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Philosophy & quality? TAPUPASM as an approach to rigour in critical realist research

Abstract

Aims

This article discusses an approach to ensuring scientific rigour in post-positivist critical realist research using an enhanced model of TAPUPAS: transferability, accessibility, propriety, utility, purposivity, accuracy and specificity, with the additional criterion, modified objectivity (TAPUPASM).

Background

Philosophical principles should guide the manner in which research is designed, conducted and appraised. Therefore, the more traditional and commonly employed approaches to positivist (validity and generalisability) or interpretivist (trustworthiness) research do not necessarily complement the philosophical principles of post-positivist critical realism.

Methods

This is a methodological discussion paper illustrating the strategies for rigorous research using TAPUPASM in a critical realist ethnographic study in nurse education.

Results

This paper presents examples of strategies to ensure TAPUPASM in the planning, design, conduct and dissemination of a realist research study. These include choices about data collection and analysis and also, the role of a dissemination strategy outside of traditional academic methods.

Conclusion

This article proposes an enhanced version of the quality criteria framework TAPUPAS(M) for the design of critical realist research. It provides a practical example of how TAPUPASM was used to ensure rigour in a critical realist ethnographic study in pre-registration nurse education.

For nurse researchers, this article provides a framework for quality in post-positivist critical realist research. It provides examples of the strategies that can be employed for nurse researchers planning, designing, conducting and disseminating critical realist research.

Keywords:

Ethnography; quality; rigour; trustworthiness; validity; philosophy; realism

Introduction

Measures of quality (*validity, trustworthiness* or *rigour*) are essential in the planning and conduct of nursing research and, should be guided by the philosophical perspectives adopted by the researcher (Collier, 1994). There are four commonly referenced philosophical approaches to nursing and educational research: positivism, interpretivism (often referred to within post-modernism), critical and post-positivism (not to be confused with post-modernism) (Howell, 2013; Buchanan & Bryman, 2011; Lincoln *et al*, 2011; Phillips & Burbules, 2000).

This methodological discussion focuses on the basis for design, conduct, dissemination and appraisal of a post-positivist critical realist (PP-CR) ethnographic study (CRE) (Bhaskar, 1998). The [non-traditional] quality framework employed is known as TAPUPAS: transferability, accessibility, propriety, utility, purposivity, accuracy and specificity. The philosophical principles of PP-CR are outlined in box 1. Based on these principles, this research also employed the criterion of *Modified objectivity*; transforming TAPUPAS to TAPUPASM.

BOX 1 - THE ASSUMPTIONS OF PP-CR SUMMARISED FOR THE PURPOSE OF THIS DISCUSSION (ADAPTED FROM BUCHANAN & BRYMAN, 2011 AND PHILLIPS & BURBULES, 2000)

- 1) Reality can never be completely known, and there is one reality that may be seen differently depending on where you are situated. What we observe, feel, measure and analyse are simply representations of what this 'reality' is.
- 2) This 'one reality' may be viewed and interpreted by different people in different ways but the 'reality' they are experiencing is *one* single reality being seen from different 'angles' or 'perspectives' (a concept of *modified objectivity*)
- 3) Social systems are 'open', 'complex' and may continuously change. They can never be completely controlled and hence, can never be free from what positivists believe to be 'bias' (a concept of *modified objectivity*).
- 4) What we currently 'know' to be true is fallible. That is, knowledge evolves and progresses with time and what we believe to be fact now may be proven wrong or advanced upon in the future. (*N.B. this reflects many professional standards of evidence based practice in that nurses should use the 'best evidence available' at a given time*).

- 5) Conversely, what might be shown as fact in one circumstance may not transpire in another (e.g. we can use the best evidence we have, evidence that has been shown to be 'fact' to help a patient but this will never work consistently for every single patient in every circumstance). There are underlying mechanisms in 'reality' that we cannot ever control or see.
- 6) Knowledge should be generated from a range of sources and through a range of methods and we should aim to 'explain' (using theoretical frameworks, previous knowledge, research and primary data collection) what the 'most likely reality' is based on the 'best available evidence' we have at the given time and in the current circumstance.
- 7) Knowledge should be fit for purpose (i.e. it should be accessible, applicable, usable and relevant to the context for which it is intended).

