Can an existing personal qualities measure be used to examine nursing students' professional and personal attributes?

V. Pitt, D. Powis, T. Levett-Jones & S. Hunter

Abstract

Background: Schools of nursing continue to be challenged because students who display unprofessional behaviour are being allowed to progress through pre-registration programs. The inclusion of a personal qualities assessment as part of the admissions process may address this issue; however, no instrument currently used for selecting nursing students measures the range of personal qualities required in a practising nurse.

Aim: The aim of this study was to determine whether a test battery known as the Personal Qualities Assessment is an appropriate instrument to measure the personal qualities of nursing students.

Methods: A literature review identified studies that explored the personal qualities of a professional nurse. Thematic analysis identified recurring patterns, both in the literature and in the Australian Nursing and Midwifery professional codes and standards statements. The codes and standards statements were compared and mapped by an expert panel to the traits measured by the Personal Qualities Assessment. Inter-rater agreement analysis was used to demonstrate the experts' agreement with each other in the mapping exercise.

Results: The Personal Qualities Assessment was found to map closely to the personal qualities desired in a registered nurse as expressed in the Australian Nursing and Midwifery professional codes and standards statements. There was a strong level of agreement between experts (*item-IRA*=0.5–1) in their mapping of the Australian Nursing and Midwifery professional codes and standards statements and the Personal Qualities Assessment.

Conclusion: The Personal Qualities Assessment could make a useful addition to the admission process by helping to determine whether students wishing to enter into nursing education meet selection criteria.

Keywords: students, nursing, personal qualities, profession attributes.

University of Newcastle, Australia

Correspondence
Victoria Pitt
University of Newcastle
School of Nursing and Midwifery
Callaghan, NSW 2308
Australia
Email: Victoria.Pitt@newcastle.edu.au

Introduction

Admission to pre-registration nursing education programs worldwide is primarily based on prior academic achievement (Schmidt & MacWilliams, 2011). Although this has been found to be a reasonable predictor of academic success in nursing programs (Pitt, Powis, Levett-Jones, & Hunter, 2012), academics and educators continue to be challenged by students who demonstrate unprofessional behaviours, attitudes and communication skills (Luhanga, Yonge, & Myrick, 2008a). These challenges have led to a call for the assessment of non-cognitive qualities in applicants entering nursing programs (McNelis et al., 2010; Wilson, Chur-Hansen, Marshall, & Air, 2011). This study was undertaken to determine whether the Personal Qualities Assessment tool (PQA) (see www.pqa.net.au), currently used by other health disciplines in their selection procedures, could be applied to a bachelor of nursing student cohort.

Explorations of personal qualities as potential predictors of nursing student success have been limited to the investigation of student's personality, locus of control and self-efficacy. Personality measures were examined in diploma of nursing students (n=350) from the United Kingdom (UK) (McLaughlin, Moutray, & Muldoon, 2008). Higher extraversion scores on admission were found to be related (β=-0.195, *p*=0.001*)* to a poorer academic performance during the program. This study was limited to a younger cohort (mean age 20.7 years) and did not consider baccalaureate students. In the exploration of locus of control, poorer course performance in the first year correlated (*r*=-0.21, *p*=0.034) to nursing students who perceived

that external factors controlled their achievement (external locus of control) (Wood, Saylor, & Cohen, 2009).

Self-efficacy is an area that has attracted attention in nursing research. Students' self-efficacy or motivation to succeed has been linked to better academic performance in several studies (Andrew, Salamonson, & Halcomb, 2009; Dentlinger, 2003; Lauder et al., 2008; McLaughlin et al., 2008; Silvestri, 2010). The use of a variety of self-efficacy measures has been a limitation in the exploration of self-efficacy. The literature discussed demonstrates a relationship between performance and students' personal qualities. However, there is a need for further research of a broader range of personal qualities with a focus on baccalaureate programs. To do this, a valid measure is needed that explores the range of qualities that are desired in the practising nurse.

