Journal of Professional Nursing 35 (2019) 216–223

Contents lists available at ScienceDirect

Journal of Professional Nursing

journal homepage: www.elsevier.com/locate/jpnu

An Evidence-based Approach to Measuring Affective Domain Development

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ARTICLE INFO

Keywords:
Affective domain
Measurement
Values
Attitudes
Beliefs
Modification

ABSTRACT

Background: Educational taxonomies are utilised within nursing programmes to design curriculum, develop learning objectives, and measure attainments including the assessment of values, behaviours, and attitudes. Current measurement of the affective domain is limited, relying on quantitative tools, often immediately before and after learning activities.

Purpose: This paper examines the reliability of a qualitative framework to assess the long-term impact of learning activities known to stimulate affective domain development.

Method: Epstein's (1977) qualitative framework was applied to the self-reported responses of twelve international nurses (20–24 months post nurse registration) who had engaged in learning activities during their pre-registration programme that were considered to be enrichment (international placement, interprofessional learning, simulation and blended learning).

Results: Epstein's framework was used to measure the degree of affective domain development from the self-reported responses of the students. The degree of modification in affective domain development was assessed as dentification level (assuming a different attitude or behaviour) for four nurses and internalisation stage for eight nurses (embracing new values and attitudes).

Conclusion: Epstein's framework is a reliable tool that can capture the short and long-term modification in affective domain development of nurses after they have experienced transformational learning activities. Key elements that move a nurse from identification to internalisation level are the motivating reason for undertaking the activity and reflection on the learning.

Introduction

Quality has become a blueprint for the delivery of patient care (Brown, 2011; Scoville, Little, Rakover, Luther, & Mate, 2016). Yet, how nurse's values affect the therapeutic relationship in assuring quality of patient care, despite being critical to the process is rarely considered (Shultz, 2009). For many years nursing and education has recognised that morals and values affect clinical decision making in complex situations: leading to the introduction of cognitive, psychomotor and affective learning domains (Krathwohl, Bloom, & Masia, 1964). The development of attitudes, values, motivation, beliefs, and emotions (Savickienė, 2010); more importantly affective domain measurement is the focus of this paper.

The transformation of nursing education across different countries calls for evidence-based pedagogies that address professional values acquisition (Benner, Sutphen, Leonard, & Day, 2010; McAllister, 2015; Willis, 2012). Current evidence on affective domain development provides thoughts on learning interventions but fails to address the need for evidence based educational interventions (Taylor, 2014). Measuring changes in values, attitudes, and behaviour of student nurses, is a challenge. This is confounded by a lack of affective domain research (Rogers, Mey, & Chan, 2017; Ritchie, 2003), with less than reliable measurement instruments enabling replication, and often evaluations occurring immediately after the intervention (Valiga & Ironside, 2012).

Taxonomies developed for health and social care workers suggest they address affective domain development (Brown & Ferril, 2009; Miller, 2010; Neuman Allen & Friedman, 2010). However, these taxonomies are purely theoretical and currently there is no such framework that clearly measures the extent of affective domain development. A review of the literature on current measurement tools available proffer both quantitative and qualitative instruments.

A qualitative method to address this deficit of measurement tools was reported by Hanson (2011) who used critical incident questionnaires to measure affective domain development of final year nursing students. Drawing on the Concernful Practices of Schooling Learning Teaching (Diekelmann's, 2001) and transformative learning

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https://doi.org/10.1016/j.profnurs.2018.12.004
Received 20 July 2018; Received in revised form 13 December 2018; Accepted 22 December 2018

theory she delivered a lecture on her experience of nursing patients in the Bali bombings to 76 students. The aim was to enable students to understand how nurses learn to practice and build resilience in coping with critical incident situations, through stimulating self-reflection. The students were then asked to reflect on the lecture using a critical incident questionnaire; to assess, using five open ended questions, which case studies the students remembered as significant to their learning. Students found the lecture emotive, powerful, and they were able to link theory with practice. However, the method of evaluation did not measure the degree of modification in affective attributes of the students, offering little to the discourse of how nurse educators can measure affective domain development of their students.

