentoring may be effective, careful consideration must be made when implementing it during a preceptorship experience. This was highlighted in a study by Henning *et al*. (2006), which assessed athletic students' confidence levels during athletic clinical training. Reported in this study were students' feelings of being less

anxious and more self-confident when practising their clinical skills with their peers than with their clinical instructors. Students also seemed to prefer feedback from their peers in regards to their psychomotor skills. However, the integration of these skills into clinical proficiencies was more effective under the close supervision of a clinical instructor, with only a small number of students feeling that the feedback they received from other students was more helpful than that received from the clinical instructors. In this study, students also reported being more comfortable approaching their clinical instructors for help when caring for an injured athlete, a finding also reported by nursing students (Iwasiw and Goldenburg, 1993).

Based on the empirical literature, it seems that mentoring from either a trained professional or fellow student is common practice during a preceptorship experience but warrants careful planning. There is little doubt that professionals who engage in mentoring students in their chosen field have a profound impact on their mentees' general and professional confidence. How and under what circumstances student confidence develops during a preceptorship experience, and whether there may be peaks and troughs in the process, is not well documented and understood.

In sum, the research shows that the preceptorship experience can impact on students' development of confidence in clinical and communication skills. However, there is some evidence that general confidence levels could also decrease due to stress and anxiety evoked by the real-life learning environment. The research also shows that a preceptorship experience may not enhance students' confidence in all the skills that they have to master. While the hands-on experience in the preceptorship may seem to be a natural confidence builder, it may have little impact due to a lack of adequate clinical

experience and responsibilities. This lack of clinical pressure does not challenge students' confidence in key areas such as patient communication and physical examination, and may prevent them from taking a more active role in patient care.

Some research has explored how rural preceptorship experiences compare to experience in university teaching based hospitals. A number of comparative studies revealed that the rural experience is a credible alternative to the traditional university-based hospital, as students are provided with opportunities to see more patients and more varied conditions, thus more hands-on experience. Additionally, the rural experience exposes students to more approachable teachers, which adds weight to the idea that it may also enhance professional confidence. Also important is the level of confidence of the supervising preceptor, or mentor, with evidence supporting higher student confidence levels being reported with those students whose mentor possesses higher levels of confidence. Finally, research on peer-mentoring, as an addition to professionally trained mentors, was found useful to enhance students' confidence in practising their clinical skills with their peers, but the extent to which this confidence extends to the use of clinical skills with patients is inconclusive and requires further investigation.

Well-established as a learning opportunity in health education, guided practice into the profession now needs to generate rigorous research into its effectiveness for the development of professional confidence. The inclusion of follow-up measurements and control groups in research designs will be necessary to strengthen evidence of impact. The absence of an experimental design in most studies makes it difficult to claim that confidence gained through participation in these learning opportunities was more effective than other learning opportunities or none at all.

Discussion

In health professions education, evidence-based learning is the standard approach when making decisions regarding curriculum content. This review aimed to extend this idea to research-based evidence when making decisions about the best learning opportunities to enhance the development of professional confidence.

This review of research on the effectiveness of guided practice into the profession revealed that these learning opportunities can contribute significantly to students' development of professional confidence. This is because students are placed in real-life environments and situations they are likely to encounter as professionals, but still under the close guidance of a professional mentor. Both forms of guided practice reviewed in this article; namely short, intensive, practical activities and full preceptorship programs, were found effective to enhance students' confidence, despite shortcomings in the research methodologies.

The finding that short, intensive, practical guidance in the use of a specific set of skills or procedures could be very effective even if only a few hours in duration, highlights the debate on the ideal duration of guided learning activities. Future research will need to take into account multiple factors when examining the impact of such activities on students' development of competence and confidence, including the nature of the target skills, the method of delivery, and the duration of the guided activity. Another issue is whether a period of focused and intensive practical guidance has a long-term impact on the development of confidence in the target skills. Unfortunately, none of the empirical studies included follow-up measures, leaving it to future research to determine potential long-term effects. Furthermore, only one of the six studies reviewed

used an experimental design, which made it difficult to conclude that the confidence gained over a short period of intensive guided practice was actually due to participation in that activity and not to concurrent events or other factors. Finally, and as mentioned in regard to the impact of instructional methods, the relationship between the development of competence and confidence, following participation in short, intensive, practical activities still needs to be established.