After exploring medical students' personal qualities for over 30 years, a team of researchers from the University of Newcastle (UoN), Australia's, School of Medicine and Population Health developed the PQA (www.pqa.net.au). The PQA consists of a battery of three tests, which assess a range of personal qualities desired in the practising doctor. It considers the domains of ethics and morality; interpersonal traits; personal values, self-regulation and mental resilience (Powis, Bore, Munro, & Lumsden, 2005). The PQA tests were constructed with the aim of selecting students who were better suited to the practice and study of medicine. It is posited that students with extreme scores at either end of the distribution (±2 standard deviations from the mean) are at risk of failing to succeed, academically and professionally, and should therefore

be excluded from admission. To date, the PQA has been employed in research internationally, including many schools of medicine (Lumsden, Bore, Millar, Jack, & Powis 2005; Munro, Bore, & Powis, 2005), medical radiation science (Bore, Lyall, Dempsey, & Powis, 2005), psychology (Bore, Munro, Kerridge, & Powis, 2005), occupational therapy (Lyons, Mackenzie, Bore, & Powis, 2006) and social work (Gibbons, Bore, Munro, & Powis, 2007).

The PQA tests include:

- **Narcissism, aloofness, confidence (in dealing with people) and empathy scale (NACE)** provides a measure of four personality traits that are considered necessary in the development of productive relationships in the medical profession (Munro et al., 2005). These are: narcissism (likes to impress, not caring about others, untrusting); aloofness (avoiding involvement with others); confidence in dealing with others (mutual understanding of others, responsive to criticism) and empathy (describes self as emotional, angered by injustice, identifies with person in trouble) (Munro et al., 2005). Higher scores on the NACE indicate a propensity for involvement with others (empathy and confidence) whereas lower scores indicate detachment (narcissism and aloofness) (Powis et al., 2005). The NACE scale has a reported high internal consistency of 0.90 and construct/concurrent validity through correlations with five independent personality measures (Munro et al., 2005).

- **Interpersonal values questionnaire (IVQ)** provides a measure of moral orientation/ social responsibility. Bore et al. (2005) proposed that an individual's moral orientation could predict their decision making when confronted with an ethical dilemma. The IVQ highlights two extreme measures: 'libertarian' moral orientation (favouring the needs, rights and wellbeing of others over the rights, needs and well-being of society) and 'communitarian' moral orientation (favouring the rights, needs and wellbeing of society over needs of the individual) (Bore, Munro et al., 2005). The IVQ has a reported high internal consistency of 0.90 and has been validated through correlations with objective moral reasoning measures (Bore, Munro et al., 2005).

- **Self-appraisal inventory (SAI)** provides measures of conscientiousness and of emotional stability. Conscientiousness identifies the student who demonstrates self-control and has commitment to study, whereas emotional stability describes a student's resilience and ability to cope with the stress associated with study (Munro, Bore, & Powis, 2008). Lower conscientiousness scores suggest antisocial tendencies and laxity of control, whereas low emotional stability scores indicate a personality based on "neuroticism, negative moods and anxiety" (Munro et al., 2008). The SAI scales have reported internal consistencies of 0.6 and 0.7 respectively (Munro et al., 2008).

The application of the PQA to nursing has not previously been considered. No other personal qualities assessment tools have been published in nursing literature that cover the range of qualities addressed in the PQA. Therefore, this study sought to determine if the PQA was an appropriate instrument to measure nursing students' personal qualities.

Method

This study involved a three-step process. Firstly, a literature search was performed to provide descriptors of registered nurse personal qualities. Secondly, thematic analysis was conducted to identify recurring themes within the literature in relation to nurses' personal and professional traits. Finally, a mapping exercise was undertaken to map the defined personal qualities of the registered nurse to those qualities measured in the PQA.

Literature review

A review of the literature was conducted to provide a summary of personal qualities desired in practicing nurses. A database search was carried out using MEDLINE, CINAHL, Proquest nursing and allied health and Journals@Ovid. Also, the reference lists from selected papers were hand searched. The broad search categories of 'personal qualities AND nurs*/nurse or nursing' were used to locate research that provided a comprehensive view of both personal and professional qualities required by the nursing profession. Although 'caring' has been extensively discussed in the literature (Brilowski & Wendler, 2005; Watson, 2009) as a fundamental quality of a nurse, it was not employed

as search term. This was done to reduce the likelihood of overwhelming the search outcome with one concept. It may be that the qualities that underpin the concept of 'caring' are comparable to those of 'personal qualities'; however, this discussion is beyond the remit of this paper. Inclusion criteria for the review were: papers published between 2000 and 2013, English language, qualitative or quantitative methodology and included registered nurses (RN) as participants. Papers were excluded if they recruited non-nursing, enrolled nurses (EN) or assistant in nursing (AIN) as participants.