Wu, Heng, and Wang (2015) propose that authentic assessment rubrics (a quantitative measure) allow educators to measure student's knowledge, skills and attitudes. This method involves the creation of case scenarios with supportive guidance which grade performance as criterion. In a mixed methods study small groups of students were asked to analyse a clinical case and generate decisions about the care the patient should receive. One student then role played a simulated assessment and carried out an intervention on behalf of other students in their group. This process was then self, and peer assessed by the students using the rubric and performance assessment task. Wu et al. (2015) found, through an open-ended survey and focus groups, with sixteen of the original participants; that authentic assessment rubrics helped students to clarify goals of a learning activity and clearly know what excellent nursing care was. In relation to caring attributes peer feedback helped the students become aware of their verbal and non-verbal communication skills and the importance of caring skills. Whilst the advantages of using rubrics was clear, the reliability of the rubric as a measurement tool of attitudes, values, and behaviours was not evident. For example, rubrics can restrict a student's development as they feel the need to complete the assessment strictly to the rubric instead of taking the initiative to explore other decisions; it is challenging to provide consistent grading schemes within a rubric as they often are not detailed enough, consensus across attributes varies and consistency across assessors using the rubric is low (Villarroel, Bloxham, Bruna, Bruna, & Herrera-Seda, 2017).

Rogers, Mey, Chan, Lombard, and Miller (2018) suggest the Griffith University Affective Learning Scale is a robust method in which to assess affective domain development of students. A mixed method approach was used to validate the Griffith University Affective Learning Scale, a seven-point Likert Scale that incorporated Krathwohl et al. (1964) five stages of affective domain development (Rogers et al., 2018). The scale was then used by trained facilitators to rate the degree of affective learning of twenty-five medical students who completed five reflective diary journals each day whilst participating in a week-long immersive simulation activity. Consensus of theorist's over time suggests that values, attitudes and beliefs cannot be graded (King, 1984; Reilly, 1978: Krathwohl et al., 1964), although it is possible to grade the judgement and comprehensiveness of the rationale for the student's opinion (Reilly, 1978). Krathwohl et al. (1964) had not intended the stages of affective domain development to be used as a scale, although Rogers et al. (2018) presents a practical scale with a degree of interrater reliability and face validity, for simulation and reflective journals use. Despite this the evidence is limited to assessing one learning activity and one profession specific group of a small sample size, by assessors soon after training. The student reflections were self-reported, which can lead to response bias and response compliance (students reporting what the teacher wants to hear) self-promotion and/or lack of self-awareness; although the tool was not shared which reduced bias from students who write to the rubric (Morrow, Jackson, Disch, & Mood, 2010; McDonald, 2009). As the self-reported reflections were written during the week of the learning activity, they only report on intentions to change practice and not reports where practice had changed, limiting the efficacy of the scale to assess sustained change. Also, Krathwohl et al. (1964) scale focuses on changing values and behaviour only and not transformation of attitudes, values, motivation, beliefs, and emotions which is more congruent with current codes of professional conduct (Nursing Midwifery Council, NMC, 2015).

To try to capture logic and rationale, Epstein's (1977) conceptual framework which grades and characterises learning in the affective domain in three stages, proves a useful alternative to both Krathwohl et al. (1964) and Rogers et al. (2018) scales. The framework is built upon the research of both Kelman (1958) and Johoda (1959) who individually explored the effect different types of communication and social influence had on the nature of attitude and behaviour change of students. Epstein utilised the framework to evaluate affective domain learning of students in Baccalaureate nursing programs. Categorised by a three-staged process development of values, attitudes and behaviour are measured from the influence of types of communication. This allows the measurement of all affective constructs (attitudes, values, motivation, beliefs and emotions), simplifies measurements into three stages and can record changes in practice. As the scale is qualitative in nature it captures subtle distinctions in affective domain development when measuring outcomes of transformational learning activities.

