

Abstract

Background: There are few realist ethnographic studies in nursing and the majority employ traditional approaches to analysis; reflecting the principles of interpretivist or positivist research paradigms.

Aim: Present the development and application of a novel approach to realist ethnographic analysis to a research project that sought to explain how student nurses become socialised into online social networks.

Method: Realist ethnography sought to explain the relationship between online social networks and professional socialisation.

Results: The findings show how this novel approach to analysis led to the proposition of a new and original concept of 'online socialisation'.

Conclusion: This article informs nurse and healthcare researchers how to apply an analysis approach to realist ethnographic study based on the principles of Bhaskarian philosophy.

Realist analysis for realist research: development & application of a novel method of analysis for critical realist ethnographic study

There is recognition that realist approaches to research can have real benefit to nursing (Williams *et al*, 2017; Schiller, 2016) but there have been few published critical realist ethnographic studies and almost all employ traditional or conventional methods of analysis (Porter & Ryan, 1996; Porter, 1993). While such approaches of analysis seem to be justifiable, they rest upon traditional ethnographic methods embedded in the historical context of ethnography and more appropriately reflect the principles of interpretivist or anthropological research, not that of critical realism (Ryan & Ruddy, 2018; Ryan, 2018; Ryan, 2017).

The rapid diffusion of Online Social Networks and social media into daily lives has presented a range of challenges and opportunities for individuals, society and [nursing] professionals. For example, personal-professional boundaries, privacy and security and questions about what is or is not professional use (O'Sullivan *et al*, 2017; Nason *et al*, 2016; Nyangeni *et al*, 2015; Levati, 2014). This article presents a novel method of ethnographic analysis, informed by the principles and values of Bhaskar's critical realism (Bhaskar, 2008). It was developed

and applied to a 48-month research study, focused on explaining the socialisation and professional socialisation of student nurses and nurses in the age of Online Social Networks (OSN) and social media platforms, such as Facebook. It shows how this novel approach to analysis enabled the development of a new and original concept; online socialisation.

Bhaskar's realist principles

As described in Ryan & Ruddy (2018) there are several core principles to Bhaskar's realism.

- i) ***The transitive and intransitive knowledge:*** intransitive knowledge exists regardless of the presence of human interaction (e.g. gravity). Transitive knowledge refers to knowledge generated because of human or social interaction, where there is human factor.
- ii) ***Reality is stratified:*** there are three domains of the world, *empirical*, *actual* and *real*. It is possible to measure and observe what happens in the *empirical* and *actual* domains to explain the most likely *reality*. It is never possible to completely explain *reality*.
- iii) ***Objects, events, structure, mechanisms, causal powers and tendencies:*** There are components of reality (within the *actual* and *empirical* domains) that interact to represent '*reality*'. Mechanisms and causal powers exist in *reality*. It is not possible to observe these, merely explain them from what is observed and experienced in the *empirical* and *actual* domains.
- iv) ***The truth is fallible:*** It is only ever possible to explain the 'most likely' *reality* at a given time, circumstances might change, or new knowledge may present new explanations.
- v) ***Modified objectivity:*** There is one reality and each person within this might have their own perspective of it. It is not possible to remove all bias from or, remove external influence from society and social situations.
- vi) ***Open and closed systems:*** Society and social situations are open systems that cannot be 'controlled'.

Realist ethnography in nursing research

Ethnography is traditionally the observation and description of cultures within groups. Hence, the term culture is important but often misunderstood. Maxwell (2012) argues that the concept of culture, despite being of primary focus in ethnography, is difficult to define.

However, most disciplines acknowledge that culture is shared belief or values held by members of a community or social group. Maxwell (2012: 26 emboldened text not in original quotation) defines culture as,

*“a domain of phenomena that are **real**, rather than abstractions; both symbolic-meaningful (i.e. part of the mental rather than physical perspective) and collective (that is, a property of groups rather than of single individuals); that **cannot be reduced to individual behavior or thought** or subsumed in **social structure**; and that is **causally interrelated** with both behavior and social structure.”*

It is in this way that culture is interdependent to ‘**social structure**’, an interaction between the mind and social experiences. Thus, culture is inherently related to the concept of socialisation, whether primary or secondary (including professional). It is not always consciously produced but the influence of such a *structure* might be observed in the common behaviours within and across groups; it is not just about what is happening but *why* it is happening. The term *causally interrelated* complements the concept of *causal mechanisms* and *structures* in Bhaskar’s critical realism (1989). The reference to *real*, rather than *abstract* also concurs with Bhaskar’s (1989) three domains of reality: *empirical*, that which can be observed and measured; *actual*, the events that occur because of causal factors; and *real*, where underlying causal mechanisms exist these create the phenomena explored and observed in the *actual* and *empirical* domains. Therefore, realist principles are complementary to ethnographic study.