Thematic analysis

Once papers were identified as meeting the inclusion criteria, a thematic analysis was undertaken (Polit & Beck, 2012). Thematic analysis requires reading, searching, reflection, coding and validation to detect common meaning or themes within literature (Polit & Beck, 2012; Willis, 2006). Once identified, the themes were reviewed and critiqued by all members of the research team. This reviewing ensured the themes were an accurate interpretation and representation of the literature. Further thematic analysis was conducted on the Australian Nursing and Midwifery professional codes and standards.

The Australian Nursing and Midwifery Accreditation Council (ANMAC), previously known as Australian Nursing and Midwifery Council (ANMC), is a national body in Australia. In consultation with stakeholders across Australia, the council developed codes and standards which provide a framework of accountable and responsible practice for both registered

and student nurses. The three companion documents are the: Code of Ethics for Nurses in Australia (ANMC, 2008a), Code of Professional Conduct for Nurses in Australia (ANMC, 2008b) and National Competency Standards for the Registered Nurse (ANMC, 2006). These documents are revised regularly in consultation with nurse experts to reflect contemporary professional values. Thematic analysis established the extent to which the AMNC codes and standards aligned with the themes identified in the literature.

Mapping

Following the identification of the themes describing the personal qualities required of a registered nurse, an expert panel was convened. Ten individuals who were known to be experts in the profession of nursing or the design of

Table 1: Describing personal qualities: Themes that emerged from literature

Personality/qualities	Conscientiousness/motivation	Cognitive/skills	Values (personal/professional)
· **Mature*** · Caring · **Cheerful** · **Possessing common sense** · Compassionate · **Confident** · **Able to control emotions** · **Courageous** · Dependable · Able to develop effective relationships · Empathetic · Flexible · Conscientious · Honest · Introspective · Kind · Not being resistant to change · Not disgruntled · Responsible · Objective · Organised · **Positive in attitude** · **Displaying a sense of humour** · Sensitive to others and self · Will to share · Trustworthy	· Team player · Able to delegate · Efficient · Provides the best quality care · Continually ask questions and clarify information · Debates old ideas · Empowers patients/self · Has a good work ethic · Possesses high standards · Is willing to enhance skills and knowledge base · Reflective · Role model for others · Self-controlled · Self-motivated	· Able to problem solve/make decisions and think critically · Able to apply theoretical frameworks · Able to apply knowledge appropriately · Experienced · Displays theoretical, experiential and practical knowledge · Competent in performing nursing procedures · Possesses intuition · **Intelligence** · Performs safe competent nursing care · Able to criticise constructively · Possesses communication skills	· Accountable · Able to acknowledge boundaries · Acts within scope of practice · Able to be an advocate · Possesses balance between obligations and patients' rights · Collaborative · Able to consider conflicting perspectives · Sensitive to dignity of others · Able to empower others · Committed and dedicated · Ethical · Possesses high morals/values · Committed to professional codes and standards · Self-aware · Non-judgemental · Observations and assessment of patients leads to appropriate intervention · Professional · Respectful of self and others · Supportive

*Highlighted statements were not present in ANMC codes and standards

the PQA were invited to participate. Eight experts agreed to complete the mapping exercise. The panel included three senior academics with knowledge of PQA and five nurse academics. Panel members were provided with a descriptor of the personal qualities measured by the PQA, a copy of the ANMC codes and standards and a mapping template. They were instructed to identify correlations between nursing personal qualities statements and the qualities outlined in the PQA.

