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Forster, Marc ORCID logoORCID: https://orcid.org/0000-0002-5942-3169 (2016) Developing an 'experience framework' for an evidence-based information literacy educational intervention. Journal of Documentation, 72 (2). pp. 306-320. ISSN 0022-0418

http://dx.doi.org/10.1108/JD-06-2015-0077

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Developing an 'Experience Framework' for an Evidence-Based Information Literacy Educational Intervention

Abstract

Purpose: This paper describes how an 'Experience Framework' for an evidence-based Information Literacy educational intervention can be formulated.

Approach: The Experience Framework is developed by applying the qualitative methodology Phenomenography to the analysis of the variation in the experience of a phenomenon by a target group, making specific use of one of its data analysis methods, that pioneered by Gerlese Akerlind. A phenomenographic study's descriptions of the limited but related experiences of the phenomenon, and the detail of context and complexity in experience achieved through the Akerlind's data analysis technique, are essential to a Framework's structure and educationally valuable richness of detail.

Findings: The 'Experience Framework', an example of which is set out in this paper, is formed from a detailed range of contexts, forms and levels of complexity of experience of a phenomenon, such as Information Literacy, in a group or profession. Groupings of aspects of that experience are used to formulate, through the application of Variation Theory, an education theory developed from previous phenomenographic research, learning contexts and aims which can form the focus of educational activities.

Value: The framework can be used to form the basis of an evidence-based educational intervention to enrich the experience of any concept within LIS that Information professionals work to develop in their users.

Keywords

Information Literacy; Education; Modelling

Article Classification:

Research paper

1. Introduction

a. Information Literacy

Information Literacy is experienced by someone who can

> 'demonstrate an awareness of how they gather, use, manage, synthesise and create information and data in an ethical manner and will have the information skills to do so effectively.' (SCONUL, 2011 p.3).

It therefore plays a key role in the development of subjective knowledge and understanding (Bruce & Hughes, 2010; Floridi 2010; Forster, 2015c). As a result, much effort has gone into encouraging the development of Information Literacy, especially in students and in those professions for which effective use of information is central to effective functioning (Moore, 2002; Brettle, 2003; Brettle, 2007; Walsh, 2009; Stevenson, 2012; Forster 2013).

b. The Development of Information Literacy

In what ways has the development of Information Literacy traditionally been encouraged? In Nursing, a profession in which Information Literacy has a major role (Glasper, 2011), the literature typically describes attempts to develop what are felt to be relevant skills and knowledge, based on behaviourist or constructivist approaches (Wallace et al., 2000; Shorten et al., 2001; Brettle, 2003; Brettle, 2007). Information Literacy is understood to manifest itself in terms of the skills and competencies felt to be associated with it (Wallace et al., 2000; Brettle, 2003; Bailey et al., 2007; Brettle, 2007; Turnbull et al 2011 and others), while little is said about how nurses actually experience being Information Literate. That is, what functional meanings it has for them; what forms of contextual knowledge they seek out in the varying contexts of their practice. There has been little convincing

evidence of the effectiveness of such attempts at Information Literacy development (Garg and Turtle, 2003; Brettle, 2003; Stombaugh et al., 2013); that 'evidence' sometimes consisting of no more than the recording of nurses' reflections on their levels of 'self-confidence' (Craig and Corrall, 2007; Turnbull et al., 2011) and sense of being 'competent' in such activities as literature searching (Brettle, 2007), without being able to show whether that confidence and competence are meaningful.

Until recently, what little research there has been into the experience of Information Literacy by nurses or nursing students (Toledano O'Farrill, 2008; Osborn, 2011) has been limited in focus. Research into the experiences of other groups such as college students (Lupton, 2008; Limberg, 1999; Andretta 2010), academics (Bruce 1997; Boon et al. 2007) and firefighters (Lloyd, 2006) has been undertaken, but the range of groups investigated remains limited. Therefore what Information Literacy 'means' as an experience has in most contexts remained uncertain. An understanding of how Information Literacy is experienced would give educators evidence of how, when, where and why the skills and knowledge are applied in 'practice', if at all. Without it, Information Literacy education operates at a disadvantage; its assessment compromised, it could be argued, due to an inability to show what it is that is being measured.