Consequently, realist ethnography starts in the same place to that of more traditional methods, with the perceptions and experiences of individuals, but goes further, using retroductive analysis and theory testing through an iterative process. It seeks to *explain* the conditions that exist in order for the behaviour and attitudes to occur in similar and different circumstances.

There have been few critical realist ethnographic studies in nursing and, in light of this, the study described in this article drew from the more diverse knowledge from organisational, business and management research (Reed, 2009; Rees & Gatenby, 2014; Elder-Vass, 2010). Informed by Bhaskar’s (1989) realist philosophy, Rees & Gatenby (2014) and Elder-Vass (2010) present the components involved in the ‘holy grail’ of critical realist ethnography;

events, outcomes, relationships, tendencies/emergent properties, morphogenic/morphostatic structures and causal powers/mechanisms. Taking these components, the inquiry must identify the *events* and *outcomes* that constitute the phenomena under inquiry, parts of each of these and the *relationships* between them, *emergent properties/tendencies*, *causal powers*, the *mechanisms* by which these present themselves, *morphogenetic* structures that bring about *events* and *outcomes*, *morphostatic* structures that sustain *events* and *outcomes*, the ways in which all of these interact to cause the *events* that require explanation.

The reality of realist analysis

Collier (1994) and Bhaskar (1989) described methodological frameworks that can inform critical realist analysis. The first is known as RRRE: resolution, re-description, retrodution and elimination; the second is known as DREI: description, retrodution, elaboration/elimination and identification. Both frameworks inform the logic of inquiry but are less specific about the practicalities of *how* to conduct analysis. Published research in this field (Porter, 1993; Porter & Ryan, 2006) tends to report 'traditional' or 'conventional' ethnographic analysis which does not necessarily reflect the realist philosophical principles identified previously; such as explicit linkage with *empirical*, *actual* and *real* domains, the nature of (Bhaskar, 1989), objects and tendencies or intransitive knowledge.

Drawing on other fields of research, Rees & Gatenby (2014) and Danermark *et al* (1997) outline stages of analysis that reflect those of Collier (1994) and Bhaskar (1989) but there are still limited examples about how to practically apply methods of coding, theme building and theoretical mapping of mechanisms, outcomes and structures. While there are approaches to realist research, such as realist evaluation (Pawson & Tilley, 1997) that provide more practical detail about 'how' to conduct analysis, the context, mechanism, outcome approach is not necessarily complementary to realist ethnography; with a focus on complex interventions rather than explanation of cultures and societies.

The aim of this realist ethnography was to explain the professional socialisation of the student nurse, nurse and the relationship with online social networks.

Online social networks (OSNs) & professional socialisation

An OSN is “*an online location where a user can create a profile and build a personal network that connects him or her to other users*” (Lenhart & Madden, 2007: 2). Some of the most commonly used OSNs are social networks where users can generate and manage their own outwardly facing ‘profile’ (such as Facebook) although use of messaging applications is rapidly increasing (Statista, 2018). As such, pre-registration student nurses are increasingly required to manage their online profile to reflect professional values.

Professional socialisation is the process by which individuals acquire knowledge, skills and values relating to their profession (Mackintosh, 2006). Professional socialisation formally begins upon entry to pre-registration nurse education and the journey is influenced by prior life experiences, individual motivations, external factors and continues throughout the professional career (Lai & Lim, 2012; Wolf, 2007; Ajjawi & Higgs, 2008; Shinyashiki *et al*, 2006; Weis, 2002; Weidman *et al*, 2001; Howkins & Ewens, 1999). Educational establishments are therefore required to facilitate development of professional identity, ability to practice within a professional role, demonstration of professional and organisational commitment (Dinmohammadi *et al*, 2013). Evidence from a range of professional guidance documents and research relating to OSNs suggests that there are local, regional and international differences about what professional norms exist in the online environment (Ryan, 2016) (i.e. behaviours that are deemed to be acceptable or unprofessional vary depending on the offending person, people reading them and the context in which they exist).

This article aims to illustrate the application and benefit of a novel approach to realist ethnographic analysis, developed as part of a critical realist ethnographic study. It demonstrates how this approach was employed to develop a theoretically informed explanatory framework, explaining the individual, complex and evolving relationship between nurses and OSNs. It found a new and original concept, ‘online socialisation’ and a framework that explains how primary socialisation, secondary/professional socialisation and online socialisation are interdependent.

Methods

Design

The methodology employed in this study was underpinned by a theory of professional socialisation (Weidman *et al*, 2001) and followed Bhaskar's (1989) principles of critical realism, drawing on ethnographic approaches from the field of organisational, business and management research, primarily Rees & Gatenby (2014) and Elder-Vass (2010). In complement to intensive research design (Danermark *et al*, 1997) it focused on specific 'models', 'cases' or 'scenarios' from the data to 'test' possible explanatory theories as they developed. Cases refer to examples events or scenarios given by participants or through researcher observation.