Analysis of the mapping exercise was conducted using modified inter-rater agreement (IRA). IRA has previously been discussed in relation to content validity (McGartland Rubio, Berg-Weger, Tebb, Lee, & Rauch, 2003). Unlike content validity, where the outcome is to strengthen a survey, this mapping process was not designed to amend the survey content but to provide a measure of agreement on the correlations between nursing personal qualities and the PQA. Inter-rater agreement provided two measures of agreement: the item-IRA and scale-IRA (McGartland Rubio et al., 2003). An item-IRA was calculated for each ANMC statement's correlation to the PQA. The calculation entailed the sum

Table 2: Snapshot of analysis of statements from literature and ANMC codes and standards

Personality/qualities		Conscientiousness/motivation		
Literature	ANMC	Literature	ANMC	
Caring	· Considerate · Gentle · Caring · Comforting	Team player	· Able to acknowledge colleagues knowledge and experience · Works cooperatively · Fosters supportive and constructive relationships with colleagues · Supervises and evaluates care · Seeks support from colleagues	
Kindness	· Values kindness · Practices kindness	Is willing to enhance skills and knowledge base	· Maintain & improve knowledge/skills · Contributes to professional development of others · Maintains competence · Participates in ongoing professional development of self and others. · Facilitates mutual sharing of knowledge	
Compassionate	· Respect for dignity · Refrains from prejudicial attitudes and behaviours · Values non-harmful, non-discriminatory care · Able to be culturally sensitive · Recognises vulnerability	Self-motivated	· Maintains own health · Maintains current knowledge · Develops personal qualities · Participates in quality improvement	

of expert agreement for each statement divided by the number of experts. Weak agreement was indicated by a score of 0–0.29, moderate agreement, a score of 0.3–0.49 and strong agreement, a score of 0.5–1 (Polit & Beck, 2012). To identify the overall agreement for each PQA survey, a scale-IRA was performed. The scale-IRA for each PQA scale was calculated by the sum of all ANMC statements with an item-IRA greater than 5, divided by the total number of ANMC statements. McGartland Rubio et al. (2003) noted that relaxing the scale-IRA to 0.80 was acceptable when five experts were used. This

mapping exercise used eight experts so a lower scale-IRA was expected.

Results

Literature review

The initial search revealed 238 papers. Only four papers met the inclusion criteria of exploring personal qualities associated with the registered nurse (Catlett & Lovan, 2011; Miller, 2006; Smith & Godfrey, 2002; Sumner, 2004). All four papers were qualitative in nature, presenting and discussing several categories in their results. Sumner

	Cognitive/skills		Values (personal/professional)	
	Literature	ANMC	Literature	ANMC
	Able to problem solve/make decisions and think critically	· Respects informed decision making · Uses best available evidence · Demonstrates analytical skills · Undertakes critical analysis · Conducts structured assessment · Able to make professional judgements	Self-aware	· Able to recognise own worth · Values own identity and experiences · Ensures personal values not imposed on others · Acknowledges own strengths & limitations
	Able to apply theoretical frameworks	· Investigates through research · Uses evidence based assessment · Uses theoretical framework and structured approach	Able to acknowledge boundaries	· Maintains professional boundaries · Does not accept gifts or benefits to secure favour · Professional boundaries · Does not impose personal values on others · Aware of power imbalance · Recognises vulnerability · Acts are not for personal gain
	Able to apply knowledge appropriately	· Advice based on adequate knowledge · Knowledge, skills and experience is used to provide safe and competent care · Clinical judgements based on information and evidence · Plans of care based on current knowledge	Acts within scope of practice	· Provision of safe & competent care · Aware of scope of practice

(2004) used critical social theory and interviewed 10 expert nurses to identify how they would describe the practising nurse. Smith and Godfrey (2002) asked 53 nurses at a nursing ethics conference to provide a written description of a "good nurse". Catlett and Lovan (2011) repeated Smith and Godfrey's study, interviewing 20 registered nurses from three hospitals. Miller's (2006) phenomenological study used the term "good work" in interviews (n=24) with registered nurses. Miller's questions focussed on defining nursing work.

Thematic analysis

Thematic analysis was conducted on the four included papers, and 243 words or statements were extracted. Four themes emerged: (1) personality/qualities, (2) cognitive/skills, (3) values (professional/personal) and (4) conscientiousness (see Table 1). It was noted that these themes were reflected in the ANMC professional codes and standards.

The analysis of the ANMC codes and standards resulted in the identification of similar themes to those identified in the literature (see Table 2). It was noted that nine of the descriptors were not reflected within the ANMC documents (see Table 1 highlighted). All other descriptors were evident in the ANMC professional codes and standards. Consequently, the ANMC codes and standards were accepted as an appropriate representation of nursing qualities, and the ANMC statements were mapped to the PQA.