How might that lack of understanding be addressed? To find out how, why and in what contexts a group or profession finds and uses Information to create the subjective knowledge to function in its various roles, and what forms that knowledge takes, requires a study which treats Information Literacy as a concept - or more precisely, an experienced concept: a phenomenon - the experience of which could be analysed for its contextual and functional meanings (Andretta 2007;

Akerlind 2008). A study of experiences as described by a representative sample of the group or profession being studied.

c. The Focus and Aim of this Paper

Such a study's findings could go on to form the basis of evidence-based Information Literacy education, education based on recognised, structured and potentially measureable aims; aims focused on the range of experienced meanings Information Literacy actually has for a group or profession. This paper discusses an example of how such a study's findings, when employing a data analysis technique which yields a particularly rich description of variations in complexity of experience, can be used to form an 'Experience Framework' from which an evidence-based educational intervention might be developed. The 'Experience Framework', an example of which is set out below, is based on the range of contexts, forms and levels of complexity of experience of phenomenon by a target group or profession. That range of experience is employed, together with the Variation Theory of learning, in the development of a framework of learning contexts, aims and focal points; a framework which can be used as a basis for relevant, evidence-based learning activities.

2. The Experience of Information Literacy

a. The value of investigating the variation in experience from an educational perspective

The work of Christine Bruce (Bruce, 1997; 2006), which included the first investigation into Information Literacy 'experience', led to the development of a 'relational' approach to Information Literacy education. Information Literacy was

found to be experienced in a limited number of distinct ways, varied in terms of context and complexity. This suggested that Information Literacy education should be structured to take account of this, and have as its aim that students are able to experience Information Literacy in any of the ways relevant to their group or profession (Bruce, 2006). This may involve developing the ability to experience the phenomenon in ways new to them.

> '*Learning is about changes in conception – teachers need to assist students in developing new and more complex ways of experiencing Information Literacy*'. (Bruce, 2006 et al., p.6).

Variations in experience occur due to the many purposes for which the information is sought. Each 'purpose' may require knowledge of greater or lesser complexity than others (Forster 2015c). Such purposes range from the performance of simple tasks to the development of strategy and new philosophic approaches (Forster 2015a). For any group or profession, the relationship between variations in experience is often shown to be hierarchical, with the experiences arrangeable from least to greatest complexity (Bruce, 1997; Lloyd, 2006; Maybee, 2006; Boon et al., 2007; Forster, 2015a).

With possession of this range and hierarchy, the educator now knows the scope and nature of relevant experiences the student must be capable of and must be facilitated into.

Therefore anyone interested in developing relational, evidence-based education must undertake a research study to generate this range and hierarchy of experiences for the group or profession of interest.

As reported by researchers who have made use of it (Bruce, 1997; Limberg 1999; Johnson and Webber 2003; Williams 2007; Boon et al. 2007; Lupton 2008; Webber et al., 2008; Andretta, 2010; Diehm and Lupton 2012), Phenomenography is the methodology which can fulfil these requirements - a methodology in which (in contrast to some methodologies such as Phenomenology) variation in experience is the focus of approach and analysis (Marton, 1988).

Andretta's (2007) paper on the relationship between teaching and learning theories based on the relational approach and the epistemological assumptions of Phenomenography makes the connection between the two explicit: both recognise variations in subjective perspectives and experiences. Experiences are understood to range from simple to complex. Education involves '*the learners' increased awareness of more complex ways of experiencing a phenomenon*.' (Andretta, 2007, p.165).

b. How Phenomenography is applied in practice

Phenomenography was developed to investigate the education process from the perspective of the student (Marton, 1988). It involves the interpretation of descriptions of experiences of a phenomenon (Marton, 1988) - in the participant's day-to-day / professional life.