'Traditional' measures of quality

Validity, trustworthiness and rigour can be appraised in a variety of ways. What is acceptable to one field may not be to another and, the approach taken is typically based on philosophical perspectives and methodological views (e.g. due to the nature of qualitative research it is not necessarily judged on the basis of validity and generalisability) (Bryman, 2008; Porter, 2007; Hammersley, 1992).

Many approaches to appraisal of validity or 'rigour' have typically been developed as part of either positivism or interpretivism, meaning that they [quite rightly] place value on the principles of these philosophies. For example, quantitative (often positivist, empirical) research is designed and appraised on the basis of *validity*, it values criteria such as minimising *bias* or *repeatability*; that is, making effort to reduce any variation in measurements and observations by a single person, machine and/or equipment. This may be done by calibration and use of equipment of the same manufacturer and model.

In contrast, qualitative (often seen in interpretivist research but that may be employed in critical or post-positivist) values *rigour* or *trustworthiness* to acknowledge the influence of participant, researcher perceptions and values in the research process. However, due to different philosophical perspectives and methodological choices in qualitative research, such as phenomenology, grounded

theory, ethnography, even researchers have differing perspectives as to what ‘criteria’ should be employed (Polit & Beck, 2014; Porter, 2007; Hammersley, 1992). Mixed-methods approaches (commonly valued in post-positivist research) (Buchanan & Bryman, 2011) add further complexity to decisions about rigour. For example, what might be deemed as *credible* in interpretivist grounded theory research may well differ in ethnographic approaches (Hammersley, 1992).

Bryman (2008) and Lincoln & Guba (1985) suggest two approaches to the measure of ‘quality’ typically used in positivist or interpretivist research (table 1, columns one and two: validity and trustworthiness respectively).

TABLE 1 COMPARISON OF TAPUPAS WITH POSITIVIST AND POST-MODERN ‘TYPICAL’ INDICATORS OF QUALITY (ADAPTED FROM BRYMAN, 2008; LINCOLN & GUBA, 1985; PAWSON ET AL, 2003)

	POSITIVIST	INTERPRETIVIST	POST-POSITIVIST ‘REALISM’
QUALITY CRITERIA	Reliability Are the results of the study repeatable and replicable?	Dependability Can the results be replicated and be relevant in other times/places?	Transparency Is the process of generating knowledge explicit and clear? Accessibility Does it meet the needs of those seeking the knowledge?
	Internal validity Construct validity Can the conclusions and relationships [causal factors] be trusted? Do measures do what they say they will do?	Credibility How believable are the findings?	Accuracy Are the claims made based on relevant information? Purposivity Do the methods achieve what they claim to achieve? Are they appropriate to achieve the aims and objectives? Propriety Is the research legal and ethical?
	External validity Ecological validity Can the findings be generalized more widely, to a community or population? Can the findings be applied to natural social settings?	Transferability Can these findings be applied in other contexts?	Specificity Does the research generated consider and apply to source specific standards? Utility Is the research appropriate to the decision-making setting? Does it provide answers to the practical questions?

Objectivity

Consideration of bias

Confirmability

To what level has the researcher allowed their own values to influence the process?

Modified Objectivity

Does the research review a range of evidence and draw the most likely conclusions based on this?