Mapping the PQA to nursing qualities

Of the eight experts, seven completed the mapping of all the ANMC documents and the PQA. One nurse academic completed the mapping for the ANMC competency standards only. The item-IRA analysis demonstrated that all the ANMC statements had a strong level of expert agreement (0.5–1) to at least one of the PQA tests (see Table 3: item-IRA<0.5 are highlighted). To

Table 3: Mapping of ANMC codes and standards to PQA

Competency Standards for the Registered Nurse (2006)	IVQ	NACE	SAI
1. Practises in accordance with legislation affecting nursing practice and health care.	1.00	0.13	0.75
2. Practises within a professional and ethical nursing framework.	0.88	0.5	0.75
3. Practises within an evidence-based framework.	0.13	0.38	0.5
4. Participates in ongoing professional development of self and others.	0.25	0.75	0.88
5. Conducts a comprehensive and systematic nursing assessment.	0.13	0.13	0.63
6. Plans nursing care in consultation with individuals/groups, significant others and the interdisciplinary health care team.	0.75	0.88	0.63
7. Provides comprehensive, safe and effective evidence-based nursing care to achieve identified individual/group health outcomes.	0.63	0.75	0.75
8. Evaluates progress towards expected individual/group health outcomes in consultation with individuals/groups, significant others and interdisciplinary healthcare team.	0.5	0.5	0.5
9. Establishes, maintains and appropriately concludes therapeutic relationships.	0.75	1.00	0.5
10. Collaborates with the interdisciplinary healthcare team to provide comprehensive nursing care.	0.63	0.88	0.63

Code of Professional Conduct for Nurses in Australia (2008)	IVQ	NACE	SAI
1. Nurses practise in a safe and competent manner.	0.57	0.43	1.00
2. Nurses practise in accordance with the standards of the profession and broader health system.	0.71	0.23	0.43
3. Nurses practise and conduct themselves in accordance with laws relevant to the profession and practice of nursing.	1.00	0.23	0.71
4. Nurses respect the dignity, culture, ethnicity, values and beliefs of people receiving care and treatment, and their colleagues.	0.86	0.86	0.57
5. Nurses treat personal information obtained in a professional capacity as private and confidential.	0.71	0.43	0.71
6. Nurses provide impartial, honest and accurate information in relation to nursing care and healthcare products.	0.71	0.57	0.71
7. Nurses support the health, wellbeing and informed decision making of people requiring or receiving care.	0.43	0.43	0.57
8. Nurses promote and preserve the trust and privilege inherent in the relationship between nurses and people receiving care.	0.86	0.71	0.57
9. Nurses maintain and build on the community's trust and confidence in the nursing profession.	0.86	0.43	0.71
10. Nurses practise nursing reflectively and ethically.	1.00	0.57	0.71
Code of Ethics for Nurses in Australia (2008)	**IVQ**	**NACE**	**SAI**
1. Nurses value quality nursing care for all people.	1.00	0.57	0.43
2. Nurses value respect and kindness for self and others.	0.57	1.00	0.71
3. Nurses value the diversity of people.	0.71	0.57	0.43
4. Nurses value access to quality nursing and healthcare for all people.	1.00	0.43	0.57
5. Nurses value informed decision making.	0.57	0.23	0.43
6. Nurses value a culture of safety in nursing and healthcare.	0.57	0.57	0.86
7. Nurses value ethical management of information.	1.00	0.23	0.43
8. Nurses value socially, economically and ecologically sustainable environment promoting health and wellbeing.	0.57	0.23	0.43
Scale IRA	**0.86**	**0.54**	**0.79**

Note: Level of agreement 0–0.29 (weak agreement), 0.3–0.49 (moderate agreement) and 0.5–1 (strong agreement)

identify the overall expert agreement for each PQA survey, a scale-IRA was performed (see Table 3). The strongest level of agreement related to the IVQ survey (0.86), with less agreement noted for both the SAI (0.79) and the NACE (0.54). The lower scale-IRA was expected, based on the use of eight experts (McGartland Rubio et al., 2003).