Its founder, Ference Marton of Gothenburg University, defined Phenomenography as

> '*The empirical study of the limited number of qualitatively different ways in which various phenomena in, and aspects of, the world around us are experienced'*. (Marton, 1994, p.4424)

From analysis, usually of interview transcripts (Bowden, 2005), Phenomenography yields a limited number of archetypal descriptions of experiences of the phenomenon within the group under analysis known as *Categories of Description* (Irvin 2005; Forster2015a), and a picture of its collective experience in terms of the relationship between the Categories, an *Outcome Space* (Marton, 1994; Akerlind, 2005). Phenomenographic studies are intended to yield the complete range of contextual meanings that the underlying concept has for the group, and the relationship between them (Marton, 1988).

The notion of variation in experience being limited, that the variations can be described in an archetypal way, and the idea that an overall description of the experience of a phenomenon can be developed from a logical relationship of the variations, are the distinguishing characteristics of Phenomenography (Marton, 1988; 1994). Limited variation of experience, its definitive outcome characteristic, has been a source of controversy but has been confirmed in numerous studies (Forster, 2015b).

c. Dimensions of Variation and Themes of Expanding Awareness

In a small number of more recent phenomenographic studies (Akerlind, 2005; Daly 2009; Paakkari et al. 2010; Forster, 2015a; Wada et al., 2015), of which only Forster (2015a) is an investigation into Information Literacy experience, additional detail was sought through a process of isolating descriptions of experiences of <u>aspects</u> of a phenomenon. Hence data analysis methods produced a more complex and detailed outcome. The phenomenon investigated is described in its several aspects, known as ‘Themes of Expanding Awareness’. These are contexts in which the phenomenon is experienced, and under which are arranged all the

‘Dimensions of Variation’ that are experiences of that aspect of the phenomenon, of varying complexity. Some Dimensions are simple experiences, others more complex ones in which there is a greater awareness of the potential functionality of the phenomenon. The Themes, or aspects, when taken together as a group, constitute the phenomenon under investigation as a whole.

Categories of Description are constructed from Dimensions of Variation from each aspect/Theme and at the same level of complexity of experience; and as such become descriptions of experiences of the whole phenomenon at different levels of complexity. In terms the outcome of a study into the experience of Information Literacy by a group or profession, Categories of Description describe different ‘awarenesses’ of the potentialities of Information Literacy, of what it can do and is capable of in terms of complexity of subjective knowledge obtained by the information seeker.

This ‘additional detail’ of Dimensions of Variation and their Themes of Expanding Awareness, is vital in the development of a comprehensive and effective Experience Framework, as will be shown below. Non-Akerlind studies would give range of experiences, and Variation Theory could be applied, but with insufficient detail of experience to develop an ‘Experience Framework’ of the type this paper describes.

3. An Example of a Phenomenographic Study Using the Akerlind Data Analysis Method

In a study into Information Literacy in Nursing (Forster, 2015a), 41 nurses were interviewed using a semi-structured interview protocol. The sample was purposeful,

using specialism, gender, age, experience and educational level as criteria. Data saturation was sought and achieved.

Interviewees were asked to describe what they thought about the role of information and research evidence in Nursing, and to give examples of when they had used information to successfully fulfil a need or goal in their practice. They were encouraged to direct the interview into areas they themselves thought significant to their experience.

Transcripts were analysed, not by determining frequency of words or phrases, but by a process which gradually developed verbal statements that described an aspect of experience representative of the group. The process was iterative, sensitive to experience developed throughout the transcript, and echoed and clarified experience across several transcripts.

Åkerlind's (2005) protocol was used:

1. Each transcript was read through three times; on the third reading notes were made on each, summarising key 'issues and themes' emerging in the context of the others.

The significance of individual statements could be seen in clearer, or different, focus with knowledge of the whole transcript. Participants often seemed to need to 'come back around again' to further develop and expand on the description of an experience made earlier in the transcript.