Data collection & analysis

In order to reflect the principles of both ethnography and critical realist research, data was collected and triangulated from a range of sources: semi-structured interviews, focus groups, online observation, field notes and researcher reflections and current research literature (table.1). Data collection was influenced by components in the process of socialisation identified in Weidman *et al* (2001), but also enabled the examination of the *empirical* and *actual* domains described in Bhaskar (1989; 2008). Columns 2-4 in table.1 identify how each of the data collection methods sought to explore each of the three domains of reality.

As described above, the *real* domain is one that cannot ever be fully known or observed and is where *structures* and *causal mechanisms* exist; these are the things that lead to the *outcomes, events, actions* and *tendencies* observed in the *actual* and *empirical* domains. The goal of realist research is to explain the most likely ‘reality’ that exists for the *actual* and *empirical* domains to appear as they do. Column 4, table.1 provides further explanation as to the value of each method of data collection with the intention of explaining what happens, why and in what circumstance; a primary principle of realist philosophy (Bhaskar, 1989; 2008).

Table 1 - methods of data collection, how they intend to examine each of Bhaskar’s (1989) domains and methodological value

Method	Bhaskar’s domains of the world			Value	Sample
	Empirical	Actual	Real		
Semi-structured interview	X			To explore the perceptions and behaviours of student nurses in relation to professional values such as accountability and OSNs such as Facebook.	Convenience sampling. Student nurses at all stages of study n=16
Focus groups	X			These participants had been through a process of socialisation into the profession but also educate and support those new to the profession.	Convenience sampling. Academic and clinical nursing staff n=8
Literature review	x			To establish the current evidence base and identify what knowledge currently exists about online perceptions and behaviours. To establish the current theory that explains online behaviours in a more general manner.	Scoping search of possible ‘theory’ that explains what happens in the online world (e.g. Diffusion of Innovation theory, Social Capital, Social Activism, Boundary management) (possible causal mechanisms). Systematic search for literature relating to nurses use of OSNs. Scoping search of reports on unprofessional behaviours in social media (e.g. Nursing and Midwifery Council competency hearings).
Observation	x	x		To understand ‘what’ actually happens not just what is self-reported. Semi-structured interview participants reflected on what they said they do online and what could actually be observed when examining their Facebook profile.	Strategic case sampling (Danermark <i>et al</i> , 1997). Professionally related Facebook groups over a 3-month period using the components of analysis as prompts. Semi-structured interviewee public profiles. Observation of ad hoc events as a result of political or media attention on nurses/nursing profession.
Field notes and researcher reflections		x		These helped to identify possible theories and hypotheses as data were collected (causal mechanisms). It also served as a reflection on current and past assumptions, contributing to the evolution of the focus group and interview schedules.	Notes in a journal were made following interviews and focus groups. Observation field notes.
Triangulation of data and six-stage process of analysis			x	The triangulation of data through a six-stage process enabled the explanation of the most ‘likely’ reality based on the current knowledge base and that which the research added.	Triangulation of all of the above. Data sources entered into NVivo 10.0 and coded by: entities, tendencies, events, actions, morphogenic structures, morphostatic structures, outcomes, possible (causal) mechanisms.

As discussed, excluding the process of realist evaluation, published critical realist ethnographic research has little practical detail about how to conduct realist analysis. Hence,

this study developed a six-stage analysis process, informed by current literature (table.2). Table.2 outlines the stage of analysis, a further description of actions taken during each stage and how these build on, reflect and combine the philosophical principles of Bhaskar (1989; 2008), Danermark *et al* (1997) and research from the field of business and organisational research (Elder-Vass, 2010; Rees & Gatenby, 2014; Reed, 2009).

Table 1 - Six-stage realist ethnographic analysis and how these stages are underpinned by philosophical and methodological principles