Discussion

This study sought to determine if the PQA is an appropriate measure of nursing students' personal qualities. As the PQA was developed to reflect medical students' personal qualities, initial investigations sought to describe the qualities desired in a practising registered nurse. Only four studies,

spanning 10 years, were found that explored registered nurses' descriptions of the personal qualities that make a good nurse (Catlett & Lovan, 2011; Miller, 2006; Smith & Godfrey, 2002; Sumner, 2004). From this literature, four themes described the desired personal qualities: personality/qualities, cognitive/skills, values (professional/personal) and conscientiousness. These themes were also noted to be reflected in the ANMC codes and standards, with the exception of eight (mature, cheerful, possessing common sense, control emotions, confident, courageous, positive in attitude, displaying a sense of humour) of the 26 personality descriptors and one (intelligence) of the 12 cognitive descriptors.

Mapping results indicated a strong level of expert agreement between the ANMC statements and the PQA, providing a clear indication that the PQA reflects the professional qualities desired in nursing. Item-IRA demonstrated that each ANMC statement correlated to at least one of the PQA traits, although the level of agreement varied between the statements. Experts agreed that the IVQ correlated with the largest number of ANMC statements. Decision making in relation to ethical dilemmas is a substantial part of nursing practice, yet nurses have been found to conform to the unethical decisions of others, rather than perform independent ethical decision making (Goethals, Gastmans, & Dierckx de Casterlé, 2010). Integrating the IVQ into selection would enable schools of nursing to screen for those who possess extreme moral orientations

and may potentially make unethical decisions (Bore, Munro et al., 2005).

Experts also agreed that the SAI distinctly measured nurses' personal qualities. Nursing pre-registration programs have been recognised as highly stressful (Burnard et al., 2008). Emotional stability in students enables them to cope with both the academic and clinical stress of the nursing program (Baldacchino & Galea, 2012), whereas conscientiousness has been strongly associated with better academic performance (de Koning, Loyens, Rikers, Smeets, & van der Molen, 2012). The lowest expert agreement was noted for the NACE survey. This could be explained by the limitation of the ANMC codes and guidelines to describe all the personality traits required by nurses (Baldacchino & Galea, 2012).

There is no doubt that students' personal qualities play a fundamental role in their clinical and academic performance, and that further insights into nursing students' personal qualities using the PQA is required. Descriptions of the unsafe nursing student during clinical practice more often include descriptors of personal qualities, including inappropriate attitudes, poor communication, overconfidence and not receptive of feedback (Killam, Luhanga, & Bakker, 2011; Luhanga, Yonge, & Myrick, 2008a). It is often the case that students with these qualities are allowed to progress because of mentors' lack of confidence in awarding fail grades (Duffy, 2003; Luhanga, Yonge, & Myrick, 2008b). Potentially, students with personal qualities unsuited to

nursing are able to progress to become potentially 'unsafe' registered nurses.

Nursing programs are beginning to consider alternative selection strategies to combat the above issue in order to select students who may be better suited to the program (McNelis et al., 2010; Wilson et al., 2011). However, there is a dearth of research which explores the range of personal qualities as is examined by the PQA. Introducing the examination of personal qualities may potentially exclude students who lack the qualities desired by the profession, whose progress and performance may be impeded, and who may graduate to become an unsafe practitioner.

Potential implications for future nursing research

The PQA tests adequately reflect those qualities required in nursing and could be used in pre-registration programs to enhance the current research on factors that impact on nursing students' performance and progression rates. The use of the ANMC codes and standards ensures that the qualities explored were specifically mapped in relation to the Australian context. Those from international contexts are encouraged to use the literature along with their own professional codes to ensure that the PQA reflects the personal qualities relevant to their student cohort.

Limitations

A number of limitations were identified during the mapping exercise. Firstly, the number of experts in the panel made it unlikely that there would be 100% agreement between the

experts (McGartland Rubio et al., 2003). Secondly, it is possible that the experts' level of knowledge and interpretations of both the PQA and the AMNC documents may have had an impact on the mapping exercise.

Conclusion

Schools of nursing face the complex issue of identifying and managing students who are unsafe because their personal and professional qualities are unsuited to the profession. The recruitment into nursing programs of students who possess the qualities desired by the profession may be one way to address this issue. The PQA tests were developed with a focus on the qualities desired in doctors. This paper sought to determine the PQA's suitability for use in nursing. Four themes: personality/qualities, cognitive/ skills, values (professional/personal) and conscientiousness were identified in the literature as those qualities most desired in the registered nurse. These qualities were noted to be reflected in the Australian nursing professional codes and standards. Subsequently, the qualities outlined in the ANMC were mapped to the PQA. The PQA were found to map favourably to the personal qualities desired in nursing, demonstrating the appropriateness of using the PQA in pre-registration nursing education research. Studies using the PQA have the potential to provide insights into the impact of nursing students' personal qualities on their performance and retention. This research was conducted as part of a longitudinal doctoral project; further results will be reported separately.