- Stage 1. Compliance - assuming or conforming to a recognised professional attitude or behaviour in order to gain approval or avoid punishment.
- Stage 2. Identification - assuming a different behaviour and attitude to preserve a rewarding relationship with individuals or groups.
- Stage 3. Internalisation – embracing of new values and attitudes because the transformation is intrinsically rewarding and is congruent with their value system and not to please others.

When the framework was used to measure the impact of enrichment activities on student nurses in a meta synthesis of literature and an action research study, five key variables were exposed (Stephens, 2015; Stephens & Ormandy, 2018). To achieve internalisation (stage 3), of new attitudes, values, motivation, beliefs, and emotions congruent with the nursing profession educational activities should address: personal, professional, or academic goals of the student; are based on cultural encounters within real clinical situations; repeated over time; and involve premise reflection. Using this framework to grade learning activities corroborated and reinforced the notion that potential affective domain measurements could be derived (Rogers et al., 2017, 2018; Wu et al., 2015). The method of grading affective domain development through self-reported responses appears to be gaining interest and robust evidence emerging measuring the presence and quality of affective learning not only amongst nursing students, but other professions. This paper expands theory and current evidence by further examining the application of Epstein's affective domain conceptual framework on the grading of affective domain development in nursing education. This study is novel in that it tests the reliability of the framework and affective domain development impact over a longer time frame (20–24 months post intervention).

Method

Using a grounded theory approach (Bryant & Charmaz, 2007) the researchers compared incidents, categories, and constructs from interview data to test the reliability of Epstein's framework in assessing the long-term impact of learning activities known to stimulate affective domain development, 20–24 months post nurse registration. Ethical approval through the University Research Ethics panel was obtained.

Recruitment strategy and sample

Recruitment was from a target population of 105 nurses from seven countries who had participated in different enrichment activities over a two-month period using social media and email. Enrichment activities are learning opportunities not normally included in a standard program

Table 1
Sample population demographics, impact on attitude, value, behaviour, application to theoretical concept and level of affective domain development.

No.	Gender	Status	Enrichment activity	Country	Post-reg (mths)	Reason for engaging with enrichment activity (pre and post)	Self-reported impact on affective domain (attitude, value, behaviour)	Application to theoretical concept	Affective domain level
1	M	RN[a]	EU Radar (England) International placement	Spain	20	Pre and post: *Personal* (travel, speak better English) *Professional* (go to historical home of nursing and develop CV)	*'It makes you have a more open minded way to treat people and see nursing. To see another culture to even deal with problems that maybe you are not able to see here in Spain. Now I see myself more prepared if someone is coming with different kind of problem, I am able to deal with that and I now teach using the differences I have learnt in nursing care and have brought them back to my nursing'*	1. **Cultural encounter** 2. Immersive activity **3. Based in/on clinical practice** **4. Reflection** **5. Reward or incentive**	Internalisation
2	M	RN	EU Radar (England) International Placement	Spain	20	Pre: *Personal* (travel and speak better English) Post: *Professional* (become a more multicultural nurse with a more open point of view)	*'Not changed my values, but my actions such as my communication skills have improved, I have more empathy with my patients… I have become a multicultural nurse with an open point of view, I understand why illness develops from different cultural behaviours'.*	**1. Cultural encounter** 2. Immersive activity **3. Based in/on clinical practice** **4. Reflection** **5. Reward or incentive**	Internalisation
3	F	RN	EU Radar (England)	Spain	20	Pre and post: *Personal* (travel) *Academic* (get better marks in written English exam) *Professional* (develop nursing skills)	*'I am more open minded … So now I can see like…if I see people from different places, you can…may guess what different…what small things they prefer'.*	**1. Cultural encounter** 2. Immersive activity 3. **Based in/on clinical practice** **4. Reflection** **5. Reward or incentive**	Identification
4	F	RN	EU Radar (England) International Placement	Germany	20	Pre: *Personal* (travel) Professional (develop acute nursing skills) Post: *Personal* (mature and grow in self-confidence) Professional	*"I think that just matures your character and gives you more self-confidence…professionally broadened my perspective on nursing…really changed my perspective on people who abuse substances, because before I was like 'They're all odd', but he was so normal and this could happen to everyone".*	**1. Cultural encounter** **2. Immersive activity** **3. Based in/on clinical practice** **4. Reflection** **5. Reward or incentive**	Internalisation
5	M	RN	EU Radar (England) International Placement	Cyprus	20	Pre: *Personal* (Experience another culture) Professional (experience the NHS and culture of nursing) Post: Personal and professional (to work overseas)	*'I'm thinking what I did right and what I did wrong every time because I'm here to help people get well, not to do any damage. So every time I am thinking about similar situations … or even with my colleagues, what I did, what I can do differently, and my practice really'.*	**1. Cultural encounter** 2. Immersive activity **3. Based in/on clinical practice** **4. Reflection** **5. Reward or incentive**	Internalisation
6	F	RN (Adult)	EU Radar (Germany)	England	24	Pre and post: *Professional* (wanted to work in A&E) *Academic* (Learn more about theory of acute illness management)	*'I can tell when someone needs help and I want to help them because I know what to do and I know how to maintain their dignity in the process'.*	**1. Cultural encounter** 2. Immersive activity **3. Based in/on clinical practice** 4. Reflection	Identification