Stage of analysis	Description	Philosophical & methodological underpinning principles
Stage 1: [Re]description Review literature and describe the current situation along with researcher assumptions. Research from an original literature review was included as a data source in NVivo. This sought to acknowledge the current evidence base in the field of study and identify any similarities or differences between the data collected as part of this study and past research.	Description is the process of reviewing the current evidence surrounding a phenomenon and understanding any analytical or theoretical frameworks associated with it. In this case, it entailed several scoping activities. Re-description involves revisiting this evidence after data collection to enable the confirmation of the phenomena in the context of the current study. Description and re-description in this study involved: A review of a researcher's personal assumptions, the current context of Facebook, how and why individuals, students use it and how it is linked with professional socialisation (with a focus on accountability). Propose a guiding theoretical framework for data collection. In this case the model of professional socialisation (Weidman et al, 2001). Re-description of the context of Facebook once data has been collected (e.g. reasons for use, motivations for use. This process is useful in the progression of knowledge and planning for future research).	Bhaskar (1989; 2008), Collier (1998) and Danermark <i>et al</i> (1997) all recommend a 'description' or 're-description' phase to identify current knowledge and to form the basis of theory generation.
Stage 2: Data coding – Identify components - Entities e.g. people, places, organisations, 'things' <i>Bhaskar's domain: actual</i> - Actions e.g. what the entities do <i>Bhaskar's domain: empirical & actual</i> - Outcomes e.g. the consequences of any combination of the other components <i>Bhaskar's domain: empirical & actual</i> - Events e.g. things that happen within a social space or culture such as a media report or politicians speech <i>Bhaskar's domain: actual</i> - Tendencies e.g. the values, cultural norms of entities <i>Bhaskar's domain: actual</i> - Structures (morphogenic/morphostatic) e.g. things that sustain or change the	The coding framework of critical realist 'components' of reality were applied to the data sources. For example, within the transcribed interviews an individual may state that: "I think age impacts on the way someone will approach what they share...the young ones don't always see that they are doing anything wrong...I suppose it's based on your own values..." This may indicate that age could be a morphogenetic structure that changes actions or outcomes i.e. what is 'wrong'. The concept of what is wrong would be cause for further prompting as the researcher/interviewer. Conversely, personal values may be a theme that informs the tendencies of individual's behaviour/actions. At this point it may be appropriate to note down ideas about the underlying causal mechanisms that may be related to these, asking questions such as: 'why does age have an impact?' 'Does age always impact?' 'What conditions need to be in place for age to have/not have an impact?' 'What theory might explain this?'	Identify the different components taken from the 'holy grail' of realist research (Elder-Vass, 2010; Rees & Gatenby, 2014) and where each of these components reflects Bhaskar's (1989) three domains, simply put, empirical + actual = real This also reflects Danermark <i>et al's</i> (1997) abduction and theoretical re-description phase of analysis.

Quality & rigour

Ethical approval was granted by two institutional review boards with quality standards following those described Ryan & Ruddy (2019) transparency, accessibility, purposivity, utility, propriety, accuracy, specificity (TAPUPAS), with the addition of a methodological specific 'modified objectivity' (TAPUPASM).

Findings & discussion: application of the six-stage analysis process

Triangulation and analysis of data led to the development of an explanatory framework which explained the relationship between the online world, a person and professional: Socialisation-Professional socialisation-Online socialisation (SPO).

Analysis stages 1-4

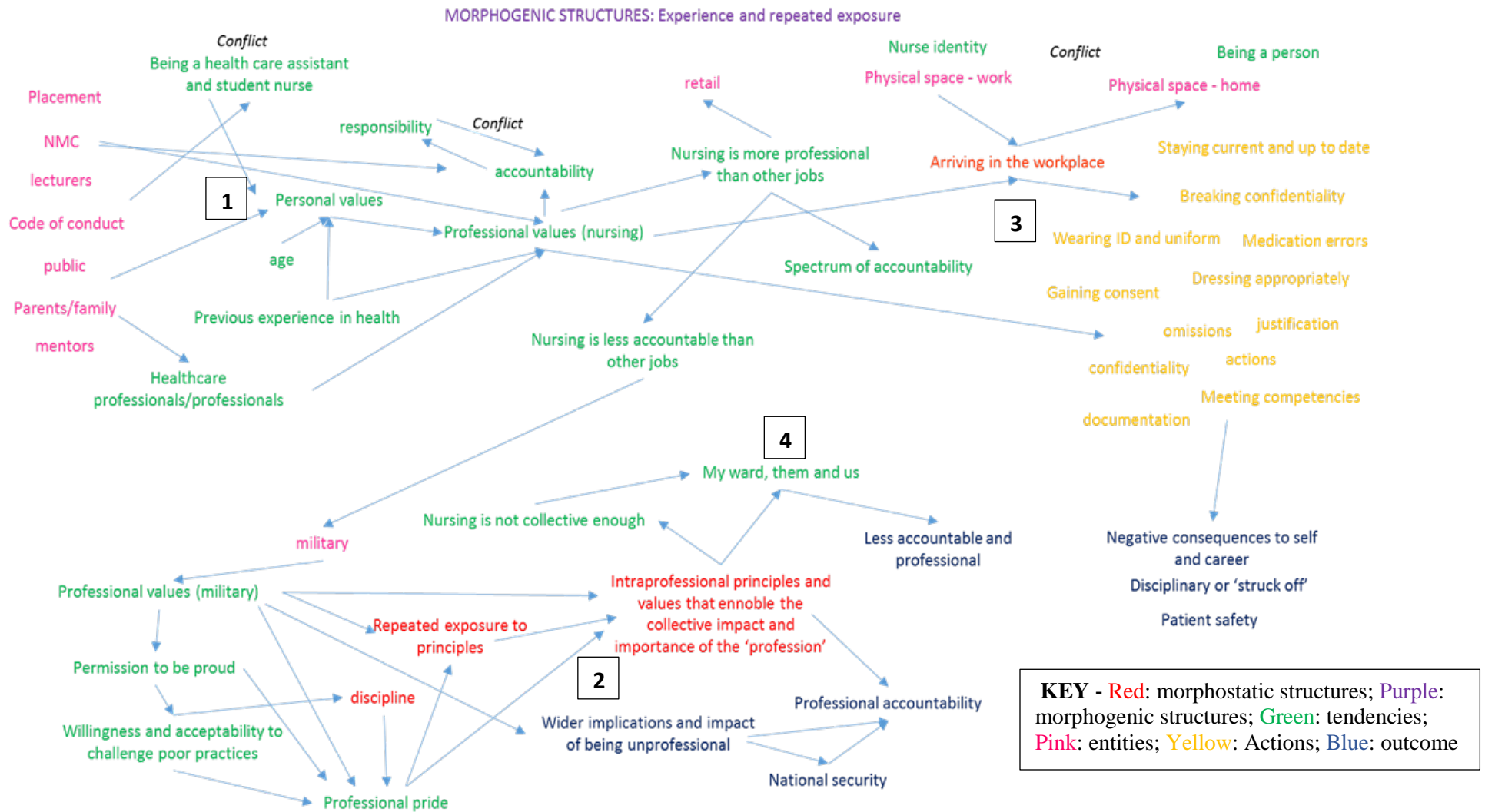
At stage 1 (table.2), qualitative data software NVivo 10.0 was used to catalogue all data sources and enabled the coding process during stage 2 (table.2). In doing this, it was possible