References

Andrew, S., Salamonson, Y., & Halcomb, E. J. (2009). Nursing students' confidence in medication calculations predicts math exam performance. *Nurse Education Today*, *29*(2), 217–223.

Australian Nursing & Midwifery Council (ANMC). (2006). *National competency standards for the registered nurse* (4th ed.). Canberra: Author.

Australian Nursing & Midwifery Council (ANMC). (2008a). *Code of ethics for nurses in Australia*. Canberra: Author.

Australian Nursing & Midwifery Council (ANMC). (2008b). *Code of professional conduct for nurses in Australia*. Canberra: Author.

Baldacchino, D., & Galea, P. (2012). Student nurses' personality traits and the nursing profession: Part 2. *British Journal of Nursing*, *21*(9),530–535.

Bore, M., Lyall, D., Dempsey, S., & Powis, D. A. (2005). Assessment of personal qualities in selection of medical radiation science students. *Journal of Nuclear Medicine Technology*, *33*, 180–185.

Bore, M., Munro, D., Kerridge, I., & Powis, D. (2005). Selection of medical students according to their moral orientation. *Medical Education*, *39*(3), 266–275. doi:10.1111/ j.1365-2929.2005.02088.x

Burnard, P., Edwards, D., Bennett, K., Thaibah, H., Tothova, V., Baldacchino, D., . . . Mytevelli, J. (2008). A comparative, longitudinal study of stress in student nurses in five countries: Albania, Brunei, the Czech Republic, Malta and Wales. *Nurse Education Today*, *28*(2), 134–145.

Brilowski, G. A., & Wendler, M. C. (2005). An evolutionary concept analysis of caring. *Journal of Advanced Nursing*, *50*(6), 641–650.

Catlett, S., & Lovan, S. R. (2011). Being a good nurse and doing the right thing: A replication study. *Nursing Ethics*, *18*(1), 54–63.

de Koning, B., Loyens, S., Rikers, R., Smeets, G., & van der Molen, H. (2012). Generation psy: Student characteristics and academic achievement in a three year problem-based learning bachelor program. *Learning and Individual Differences*, *22*, 313–323.

Dentlinger, N. C. (2003). *Academic self-efficacy, prior academic success, demographic variables, and academic success in first semester associate degree nursing coursework.* Unpublished doctoral dissertation, Oklahoma State University—Stillwater. Retrieved from http://search.ebscohost.com/ login.aspx?direct=true&db=rzh&A N=2005063047&site=ehost-live

Duffy, K. (2003). *Failing students: A qualitative study of factors that influence the decisions regarding assessment of students' competence in practice*. Glasgow, UK: Caledonian Nursing and Midwifery Research Center, Glasgow Caledonian University.

Gibbons, J., Bore, M., Munro, D., & Powis, D. (2007). Using personal quality assessment for selection of social work students. *Australian Social Work*, *60*(2), 210–221.

Goethals, S., Gastmans, C., & Dierckx de Casterlé, B. (2010). Nurses' ethical reasoning and behaviour: A literature review. *International Journal of Nursing Studies*, *47*, 635–650.

Killam, L., Luhanga, F., & Bakker, D. (2011). Characteristics of unsafe undergraduate nursing students in clinical practice: An integrative literature review. *Journal of Nursing Education*, *50*(8), 437–446.

Lauder, W., Holland, K., Roxburgh, M., Topping, K., Watson, R., Johnson, M., . . . Behr, A. (2008). Measuring competence, self-reported competence and self-efficacy in pre-registration students. *Nursing Standard*, *22*(20), 35–43.

Luhanga, F., Yonge, O., & Myrick, F. (2008a). Hallmarks of unsafe practice: What preceptors know. *Journal for Nurses in Staff Development*, *24*(6), 257–264.

Luhanga, F., Yonge, O., & Myrick, F. (2008b). Failure to assign failure grades: Issues with grading the unsafe student. *International Journal of Nursing Education Scholarship*, *5*(1), 2–14.