TAPUPAS refers to the criteria, *transparency, accuracy/authenticity, purposivity, utility, propriety, accessibility and specificity* (Pawson *et al*, 2003) (table 1, column 3). TAPUPAS has been employed to conduct and appraise research in the field of education, social work and social policy for some time (Porter, 2007; Gough, 2007; Long *et al*, 2006; Pawson *et al*, 2003). Several authors have been advocates of realism and TAPUPAS for appraisal of research and service improvement in nursing (Nairn, 2011; Angus & Clark, 2011; Speziale *et al*, 2011; Clark *et al*, 2008; McEvoy, 2003; Porter, 2003, 2007; Wainwright, 1997). However, realist research in the field of nursing does not yet reflect TAPUPAS as a favoured approach to rigour (e.g. Kontos *et al*, 2011; Sword *et al*, 2011; Bergin *et al*, 2008; Clark *et al*, 2007).

Method of application

To illustrate the strategies that might be used to consider TAPUPASM in the design and conduct of nursing research, an example of a post-positivist critical realist ethnography will be discussed. A summary of the critical realist ethnographic (CRE) study can be seen in table 2; the research question was ‘*What is the relationship(s) between the pre-registration student nurse, Facebook and professional accountability during the journey of professional socialisation?*’

TABLE 2 – ABSTRACT OUTLINING THE BASIS AND OUTCOMES OF THE EXEMPLAR STUDY

Background	The rapid diffusion of social network sites such as Facebook have presented a wealth of challenge and opportunity for the nursing profession. A large majority of student nurses have adopted Facebook but [as developing professionals] may not understand the implications and unintended consequences of the information shared in a personal or innocent way.
Aim	Explain the context and relationships between professional accountability and Facebook for the pre-registration student nurse during their journey of professional socialisation.
Methods	Critical realist ethnography employing online observation of three cohort groups, 30 public profiles and professional group discussion topics, focus groups (academic and practicing nursing staff n=8) and semi-structured interviews with student nurses over two geographical sites (n=16).

Results	<p>Critical realist retroductive analysis (Bhaskar, 1998) was developed as part of this study. Three relationships were identified and six models were generated to explain and test proposed mechanisms [within the data], which cause these relationships: 1) the concept of professional accountability 2) patterns of use 3) behaviours and activities 4) physical versus online reality 5) unacceptable, acceptable, professional or unprofessional behaviours 6) perceived knowledge and awareness versus actual behaviours.</p> <p>Three theories were then confirmed and used to develop three explanatory critical realist frameworks: I) Socialisation, Professional Socialisation, Online Socialisation (SPO) II) Unacceptable, Acceptable, Unprofessional, Professional (UAPU) and III) Awareness into Action (A2A).</p>
Conclusion	<p>I) SPO: This study has indicated a potential 'tertiary' or 'online' socialisation process and illustrates the factors, context and socialisation informs accountable behaviours; linking the physical and online (personal, public, professional).</p> <p>II, III) UAPU, A2A: The lack of physical context and presence in the online environment causes dissonance between perceived and actual behaviours and confidence versus competence in the online environment.</p> <p>A2A is an assessment of self-efficacy, risk and decision-making tool to proactively [for nursing students] and reactively [for educators, employers and professional groups] manage self-awareness and behaviours in the online environment. The relationships between the accountability, Facebook and the pre-registration student nurse are individual, complex and evolving.</p>

Transparency

Transparency considers how the researcher came to the research question aims, objectives and methods (Pawson *et al*, 2003). It also requires the researcher to be explicit about their philosophical approach and values. The researcher should consider their own assumptions and background (in this case, views about professional accountability). For example, why was more knowledge needed and why realist ethnography? How would this impact and improve practice? They should also be able to justify why the topic is of importance to the professional field; in this case, nursing and nurse education.

In the exemplar study, transparency was achieved by 1) including a personal reflection about experiences and assumptions of the topic, 2) conducting a review of the current research literature and identifying gaps in knowledge and, 3) examining and scoping the proposed 'problem' through review of current evidence. This included a scoping review of Nursing and Midwifery Council (NMC) competency hearings linked to OSNs (Ryan, 2015), academic (peer) reflections and discussion, personal observations in the online environment and media coverage of relevant themes.

Philosophy and quality?