(*continued on next page*)

Table 1 (*continued*)

No.	Gender	Status	Enrichment activity	Country	Post-reg (mths)	Reason for engaging with enrichment activity (pre and post)	Self-reported impact on affective domain (attitude, value, behaviour)	Application to theoretical concept	Affective domain level
7	F	RN (Adult)	EU Radar (England) IPL[a]	England	24	Pre: *Professional* (learn about other professions/acute illness) *Personal* (Look good on my CV; help me be a better nurse) *Academic* (pass a course) Post: *Professional* (understanding of professional roles and the impact on nurses role and competence in assessing and managing acutely ill patients)	*'I don't think I realised at the time how much they would impact on me as a nurse. I think two years on, the … I mean, sort of the inter-professional working made you understand everyone else's role and where they fitted in … I think it put those values in me as a nurse, and that's what I work to now'. 'I feel that I do pick up on those small subtleties in their condition that maybe I wouldn't have done if I hadn't been on the EU Radar, because it gives you the understanding as to what to look for'.*	**5. Reward or incentive** **1. Cultural encounter** 2. Immersive activity **3. Based in/on clinical practice** **4. Reflection** **5. Reward or incentive**	Internalisation
8	F	RN (Child)	EU Radar (England) IPL	England	24	Pre and post: *Professional* (learn about other professions/ acute illness in children/communicate more effectively) *Personal* (preparation for registered practice, make me more attractive to prospective employees)	*'…the ability to communicate with other professionals and the multidisciplinary team. Knowing that I'm right in what I do. It helped my decision making. My values and attitudes. It changed them for the better. My attitude the way I look on things, it's different'.*	1. Cultural encounter 2. Immersive activity **3. Based in/on clinical practice** 4. Reflection **5. Reward or incentive**	Identification
9	F	RN (MH)[a]	EU Radar (England) International Student Conference	England	24	Pre: *Personal* (to become more culturally and self- aware) Post: *Professional* (develop skills in how to be more creative in how communicate to patients and have a wider nursing experience to share knowledge and skills with others to improve care)	*'I think it didn't change my values it enhanced them. I guess it's really enhanced what I did; it's enhanced my knowledge; it's enhanced my professional abilities. I guess it's made my career a lot more open to direction and maybe me as a practitioner, a lot more competent than I thought I'd ever be'.*	**1. Cultural encounter** 2. Immersive activity **3. Based in/on clinical practice** **4. Reflection** **5. Reward or incentive**	Internalisation
10	M	RN/ Fireman	EU Radar	Finland	20	Pre: *Personal* (interested in learning about other countries, develop my CV) Post: *Professional* (learn knowledge and skills needed every day in my job).	*'Well it is very mind-opening and it gives you a lot of perspective on things to see how all things are done in different countries, so yes, it gives a lot of perspective to people … it has helped me to get along with different people in different jobs that I have had.'*	**1. Cultural encounter** 2. Immersive activity **3. Based in/on clinical practice** 4. Reflection **5. Reward or incentive**	Identification
11	F	RN (MH)	EU Radar (England) International Student Conference	England	24	Pre and post: *Professional* (to develop acute illness management skills) *Academic* (to develop theoretical knowledge). *Personal* (to build confidence in order to lead and manage acute illness situations)	*'Honestly, I always look back and think, and watch, that has helped me in those situations and I have come to use the skills quite a bit. So, I think from doing that, it's made my interest more at work, like into physical health, so I wondered…I have kind of, like I say, I've undertaken the role of Physical Health Lead and challenged practice. I think maybe if I hadn't done the EU Radar, I would have been one to shy away from it. I think.'*	1. Cultural encounter 2. Immersive activity **3. Based in/on clinical practice** **4. Reflection** **5. Reward or incentive**	Internalisation
12	M	RN (MH)	EU Radar (Germany) IPL	England	18	Pre: *Professional* (to develop acute illness management skills) Post: *Professional* (to be able to lead a team to share knowledge and skills with others to improve care)	*'I think it did make me question the total grey areas of mental health nursing and it made me realise the importance of developing general nursing skills such as ABCDE. It didn't change my morals, but made me question nursing.'*	1. Cultural encounter 2. Immersive activity **3. Based in/on clinical practice** **4. Reflection**	Internalisation