to identify themes within each component that were similar or dissimilar, source by source type, or case by case. For example, the passage of time was identified as both a morphogenic and morphostatic structure that could change or sustain behaviours and negative experience was identified as a morphogenic structure.

During stage 3 (table.2) asked questions such as, ‘how nurses understand accountability and professional values?’ or ‘how they define these’ and allowed for focus on responding to the research aim. Stage 3 sought to bring focus to subsequent stages of analysis onto specific parts of the overall aim after considering the different types of components identified during stage 2. It was the first step for developing potential explanations of what happens, why and in what circumstance (hypotheses about what data suggest occurs in the *real domain*) and identification of cases of interest within the data. During this stage, three overarching ‘relationships’ were identified, these directly responded to the overarching aim of the research itself: what it means to be professional, perceptions and behaviours of OSNs and being professional in OSNs.

During stage 4 (table.2), illustrative modelling of cases from focus groups, observation or semi-structured interview was used to explore a deviation from the ‘norm’ and, could be used as a point of contrast, but also to begin to examine the wide range of factors that interact to create an outcome in given circumstances (i.e. how the components found in the data, the *empirical* and *actual* domains interact to show the most likely *reality* in that particular case/circumstance). Figure.1 provides an example of this stage. For example, semi-structured interview, focus group participants and published research evidence claimed that ‘age’ was an indicator of whether someone would behave professionally on OSNs (Alber *et al*, 2016; Smith & Knudson, 2016). Other literature reported on levels of awareness relating to professional behaviours and privacy settings in OSNs (Olliere-Malaterre *et al*, 2013). However, stage 4 mapping helped to identify that ‘age’ alone was not enough a descriptor to differentiate between behaviours and perceptions of Facebook; and that ‘awareness’ of privacy settings and professional values did not correspond with those observed within the online environment.

Figure 1 – stage 4, illustrative mapping of the components identified in stage 2 and from case(s) that illustrated the relationships identified in stage 3 (perceptions about professional values and behaviours). N.B. Several cases were drawn from the data, this is an example for the purposes of discussion.



Analysis stage 5 - Evolving and testing explanatory theories

Stage 5 considered why these circumstances occur as they do, by drawing on theoretical evidence from the literature but also the field notes and reflections recorded as part of the research process. At this point, further searches of literature were conducted to confirm or expand upon the proposed theoretical explanations. For example, observation of online behaviours in public groups indicated that there was a social activism component to behaviours, reflecting that behaviours might change because of political events. Further exploration of socialisation theory was also conducted.

Typically, there will be several potential theoretical explanations of the *most likely reality* that might be rejected, or partly retained and refined as they are explored in the mapped cases from stage 4. For this discussion, two of the proposed theories will be examined.

Testing theory is an iterative process and explanations may be rejected when examined in the data and models collated during stage 4. In this study one potential theory considered the possibility that,

Primary socialisation and secondary/professional socialisation are sequential with secondary socialisation building on primary.

This initial theory indicated that the process of socialisation into the online environment was 'layered' and linear, based on the traditional concept of socialisation and professional socialisation which, was outlined in a review of socialisation theory during stage 1 of analysis.

Initially an individual is socialised into their family and personal life, upon going into education and the workplace they are then exposed to a wider social culture that further contributes to their own identity and values. Once they enter nurse education and training they are exposed to professional values through a variety of routes, some of which have more impact than others (see figure 1, label 1).