There was also a review of available methods of sampling, data collection and analysis, including justification as to why one was rejected in favour of another. In addition, the research protocol was written to be explicit and clear enough for others to be able to 'repeat' the study in their locale (e.g. interview, focus group and observation schedules, analysis method). To achieve this, it was peer reviewed by colleagues for the purpose of external critique and debate about methodological decisions and choices.

An additional exercise included explaining the method, design and philosophy to a group of post-graduate students; this provided a different approach to questioning and response. For example, this began a discussion with two colleagues and a group of students about the methodological choices in realism versus those in interpretivism. This was of particular interest, as most of the group had not even heard of or considered realism. As a result, the rejection of interpretivism written in the protocol was simplified and illustrations were included to make the explanation of CR principles clearer [more accessible] to nurses from different fields and backgrounds.

Accessibility

In TAPUPAS, *accessibility* predominantly involves dissemination and implementation of findings while *utility* [addressed below] refers to the relevance and fitness for purpose of the study findings. Porter (2007) suggests that *accessibility* requires the researcher to consider how, when, where and to who the research findings may be accessed. In Porter's (1993) CRE on the topic of racism and professionalism in a medical setting, he drew conclusions about structural racism in professional healthcare environments and, this study added a different perspective to the social structures that exist in healthcare. However, for frontline nurses, managers and even patients, the knowledge [arguably] has little to no impact; the publication 1) was not in an *accessible* or *usable* format and, 2) did not meet the needs of all key stakeholders/knowledge users.

Accessibility requires the researcher to consider 'who' the research is for, what purpose it aims to meet and, whether the people in this context will be able to *apply* the findings in their practice. If the outcomes are descriptive then how useful is this for making changes, improvements or decisions in practice? If the results of research conclude that 'more research is needed' but does not then 'add' to the field then how *useful* are they? If the knowledge is published only in [paid] 'high impact' academic journals, how does this benefit and/or include the end user [patients and the public]?

Philosophy and quality?

How is this *accessible*? Conversely, if frontline staff, patients and the public are not *engaged* in the research planning and process, researchers should ask *how* this is *accessible* and *usable*?

Data collection, analysis and eventual findings are of no use and *inaccessible* if they are not disseminated and, if they do not have impact (National Institute for Health and Care Excellence, 2017; Royal College of Nursing, 2017; Higher Education Funding Council England, 2016). In the exemplar study, a dissemination strategy was developed during the research planning stage using a similar process to that described in Reed (2016). Alongside an ‘interest-power’ stakeholder analysis (World Health Organisation, WHO, 2014; Reed, 2016), a review of evidence relating to methods of dissemination was conducted and, the strategy indicated how each group of stakeholders would be targeted during the process of dissemination; academics, practice based nurses, policy makers and organisations (professional and education), student nurses and personal networks (Kite *et al*, 2016; Reed, 2016; Research Excellence Framework, 2016; Morton, 2015; Agency for Healthcare Research and Quality, 2014; World Health Organisation, 2014; Finch Group, 2012). Methods of dissemination included traditional academic routes such as conference presentations and journal publication combined with non-traditional routes, such as through the researcher’s professional social media networks and employers Twitter page. An animated ‘presentation’ video was also prepared to share via YouTube and, via a weblink that may be embedded in the researcher’s workplace WordPress blog and social networks (Bayliss, 2017; Timmins, 2015; Archibald & Clark, 2014; Agency for Healthcare Research and Quality, 2014; WHO, 2014; Tabak *et al*, 2012).

Purposivity

Purposivity refers to the approaches to inquiry and whether they achieve the aims and objectives of the research (i.e. are the methods fit for purpose?) Table 3 provides examples of the strategies employed in the exemplar study.

Philosophy and quality?