Lumsden, M. A., Bore, M., Millar, K., Jack, R., & Powis, D. A. (2005). Assessment of personal qualities in relation to admission to medical school. *Medical Education*, *39*, 258–265.

Lyons, M., Mackenzie, L., Bore, M., & Powis, D. (2006). Framing a set of non-academic selection criteria for occupational therapy students: An Australian study. *Australian Occupational Therapy Journal*, *53*(4), 284–292. doi:10.1111/j.1440-1630.2006.00591.x

McGartland Rubio, D., Berg-Weger, M., Tebb, S., Lee, E., & Rauch, S. (2003). Objectifying content validity: Conducting a content validity study in social work research. *Social Work Research*, *27*(2), 94–104.

McLaughlin, K., Moutray, M., & Muldoon, O. T. (2008). The role of personality and self-efficacy in the selection and retention of successful nursing students: A longitudinal study. *Journal of Advanced Nursing*, 61(2), 211–221. doi:10.1111/j.1365-2648.2007.04492.x

McNelis, A., Wellman, D., Krothe, J., Hrisonmalos, D., McElveen, J., & South, R. (2010). Revision and evaluation of the Indiana University School of Nursing baccalaureate admission process. *Journal of Professional Nursing*, *26*(3), 188–195.

Miller, J. (2006). Opportunities and obstacles for good work in nursing. *Nursing Ethics*, *13*, 471–487.

Munro, D., Bore, M., & Powis, D. (2005). Personality factors in professional ethical behaviour: Studies of empathy and narcissism. *Australian Journal of Psychology*, 57(1), 49–60.

Munro, D., Bore, M., & Powis, D. (2008). Personality determinants of success in medical school and beyond: Steady, sane and nice. In S. Boag (Ed.), *Personality down under: Perspectives from Australia* (pp. 103–112). New York: Nova Science Publishers Inc.

Pitt, V., Powis, D., Levett-Jones, T., & Hunter, S. (2012). Factors influencing nursing students' academic and clinical performance and attrition: An integrative literature review. *Nurse Education Today*, *32*(8), 903–913. doi:10.1016/j.nedt.2012.04.011

Polit, D. F., & Beck, C. T. (2012). *Nursing research:Generating and assessing evidence for nursing practice* (9th ed.). Sydney: Wolters Kluwer Health/Lippincott Williams and Wilkins.

Powis, D., Bore, M., Munro, D., & Lumsden, M. A. (2005). Development of the personal qualities assessment as a tool for selecting medical students. *Journal of Adult and Continuing Education*, *11*, 3–14.

Schmidt, B., & MacWilliams, B. (2011). Admission criteria for undergraduate nursing programs: A systematic review. *Nurse Educator*, *36*(4), 171–174.

Silvestri, L. (2010). *Self-efficacy and the predictors for NCLEX-RN(Rtm) success for baccalaureate nursing students* (Doctoral dissertation, University of Nevada, 2010). Retrieved from http://proquest.umi.com/pqdweb?did=2105992471&Fmt=7&clientId=29744&RQT=309&VName=PQD

Smith, K. V., & Godfrey, N. S. (2002). Being a good nurse and doing the right thing: A qualitative study. *Nursing Ethics*, *9*(3), 301–312.

Sumner, J. (2004). The nurse in the caring in nurse relationship: A critical social theory perspective. *International Journal for Human Caring*, *8*(1), 37–45.

Watson, J. (2009). Caring science and human caring theory: Transforming persona/professional practices in nursing and healthcare. *Journal of Health and Human Services Administration*, *31*(4), 466–482.

Willis, K. (2006). Analysing qualitative data. In M. Walker (Ed.), *Social research methods: An Australian perspective*. Melbourne: Oxford University Press.

Wilson, A., Chur-Hansen, A., Marshall, A., & Air, T. (2011). Should nursing-related work experience be a prerequisite for acceptance into a nursing programme? A study of students reasons for withdrawing from undergraduate nursing at an Australian university. *Nurse Education Today*, *31*, 456–460.

Wood, A. M., Saylor, C., & Cohen, J. (2009). Locus of control and academic success among ethnically diverse baccalaureate nursing students. *Nursing Education Perspectives*, *30*(5), 290–294.