When revisiting the mapped models in stage 4 of analysis, this initial theoretical explanation appeared to be too linear and 'simplistic' to explain the more complex interaction between the different components and types of socialisation (i.e. it should not be assumed that one

only succeeds another). Conversely, literature evidence from fields outside of health, suggested that the management of behaviours and boundaries in OSNs are far more fluid and complex (Ollier-Malaterre *et al*, 2013). For example, interaction between data components showed that values gained during primary socialisation could well be changed and influenced by initiation into the nursing profession (see figure 1, point 1 and 2). These values too, could be challenged and changed for shorter periods of time, depending on events such as policy changes proposed by politicians and how these were responded to in OSN groups; following which they might revert to their original behaviours. The online environment and the point at which this is introduced into an individual's journey played a role. This led to a further theoretical explanation,

Primary socialisation, secondary/professional socialisation and socialisation into the online environment are processes that are interdependent, individual, complex and evolving; values and behaviours from each might be influenced, changed or sustained based on the individual's exposure, experience, perception of a range of components.

To 'test' and refine this explanation, a range of published theories evident in current and past literature were explored. Theory I, digital natives and digital immigrants (Prensky, 2001) and theory II, experiential learning and socialisation.

Theory I: the concept of digital natives and immigrants

The data and process of analysis for this sample demonstrated that there are a range of **components** [values, experiences] that influence how an individual is socialised. For each individual, they experience this differently. For someone born in the 1990's (digital natives), "*native speakers of the digital language of computers, video games and the internet*" (Prensky, 2001:1), they may have been exposed to OSNs much earlier in life than someone born in the 1970s or 1980s (digital immigrants). Hence, their journey of professional socialisation and their relationships between 'being a professional', 'being online' and 'being professional online' are likely to be different to one another. This is also true of academics and practice-based staff who educate and mentor student nurses; a large proportion of this group of staff are accepted by their profession but the mapped data showed that they cannot always agree on acceptable and professional behaviours in Facebook. This means that there can often be confusion, conflict and disagreement on the personal and professional level about online values. Some digital immigrants learn quickly and become socialised to the online environment more easily than others. This is determined by individual circumstance,

background and experience and not solely about being a digital native. As Prensky (2001:6) states,

“Our Digital Immigrant instructors, who speak an outdated language (that of the pre-digital age), are struggling to teach a population that speaks an entirely new language.”

This theoretical concept of digital immigrants and digital natives led to the proposition:

- a) Online socialisation refers to the process by which an individual learns the norms and values of a particular OSN environment in their given context
- b) In the current situation, where OSNs are still a relatively new technology there are three types of nurses and therefore three types of socialisation journeys:
 1. **Digital immigrants I:** primary socialisation without OSNs, secondary and professional socialisation without OSNs, online socialisation in later life
 2. **Digital immigrants II:** primary socialisation without OSNs, online, secondary and professional socialisation with OSNs
 3. **Digital natives:** primary socialisation, secondary and professional socialisation and online socialisation occur concurrently
- c) Each of these types of pre-registration nursing student have their own individual set of values based on their individual journey.
- d) Each of these individuals have varying potential for change of values based on a range of other components. For example, morphogenic and morphostatic structures such as experiential learning, the passage of time, or events and outcomes such as seeing someone else being disciplined for an action.

Theory II: the role of experiential learning and socialisation

Experiential learning theory

It was evident that experience across a wide range of time points, domains and the [lifelong] learning from these, influences the process of professional socialisation.

After reviewing a range of literature relating to experiential learning theory such as Gould *et al* (2005), Knowles (1989), Kolb (1984), Rogers (1983) and Dewey (1938), analysis of how these might be applied to the models from stage 4 were ‘tested’. There was one theory, with principles that were most aligned; Jarvis’ (2006) theory of human and experiential learning.

Jarvis’ (2006) theory of human and experiential learning has the following strengths:

Realist analysis for realist research

- He recognises the importance of a philosophical aspect to human and experiential learning in which he recognises the complexities of the process (Jarvis, 1987: 26 and Jarvis, 2006: 23)
- Aligned with critical realist principles, he recognises the importance of the genetics, biology and biology of the mind and not just social, cognitive and behavioural theories of learning. Humans exist and therefore we will inevitably learn from the world we are in whether we see it or not
- Hence, he consolidates and builds on the work of a wide range of experiential learning theory along with wider consideration of some of the components identified as part of this study. For example, learning from repeated exposure to events and experiences, negative experiences and peers/groups.