Table 3 - examples of how purposivity can be met

Study objective	Purposivity met by
Employ a model of professional socialisation to critically analyse the perceptions, behaviours and actions of those who influence the pre-registration student nurse as a developing professional [in the context of Facebook]	By employing observation, semi-structured interview and focus groups (RNs & Academics) this considered the perceptions, observed behaviours and actions of the influencers outlined in the model of professional socialisation (the stakeholders).
Critically explore pre-registration student nurse understanding of the concept of professional accountability in the context of Facebook	Semi-structured interviews enabled participants to consider their knowledge of professional accountability and the concept of this in the online environment. Field notes and researcher reflective journals identified critical reflections and possible emerging themes in during the process of inquiry. Although many of these were not subsequently and explicitly be reported in the final results (Barron, 2013) they guided subsequent interviews to enable an ongoing 'critique' of perceptions and experiences. A final 'reflection' and revisit of underlying assumptions identified at the start of the study is included in the conclusion of the research.
Critically analyse the pre-registration nursing student's behaviours and publicly accessible information on Facebook in the context of professional accountability	
Critically analyse and explain underlying causal mechanisms which impact the relationship(s) between Facebook, professional socialization and the behaviours and actions of the pre-registration student nurse on Facebook	The process of analysis was designed to be complementary to Bhaskar (1998) and Danermark et al (1997) and therefore reflects the principles of CR but with sufficient detail to indicate that it is fit for purpose. Results present an example of how each stage was 'practically' applied so that this may be repeated by other researchers choosing to employ CRE.

In combination with the strategies to address the other TAPUPASM criteria, those in table 3 ensured that the overarching aim and objectives of the study were 1) philosophically informed and 2) the chosen methods and design allowed the research to successfully achieve these.

Utility

Accessibility [discussed above] and *Utility* are often met through similar activities. *Utility* was considered as part of the projects inception, justification and planning phase. The use of theoretical model of professional socialisation from Weidman *et al* (2001) outlined some of the key stakeholders and influencers on the pre-registration student nurse during their journey of professional socialisation and, was used as the underpinning framework for this study. This enabled each stakeholder group to be considered and (where relevant), engaged in the study design and data collection process (figure 1). As part of the literature review component, a scoping survey that evaluated pre-registration student nurse views was conducted along with informal conversations with registered nurses (academic staff); these confirmed the direction of the study.

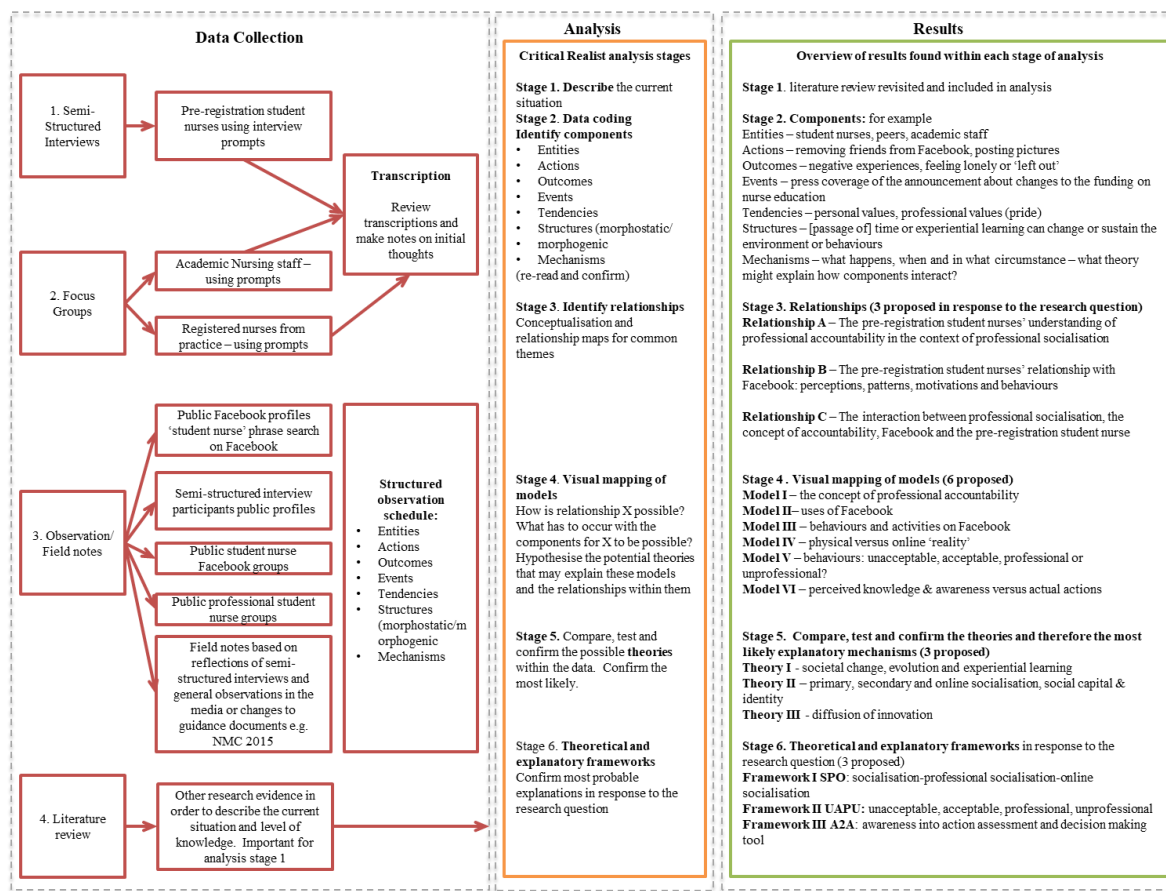
Porter (2007) states that *utility* refers to whether knowledge generated is of use to the 'practitioner' or 'fit for use' and that the results respond explicitly to the research question. In order for this CRE to be 'fit for purpose' the findings needed to be *usable* in nursing education. Hence, methods of