(*continued on next page*)

Table 1 (*continued*)

No.	Gender	Status	Enrichment activity	Country	Post-reg (mths)	Reason for engaging with enrichment activity (pre and post)	Self-reported impact on affective domain (attitude, value, behaviour)	Application to theoretical concept	Affective domain level
								5. Reward or incentive	

[a] Key: RN = Registered Nurse; MH = Mental Health; IPL = Inter-Professional learning.

of study that subject students to new topics or areas of study (Renzulli & Reiss, 2008). In a nursing programme this could be activities such as international placements, interprofessional education, simulation and blended learning to name but a few.

Using criteria suggested by Atran, Medin, and Ross (2005) a sample size of between 10 and 15 nurses was considered manageable to 'reliably establish a consensus' (p.753). A small qualitative sample was considered credible to interpret meaningful themes particularly the sample being homogenous; all participants were nurses 12–24 months post qualification and all had participated in enrichment activities (Baum, 2000; Guest, Bunce, & Johnson, 2006). Combined with purposive sampling this provided richness of data (Ezzy, 2002). An inclusion and exclusion criteria were applied: the participants were to be registered nurses, 12–24 months post registration and had participated in enrichment activities such as an international placement, an international acute illness management program (EU RADAR) in England or Germany, an international student conference or an interprofessional education program. Twelve nurses volunteered: five male, seven female, from across five countries: Cyprus, England, Finland, Germany, and Spain (Table 1). The nurses (and a qualified nurse fireman) were 18–24 months' post registration, all had participated in an enrichment learning activity in their final year as a student nurse.

Data collection

Each participant provided written consent prior to, digitally recorded video conference interviews (lasting 30–45 min). This approach was employed to be time efficient, financially resourceful and to observe gestures, facial expressions, posture and tone of voice (Lo Iacona, Symonds, & Brown, 2016). An interview schedule used open ended questions to guide and prompt the discussion to explore the impact of the educational activities on professional and personal values and attitudes. For example, what was the impact on you personally and professionally when you were first introduced to this new cultural encounter (be that a new country, new professional group, way of nursing)? What has been the impact on you personally and professionally from this cultural encounter (be that a new country, new professional group, way of nursing) now you have been qualified 12–24 months? Has it changed you as a nurse, did it change your values and beliefs, and can you provide an example?