Jarvis (2006) also makes explicit reference to the concept of lifelong learning. The role of life experience, previous education and lifelong learning was also noted as an integral part of *being accountable* as a pre-registration and future nurse (Weidman *et al*, 2001). Jarvis (2006) proposes a definition of lifelong learning,

“Lifelong learning is the development of human potential through a continuously supportive process which stimulates and empowers individuals to acquire all the knowledge, values, skills and understanding they will require throughout their lifetimes and apply them with confidence, creativity and enjoyment in all roles, circumstances and environments.” (Longworth and Davies, 1996: 22 cited in Jarvis, 2006:140)

In the context of the data found in this study, one of the most important and relevant constituents of this definition is *‘apply them with confidence...in all roles, circumstances and environments’*. This implies that the development of the knowledge and skills to be professionally accountable should prepare pre-registration nurses [and indeed registered nurses] to apply these to any environment or circumstance (i.e. across life domains and in the online and offline environment) which is a concept that pre-registration nurses do often struggle with in practice (Rassin, 2008). They can articulate some of the principles (particularly those focused on the patient and/or clinical practice), but their application of these principles is not always evident in other life domains (examples of this in one case from the data can be seen in figure 1, label 3).

Realist analysis for realist research

Jarvis (2006) goes on to suggest that the passage of time and social evolution, such as the diffusion of the internet and OSNs throughout society, means that the concept of social norms, life domains and the opportunity for social capital on all accounts has changed significantly, and is likely to continue as we experience these as a society and changing culture. The findings in our study assert that, as a profession, the **online socialisation** in society and for individuals will impact on our future socialisation as a **profession** and thus, our online behaviours and practices; our professional values and norms.

During traditional primary socialisation where OSNs did not exist an individual develops a personal identity and a social or public identity, as they experience life they enter into the workplace, and [for pre-registration student nurses] they have an additional ‘professional’ domain added. The interdependence of values in each of these domains can be viewed as the overlap between boundaries.

Socialisation theory

Weidman *et al* (2001) acknowledged the range of influential factors on becoming professional. However, once ‘tested’ in the data, Weidman *et al* (2001) failed to acknowledge three key factors:

- I. It illustrates professional socialisation as the central component (i.e. the person, family and background are acknowledged but only as to inform professional socialisation and development of the associated norms and values). It implies a successive relationship of primary socialisation to professional
- II. It views professional socialisation as ‘successive’ to primary socialisation and does not acknowledge that professional values can be embedded during primary socialisation. For example, parents as nurses. Nor does it acknowledge the journey of professional socialisation on challenging and changing values and social norms previously established during primary socialisation
- III. Therefore, as a model that preceded OSNs, it does not explain the relationship and impact of the digital age on an individual as a person and/or professional socialisation.

The combination of these theories and the evolution of Weidman *et al* (2001) as an underpinning theory informed the development of the final SPO framework.

Stage 6 – Finalising the explanatory framework (SPO)

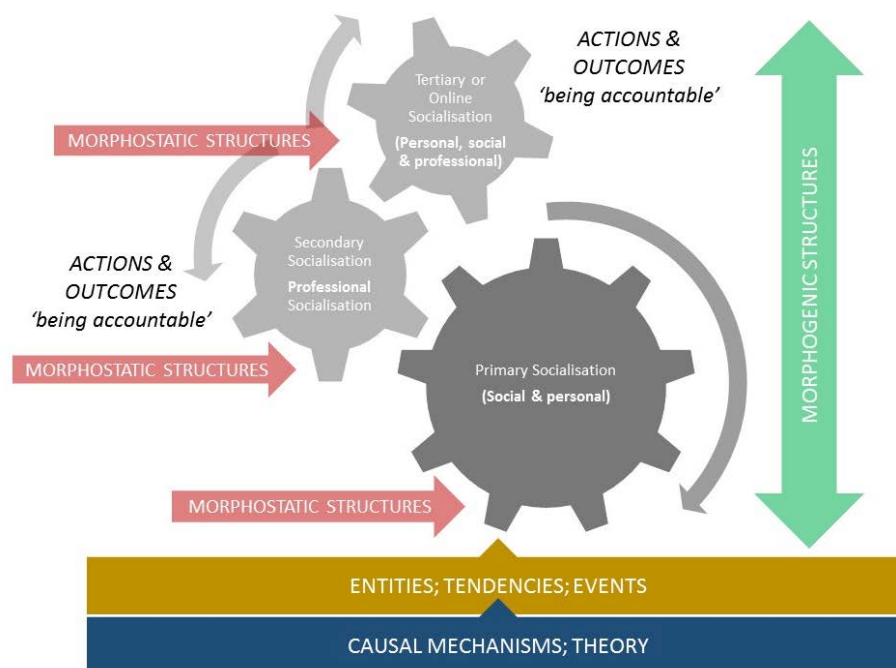
Stage 6 (table.2) confirms the most likely *reality* (Bhaskar, 1989; 2008) based on the ‘testing’ process in stage 5 and principles of the two theories that ‘fit’ with the mapped case examples from stage 4 (figure.1). Three ‘types’ of socialisation were finally proposed (figure.2):

Type I: Primary (usually during childhood)

Type II: a) Secondary (usually during adolescence and early adulthood) and b) professional socialisation (considered a form of secondary socialisation)

Type III: Online (development of shared norms and values in an online environment e.g. OSN)

Figure 1 - Framework I: SPO



The analysis in this study found that these three types of socialisation should be acknowledged as interdependent. Interdependence is a mutual dependence between one or more groups, people or things. Social interdependence states that there are co-operative (agreement of values) and competitive (conflicting values) dependencies (Johnson & Johnson, 2005) which here, was the *tendency* component, working within the context of the journey of socialisation and not necessarily successive.