data collection, analysis and development of the findings needed to present *knowledge* that could assist academics, student nurses, nurses, organisations and institutions:

- a) When making decisions about what to post, share and how to use Online Social Networks (OSNs) professionally
- b) To assess their levels of awareness of online behaviours compared to their actual 'activity' and identify methods by which to reduce the risk of unprofessional behaviour
- c) To assess, make informed and consistent decisions about whether an action in OSNs is unprofessional (requiring further action) or unacceptable (possibly requiring a warning or increased 'awareness')

In the study outlined in table 2, the proposed method of analysis aimed to facilitate the development of 'practical' frameworks that could be used in nursing and nurse education (figure 1). Instead of presenting 'themes' that describe what the relationships were (theoretical evidence), this process facilitated a final 6th step which, informed the development of a framework that stakeholders can *actually use* within practice. For example, the Awareness to Action (A2A) framework (figure 1, results stage 6, framework III) is a decision-making tool to facilitate consistent and evidence-based approach to reported incidents in social media; it takes the theoretical components of this study and makes them 'usable'.

Figure 1 - an overview of the approach to data collection, analysis and results in the exemplar study



Propriety

Propriety requires research to be ethical and legal. Approaches and ethical principles in internet mediated research is widely debated and thus, relevant legal and ethical guidelines [available at the time] were consulted as part of the planning, design and ethical approvals processes (Facebook privacy policy; British Psychological Society, 2013; Angrosino & Rosenberg, 2011; Gatson, 2011; Bryman, 2008). Primary issues related to 'publicly' accessible information and the extent of information that can be 'recorded' for the purpose of online observation in OSNs.

An ethical application was submitted to the researchers employing organisation and approved. In addition to internet-based research, common ethical considerations were addressed. These included data protection, confidentiality, informed consent (Economic and Social Research Council, 2016; RCN, 2011). However, an additional professional and organisational perspective was considered based on the combination of publicly accessible, internet based, professional and 'personal' aspects of the research. Primarily this related to 'fitness to practice' (NMC, 2015) and as a result, the researcher developed a standard operating procedure (SOP) for managing unprofessional

Philosophy and quality?

practice that might be specifically observed as part of the research process. This was presented in the form of a decision-making flow chart, informed by organisational and professional policy, guidance and standards. It explicitly and simply outlined the procedure for responding to malpractice for each of the groups involved in the research.