Confidentiality of discussions during and after the interview was assured as nurses were encouraged to discuss their experiences; particularly anonymity when writing up quotes, and paraphrasing words from the interview dialogue. Recorded interviews were stored on password protected computer, numbered with a research code then transcribed for analysis. All data were coded and anonymised, with personal details stored separately.

Data analysis

Data were analysed by grading the nurse's responses using Epstein's (1977) three stages compliance, identification and internalisation (Stephens, 2015; Stephens & Ormandy, 2018) and the five variables educational activities should address. Data were organised by demographics, impact on attitude, value, or behaviour, and level of affective domain development coded to each comment (Table 1). Data credibility was increased when coded separately by a second independent researcher, then analytical themes compared, corroborated and consensus on grading Epstein's stages achieved (Thomas & Harden, 2008).

Findings

Epstein's framework was applied to the interview responses of the participants in order to measure modification of affective domain. This allowed for classification of higher levels of affective learning such as identification and internalisation and the impact on the nurse's clinical

practice. There were no significant gender or nationality differences observed in levels of modification of affective domain development graded. For example, 4 males and 4 females reached internalisation and their nationalities were varied.

Interplay across the data was isolated when investigating relationships between different variables which included: the types of enrichment activities; the nurse's reasons for engaging in the activity; the nurses' self-reported change in values, attitudes, or behaviours; and the level of affective domain development achieved (Table 1). This was determined by tabulating the variables and cross referencing them to the level of affective domain development. By connecting the variables, the researchers propose an interpretation of the findings.

Summary of the table data

From the tabulated findings none of the participants were graded to be at Epstein's initial stage of compliance, just simply conforming to a recognised professional attitude. Four nurses following the discussion and exploration of their experiences had reached Epstein's identification stage 2, describing a change in their behaviour/attitude to different individuals or groups because of the intervention. For two nurses from Spain (3) and Finland (10) after experiencing a clinical encounter in a different country (EU Radar) they both reflected that they were *'more open minded'*. It changed their perspectives on different people and their roles, and one English nurse (8) recognised *'it helped my decision making. My values and attitudes. It changed them for the better'*.

Eight nurses demonstrated reaching internalisation stage, embracing new values and attitudes because the transformation of the learning was rewarding and corresponded to their value system. Transformations included increased empathy and an open point of view (2); increased understanding of inter-professional working and different values (7); enhanced knowledge, professional abilities and competence (9); matured character and broader perspective on nursing (4). Exploration of these changes and affective domain development within the rich qualitative data highlighted that progression from identification to internalisation stage, required the nurse's original motivating reward or incentive to include self-awareness development. In addition, there needed to be reflection on the learning from the enrichment activity, undertaken by a skilled facilitator using premise reflection.

Operationalising the framework

This study is unique as it has applied the findings of two previous studies: a meta ethnography and an action research study (Stephens, 2015: Stephens & Ormandy, 2018) to the assess the long-term impact of enrichment activities on affective domain development of the nurses involved. By doing so the study has tested: the robustness of Epstein's Framework as a tool to measure changes in attitudes, values, motivations, beliefs and emotions; and the sequence in which the key elements should be structured in order to design and facilitate learning activities that stimulate and measure affective domain development.

Element 1

Design transformative learning activities that are based upon a new cultural encounter (IPL, International experiences, or both) that is an immersive experience for over two weeks or repeated frequently over six weeks and is either delivered in or simulates clinical practice.

Element 2

Students are to record their initial motivating reason for participating in the learning activity (ies), linking these reasons to an aspect of self-awareness development (to change their attitudes, values, motivation, beliefs, or emotions).