As expected, empirical evidence documenting the effectiveness of a preceptorship on the development of professional confidence emerged as stronger than participation in short, intensive learning sessions or courses. The role of preceptors was highlighted as critical to students' development of confidence, especially when the preceptors were approachable, corrected mistakes, and reinforced good performance from a supportive perspective. Peer-mentoring was also reported as effective by reducing anxiety and creating a positive learning experience, but not as a replacement of the professional mentor.

Overall, the impact of professional and peer-assisted mentoring on the development of professional confidence appeared widely supported in the literature. Yet, some aspects of the preceptorship warrant consideration in future research. One aspect is preceptors' own confidence. This was identified as important due to evidence of a link between preceptors' confidence and students' achievement. Another factor is the process by which students continuously reevaluate their level of confidence when challenged by new hands-on clinical responsibilities. What may facilitate and alternatively hinder this process needs to be better understood.

The possibility that rural placements may be more beneficial than traditional hospital or university-based placements for the development of professional confidence also needs further examination. Tentative explanations for preliminary evidence suggest there are greater opportunities for patient encounters and exposure to a variety of conditions, which ultimately leads to more practical experience. Whether teachers in rural hospitals are perceived as more approachable needs to be determined, especially if there is a direct link to the development of professional competence and confidence. In any case, there is emerging evidence that rural placements are highly valuable and should be considered when considering diversification of preceptorship programs. Overall, guided practical activities, whether short and highly focused or longer and wide ranging, appear to contribute to the building of professional confidence; however, more research is warranted to determine which factors are the most influential. Additionally, the link between confidence and competence needs to be better established in future research. Measuring confidence independent of actual competence will not establish its true value in health care providers, let alone students in health education programmes. Higher levels of confidence are expected to be associated with higher levels of actual competence, but until there is more empirical evidence of the nature and circumstances of this relationship, students' development of professional confidence during their university study should be monitored carefully. Fostering professional confidence is important due to evidence that it leads to greater motivation to practice new skills and increased engagement in further professional development. But this effort must include learning opportunities for students' development of realistic self-assessment of their competence and avoid over-confidence.

Alternative, possibly relevant learning opportunities within the university context are, for example, Problem-Based Learning (PBL), live or web-based, practical laboratories, e-learning, virtual learning environments (VLE) and reusable learning objects. However, the extent to which these learning opportunities impact on the development of professional confidence has yet to be established, using rigorous measuring instruments. As an example, Problem-Based Learning (PBL) is growing in popularity but evidence of its impact on the development of professional confidence is scarce, often unreliable since not using psychometrically tested measures, and not sensitive enough to do justice to the complex nature of PBL.

Conclusion

Before concluding, it is important to point to the limitations of this review of literature on the development of professional confidence during guided practice into the profession as part of health education. Firstly, the review was limited to a selection of studies most representative of the empirical research in this area, and was not a systematic examination of all the extant literature. Secondly, the selection was limited to studies focusing on the development of professional confidence in the areas of patient communication and clinical skills. Thirdly, while the learning opportunities considered in this review are all frequently used in health care education programs, others less commonly used were left out.

As discussed earlier, the primary aim of the various forms of guided practice into the profession is the development of student competence. Nonetheless, there was some evidence in related research of their beneficial effect on the development of confidence, albeit not always measured in a reliable way. It was also argued that combining

quantitative and qualitative evaluations of their effectiveness would provide educators with a greater understanding of the influence of these learning opportunities, and reveal whether some components of a learning opportunity may have a negative influence and others a positive influence.

In sum, competent health care providers require a variety of professional skills, including the ability to successfully communicate with patients, and apply the skills which are specific to their field of expertise with confidence. Although professional confidence is expected to grow with years of practice, there is no doubt that it can also be fostered during formal training. This review revealed how some commonly used learning opportunities contribute to students' development of professional confidence, evidenced by more effective interactions with patients on their first days in the profession. The review also pointed to the issues of arguable relationships between confidence and competence, and the importance of better understanding and addressing the issue of under- and over-confidence. Finally, the review highlighted when evidence of the effectiveness of learning opportunities was insufficient or unreliable, with some directions for future research.

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