Accuracy

Porter (2007: 85) asks,

“are the claims made based on relevant and appropriate information?”

Pawson *et al* (2003) provide further detail for considering *accuracy*. Claims to knowledge should be representative of the participant’s perceptions and experiences and, the process of inquiry should use sources appropriate and relevant to the context under investigation.

In CRE, participant’s perceptions and experiences are valued. However, in contrast to traditional more interpretivist approaches to ethnography where these are used to understand the social actors/context, CRE uses these as a method to be used to help explain what a singular reality might be. Hence, the researcher retains the role of expert and ‘critical reviewer’ of what the reality is likely to be based on being privy to a range of evidence sources that the participants are not; it is assumed that the participants do not know what they don’t know (Danermark *et al*, 1997). Thus, while similar methods for ensuring *credibility* (in interpretivist ethnographic study) were used to confirm *accuracy*; verbatim quotations of participants to demonstrate member views and member checks of proposed findings (Fine *et al*, 2009), there was a different, philosophically driven purpose for these.

Member checks involved informal discussions with academics and clinically based nurses assisted by diagrams of the three frameworks developed. This sought to confirm that the understanding of participants and *knowledge users*. Additionally, conference presentation sought to obtain feedback from the clinical and academic community about how ‘representative’ the frameworks were in the context of nursing and nurse education.

Accuracy was also ensured through the use of *covert observation* of online behaviours in combination with other data sources and, the eventual *triangulation* of these in the analysis process

(figure 1, data collection and analysis) (Bryman, 2008; Webb *et al*, 1966). Furthermore, the observation findings helped to 'evolve' the semi-structured interview and focus group schedules to assist the researcher to confirm ideas, reflections and thoughts emerging in response to the research question (Bryman, 2008).

Specificity

This refers to whether the knowledge generated as a result of the study meets *source specific standards* (Porter, 2007). In this case, sources were identified as 'those involved in the professional socialisation process' (Weidman *et al*, 2001); the university, academic staff, peers and placement-based staff, along with professional guidance documents.

As part of the original literature review and justification of the project, a literature search and content analysis (Ryan, 2016) was conducted to assess the current advice and guidance given to nurses when using social media. In addition, a scoping search of professional conduct hearings identified commonly reported incidents with nurses when using social media. As per the data collection and triangulation process outlined in figure 1, not only did these processes inform the justification and design of the study (semi-structured interview, focus group and observation schedules), the data from this first step were also included in the data analysis and dissemination strategy and thus, informed the findings of the study.

Modified Objectivity

Box 1 of this paper has provided a brief summary of the philosophical assumptions and principles of PP-CR research, the introduction also argues that quality frameworks should reflect these philosophical assumptions. *Modified objectivity* is a principle adopted by PP-CR researchers based on the assumption that there are three layers to the world: **real, actual and empirical**. It firstly asserts that there is **one reality**. Secondly, this reality may exist outside of 'our' knowledge of it and, we may never completely observe it; social actors may feel and experience the impact of it (**actual**). Third, social actors and/or researchers may measure and observe the effects of it (**empirical**). It is a combination of the **empirical** and the **actual** that may explain the **most likely reality**.

As a result, PP-CR assumes that, in such complex social systems the researcher can never be completely removed from their own assumptions and perspective, but these are part of the

experience of reality and, should be acknowledged and considered. In fact, it acknowledges that these experiences and assumptions are likely to have led the researcher towards the research question in the first place. It also assumes that complex social systems cannot be completely controlled or measured. Hence, the positivists 'objectivity' can never be achieved (table 1). Conversely, it rejects interpretivist assumption of 'subjectivity'; that each social actor creates their own reality (i.e. there are *many different realities* depending on your position and experience of the world) is also rejected.