Element 3

During the learning activity (ies) students are provided with regular facilitated reflection sessions with skilled academics/clinicians/practitioners. These are video recorded in order to enable reflection from surface to deeper learning. The reflections would also be structured and aligned to the student's current level of exposure to reflection and current year of study. Novice level: Content reflection assists with the description of beliefs about what is already known by a person, exploring any actions they may have taken, and challenging their current assumptions and bodies of knowledge, validating what they might have done. Advanced beginner level: Process is gathering data that underpins practice which is then measured in benefits and outcomes. Competent level: Premise reflection requires examination and reconceptualising of issues, justifying approaches taken or suggesting alternatives and requires the ability of self-examination in depth. In a systematic review by McLeod, Barr, and Welch (2015) they state that 'reflection must be a social endeavour, in addition to requiring experiential learning opportunities' (p.448) and therefore premise reflection should be a group process, that distinguishes between ordinary chatter and critical reflection. This requires the facilitator to provide a calm, safe and secure space to allow reflection to occur away from demands of practice or theory. The facilitator should be knowledgeable and experienced in both subject and psychological skills in order to develop students professional and personal skills, so they view challenges as opportunities. The facilitator should also be an active listener and be able to paraphrase the student's discussions and challenge their assumptions in a constructive and compassionate way (Lutz, Scheffer, Edelhaeuser, Tauschel, & Neumann, 2013).

Element 4

The degree of affective domain development is measured using Epstein's framework. Stage 1. Compliance - assuming or conforming to a recognised professional attitude or behaviour in order to gain approval or avoid punishment. Stage 2. Identification - assuming a different behaviour and attitude to preserve a rewarding relationship with individuals or groups. Stage 3. Internalisation – embracing of new values and attitudes because the transformation is intrinsically rewarding and is congruent with their value system and not to please others. This could include assessment by the student themselves, their peers, academics, clinicians and service users.

Element 5

Document the measurement of affective domain in the student's personal development record or file with supporting reflection(s) (video/written).

Discussion

There is a call to address the current dearth of literature in affective domain research in particular evidence on reliable measurement instruments (Ritchie, 2003; Rogers et al., 2017; Valiga & Ironside, 2012). Epstein's (1977) framework was applied to the responses of nurses who had engaged in enrichment learning activities during their nurse training measuring the degree of modification in values, attitudes and beliefs longer term. This paper extends existing knowledge exploring the longer-term impact of enrichment activities generating evidence of the utility value of Epstein's framework as a tool for grading and measuring modification in affective domain development. Indeed, these findings highlight that modifications in affective domain can be measured, including the classification of higher levels of affective learning and impact on clinical practice. This level of measurement and classification has not to date been reported.

In comparison to the use of critical incident questionnaires (Hanson, 2011) Epstein's framework offers a reliable tool that accurately measures the impact a learning activity on the affective domain development of students themselves; not an evaluation of how students experience learning and teaching. Unlike the use of authentic assessment rubrics (Wu et al., 2015), Epstein's framework does not restrict a

student's development, as assessment of qualitative feedback allows the respondent to demonstrate where they may have taken the initiative to explore other decisions and not conform only to attributes in a rubric. Epstein's framework also allows educators to collect rich data on the impact of learning experiences on affective domain development in a greater depth than quantitative tools.