As illustrated in figure 2, there are three ‘cogs’ to reflect each of the three types of socialisation. A cog or ‘gear’ mechanism is one that takes account of input such as direction and size, in this case a change or continuance; force and motion, in this case, *events*,

Realist analysis for realist research

tendencies, entities; and will generate different outputs, in this case *actions and behaviours* that the pre-registration student nurse should reflect, such as *professional accountability*; based on other factors such as the lubrication, material, size and number of teeth on the cogs, in this case structures such as time, time spent in each type and the combination of experiences in each type along with when they occurred on the journey. This concept also acknowledges the fact that if one set of values changes, the other may also change and, this will be dependent on whether they move in the same (co-operative) or opposite (competitive) direction.

This ‘gear mechanism’ or ‘SPO’ represents the interdependence between primary socialisation through social and personal circumstance, moving into secondary socialisation in what was described as ‘formative years’, which is also where professional socialisation occurs [for those embarking on a professional career] and this study introduces a new concept of **online socialisation**. The framework also acknowledges that ‘entities’ of ‘life domains’ have **most** (but not necessarily all) influence on each type of socialisation.

Significance for methodological and nursing knowledge

This study enabled the development, application and ‘testing’ of a six-stage process of analysis that can be applied to realist ethnographic study or realist research that sits outside the remit of realist evaluation (Pawson & Tilley, 1997), not only in nursing but more widely in other specialities.

By taking methodological and design insights from organisational and management research (Elder-Vass, 2010; Rees & Gatenby, 2014) and applying this in the context of nursing, it demonstrates that critical realist ethnographic research into complex social structures, such as social media allows for the explanation of what, how and why nurses might behave as they do. The theory driven nature of realist research and the associated analysis process described here also enabled the identification of theoretical principles, experiential learning, socialisation theory and digital natives/immigrants to explain why behaviours might differ from individual perceptions of them.

In practice, the framework proposed here presents a theoretically informed explanation about how professionals interact and become socialised into the online world. It allows for a

deeper explanation about online behaviours than is allowed by alternative methodological approaches. Published quantitative and qualitative research in this field tends to identify ‘what’ is observed (*the empirical or actual domain*) rather than ‘why’ and ‘how’ this might be (Lahti & Salminen, 2017; Ferguson *et al*, 2016; Langenfeld *et al*, 2016; Nason *et al*, 2016; Levati, 2014). The example provided earlier, in which age was given an explanatory factor for unprofessional behaviours (Smith & Knudson, 2016) was shown to be too simplistic an explanation. Taking a realist approach highlighted that behaviours are more associated with how an individual is socialised, how they position themselves in the online environment and a wider range of changeable factors.

Conclusion

This study illustrates how critical realist ethnography and a complementary process of analysis can be used to develop theoretical and explanatory frameworks in the context of nursing. In this study, the novel approach to analysis assisted in identifying a new and original concept; online socialisation. The proposition in the SPO framework is that primary socialisation, secondary/professional socialisation and online socialisation are interdependent, affected by a range of external and internal components, unique to each individual nurse.

Each of the six stages (table.2) were methodologically and philosophically informed by the principles of Bhaskar’s (1989; 2008) critical realism, but they also acknowledge the nature of culture and society in the process of conducting ethnographic research.

The coding process allowed for the identification of ‘holy grail’ components (Elder-Vass, 2010) that exist in the *actual* and *empirical* domains of *reality* (Bhaskar, 1989), leading to a further stage whereby it was possible to visually map how these interact in given cases or scenarios and, how this creates outcomes. Engaging with current and past theoretical models as part of the retroductive analysis, valued in realist research (Bhaskar, 1989; Danermark *et al*, 1997; Collier, 1998) meant that the final framework explained, not only ‘what’ socialisation journeys are but also ‘why’ they occur as they do, applicable to a range of different circumstances. It is in this way that such conclusions are more likely to be sustained in an ever evolving, complex environment such as OSNs, while also recognising any journey of socialisation is exceptionally individual.

Realist analysis for realist research

The process of analysis explained here provides enough levels of detail as a feasible alternative to more conventional and traditional approaches to analysis currently evident in published critical realist ethnographic studies.

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Realist analysis for realist research

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