As the TAPUPAS criteria were developed through a more 'practical' rather than a philosophical or academic research perspective (Pawson *et al*, 2003), it did not provide a comparator for the positivist 'objectivity' and interpretivist 'confirmability' (subjectivity) (table 1). As these criteria reflect the epistemological assumptions of these philosophical approaches, *modified objectivity* was added to reflect that of PP-CR.

Hence, CR research should consider and demonstrate that it has considered what knowledge sources are available, what the current evidence base is and how the combination of such evidence can, 1) inform the aims, objectives and design of research, 2) demonstrate any underlying *assumptions* of the researcher and, 3) triangulate available knowledge and evidence in order to progress the knowledge in the field. As such the data collection sources, methods and triangulation of these (figure 1) sought to address point 3. Underlying assumptions (point 2) were addressed through a reflective component in the background and justification of the project. This included a frank discussion about the researcher's current perspectives on the topic of Facebook and professional accountability, but also the journey that led to the inception of the research question. While the researcher set out with a 'research question' in mind, along with overarching aims and objectives, the process of scoping and reviewing current research evidence enabled the refinement of these before the final design was confirmed (point 1). Conversely, critical reflection relating to study limitations (to acknowledge the *fallibility* of knowledge, box 1) and the research journey; including any learning or changes to researcher assumptions, were included in conclusions. This discussed issues and researcher perspective on the concepts of bias, objectivity and subjectivity (for example).

Furthermore, by collecting data via several methods: literature review, observation, semi-structured interview and focus groups, and from a range of sources/stakeholders identified in the model or professional socialisation (Weidman *et al*, 2001) there was sufficient scope and quantity of data to consider a range of perspectives of 'reality' to explain what 'reality' most likely is; *modified objectivity* (Buchanan & Bryman, 2011; Ackroyd, 2009; Danermark *et al*, 2001). Finally, to acknowledge the *fallibilism* of knowledge, further areas of research and an 'action plan' to evaluate and build on findings was also included as part of the conclusion and recommendations.

Conclusion and implications for nursing research

Quality criteria need to inform the planning, design, conduct, dissemination and 'application' of research findings. More traditional models of quality, validity and trustworthiness tend to reflect the philosophical assumptions of positivism and interpretivism and thus, there is opportunity to use TAPUPAS for PP-CR research. TAPUPAS however, lacks philosophical steer and as such the criterion *modified objectivity* has been used to enhance this framework: TAPUPASM.

In order to demonstrate how nurses might employ TAPUPASM in the planning, design, conduct and dissemination of PP-CR research a practical example of a critical realist ethnography relating to pre-registration nurse education, professionalism and the use of Online Social Networks was used. This may also be informative for nurses who wish to 'appraise' such research.

The primary implications for nursing research practice are summarised in box 2.

BOX 2 - SUMMARY AND IMPLICATIONS FOR NURSING RESEARCH

- I. The principles of post-positivist critical realism can be employed in nursing research and, the exemplar in this discussion has provided an overview of how this might be achieved
- II. An example of critical realist ethnography investigating pre-registration student nurse's relationship with Online Social Networks and professional socialisation has been used to demonstrate how TAPUPASM can be used to rigorously plan, conduct and facilitate *application* of research findings
- III. Nurse researchers should be explicit about philosophical assumptions and what this may mean for decisions about 'quality'. In post-positivist realist research, TAPUPASM is a useful model for conduct of research, but may also have a place in the appraisal of research in nursing practice.

- IV. Evidence based practice is an essential part of nursing practice. Hence, nursing research should be *applicable, fit for purpose* and demonstrate *utility* at all levels of nursing care.
- V. Nursing research should consider what 'knowledge' constitutes 'evidence' when planning, designing, conducting and disseminating research. This includes policy makers, patients, frontline staff and organisations. This emphasises the importance of a stakeholder analysis and use of non-traditional methods in any dissemination strategy, from concept to completion (Reed, 2016)

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Philosophy and quality?

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