Rogers et al. (2018) utilise a scale which corroborates the need for a qualitative measure to be applied to the reflections of respondents to effectively assess affective domain development of students. By grading the changing of values and behaviour only, the adapted scale fails to provide an assessment of a transformation of attitudes, values, motivation, beliefs, and emotions, potentially simplifying affective domain development to different types of conformity (Kelman, 1958). Epstein's framework however, offers educationalists an approach that both grades and characterises affective domain development and also record changes in practice. Rogers et al. (2018) scale has only been used to measure the impact of affective domain development for one profession after a week's simulation learning experience. Whereas Epstein's framework has been used to measure affective domain development across many professional groups and the impact of multiple learning activities. Both studies nonetheless emphasize the importance of repeated learning activities incorporating reflection aid affective domain development. The interplay amongst the types of activities, the reasons for engaging in the activity and self-reported change in values, attitudes, or behaviours, and the level of affective domain development can only be identified when Epstein's framework is applied. By conducting reflective interviews, grading and characterising affective domain development the study exposes advancement from the identification to internalisation level, when the nurse's initial motivating reward or incentive contained self-awareness development and the practice of premise reflection was with a skilled facilitator. Transformative learning signifies the process when students '*frames of reference'* are transformed to enable them '*to make them more open, emotionally capable of change and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide action'* (Mezirow and Associates, 2000, p.7–8). Epstein's framework can measure this transformative change enabling the distinction and movement from compliance to identification to internalisation and the embracing of new values as part of a belief system (Epstein, 1977). Where this was exposed nurses were asked to provide examples of changes in themselves both personally and professionally. Epstein's framework helped to assess whether the nurse's responses were conforming to the interviewers questioning or embracing new attitudes, values and belief system. Unlike the adapted Krathwohl et al. (1964) scale (Rogers et al., 2018), Epstein's framework levels link directly to the three core components of premise reflection (content, process and premise) (Kreber & Cranton, 2000). Content reflection assists with the description of beliefs about what is already known by a person, exploring any actions they may have taken, and challenging their current assumptions and bodies of knowledge, validating what they might have done (compliance stage). Process is gathering data that underpins practice which is then measured in benefits and outcomes (identification stage). However, participating in premise reflection requires examination and reconceptualising of issues, justifying approaches taken or suggesting alternatives and requires the ability of self-examination in depth (internalisation stage). This provides new insights into operationalising Epstein's framework as a tool to measure affective domain development in nurse education. Facilitation of premise reflection requires.

Limitations

The study findings are limited as the sample was targeted, small, self-selecting and self-reporting. The participants may be more likely to be aware of the potential benefits of enrichment activities on their values, attitudes, and behaviours. Enrichment activities are currently added value pursuits that a small number of students chose to engage with and therefore facilitation on a large scale with significant student numbers could be considered a challenge.

Conclusion

The study directly responds to the calls for more robust tools to measure modification of the affective domain (Brown, 2011; Rogers et al., 2017; Taylor, 2014; Valiga & Ironside, 2012). The application of Epstein's framework (1977) corroborates and builds on current evidence, providing an approach that enables the measurement of affective domain development and addresses the need to classify higher levels of affective learning and more importantly the impact this has on clinical practice. The findings emphasize that to achieve internalisation of new attitudes, values, motivation, beliefs, and emotions congruent an educational activity must include self-awareness development drawing on the motivating factor for the student using premise reflection. Future research could compare the use of Epstein's framework with Rogers et al. (2018) scale within a longitudinal approach, with a larger cohort; measuring affective domain development from the start of a nursing programme with follow up twelve months post registration.

Epstein's tool is not exclusive to nurses but could easily be adapted to other professions. As Epstein's framework was developed using the English language it would be interesting to explore the value of the tool across other languages.

Recommendations for nursing education

In order to create students who are fit for purpose on registration attention to the affective domain is required. As nurse educators we have a duty to create learning activities and measurement tools that not only stimulate and assess the cognitive and psychomotor domain but the affective domain too. In order to do this programme design requires a change. By utilising Epstein's framework and key elements from the findings of this study, educationalists can begin to address values, attitudes, beliefs, emotions and behaviours of student nurses by including activities that move from compliance to internalisation. Within the researchers own school, emphasis on the affective domain and the use of enrichment activities have been incorporated into the nursing curricula, are facilitated by personal teachers, international and interprofessional leads and are to be assessed each year of study.

Acknowledgements

This study was conducted from funding from a Vice Chancellor Early Career Research Scholarship.

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