2. 'Similar' transcripts were grouped together after re-reading both the transcripts and the notes repeatedly, based on a general similarity of experiences.

3. Each group's transcripts were now analysed in depth in order to develop 'Dimensions of Variation' in experience of Information Literacy.

Dimensions of Variation are simple contextual and representative statements of experience of an aspect of a phenomenon that distil its experience for some of the participant group. Åkerlind defines them as 'Different aspects of the phenomenon that were referred to in some transcripts but not in others' (Åkerlind 2005 p.122). They are developed across several transcripts through a prolonged developmental process which seeks to express both reality and representativeness of experience. A number of these could be sketched out:

Statements which seemed to describe Information Literacy experiences were underlined and briefly summarised. Then links to other seemingly related statements later in the transcript, and in the other transcripts in the group of related transcripts created in Stage 2, were made. Statements were linked if they seemed to provide further development and/ or modification in the description of the experience. The brief summary statement was modified accordingly. This process was repeated several times until a final form of the Dimension of Variation was achieved which seem to satisfactorily describe an aspect of experience.

The result appeared to be a more detailed, 'true-to-life' expression of experience than obtained from the initial simple statements.

4. At the same time, Themes of Expanding Awareness running throughout the set of transcripts as a whole, where each theme linked a set of different 'Dimensions of variation', were sketched out.

A Theme of Expanding Awareness represents an aspect of the phenomenon under investigation. In practical terms it is a context or field of operation in which participants experience the phenomenon in their Life-world. A context in which

Information Literacy is experienced which runs throughout the set of transcripts as a whole, and in which Dimensions of Variation can be meaningfully and logically grouped in order to show variation of awareness of that aspect of the phenomenon. (Åkerlind 2005).

For a Theme to be acceptable it must have logical and empirical justification (Åkerlind 2005). It must be something under which Dimensions could be grouped to exhibit expanding awareness (logical) and must be meaningful in terms of the experiences described in the transcripts (empirical).

Themes were sketched out based on the groupings generated in Step 2. After a continuous process of reconsidering and redrafting of Themes and regrouping of Dimensions under them, each Dimensions of Variation was placed under the Theme which seemed to describe the aspect of Information Literacy it was an experience of. For example,

Information Literacy experienced in successfully developing the trust of patients, families and colleagues

was placed under the Theme

Information Literacy experienced in development and maintenance of Relationships with patients, patients' families, colleagues and other professionals.

5. Development of Categories of Description: representative conceptions, or experienced meanings, of Information Literacy.

Categories of Description bring together for each level of awareness, the experience of all aspects of the phenomenon into one description. Each Category is a description of what it means for nurses to experience Information Literacy at that particular level of 'awareness' of its potentialities in the creation of knowledge.

And because it brings together the Dimensions at that level from all the aspects (Themes) of the phenomenon, it is an (archetypal) description of experience of the phenomenon as a whole.

Each Category was therefore constructed by bringing together Dimensions of Variation at the same level of complexity of experience, from each of the Themes of Expanding Awareness.

4. The Findings of a Phenomenographic Study Using the Akerlind Data Analysis Method

70 Dimensions of Variation were found, gathered under 7 Themes of Expanding Awareness or aspects of Information Literacy experience in Nursing:

1. Information Literacy experienced in processes of Professional Self development
2. Information Literacy experienced in development and maintenance of Relationships with patients, patients' families, colleagues and other professionals
3. Information Literacy experienced through its role in helping to achieve 'Best Practice'
4. Information Literacy experienced within Understandings and Experiences of Evidence-Based practice
5. Information Literacy experienced within application of Skills and Processes of evidence and other information gathering
6. Information Literacy experienced in the context of an Understanding and Knowledge of the principles and concepts behind evidence and other information gathering
7. Information Literacy experienced through Applicable conceptions of information

The Dimensions under Theme 2, for example, were (in increasing complexity):

- Receiving information from patients, colleagues and other professionals
- Sharing information with patients, colleagues and other professionals
- Functioning as part of the multi-disciplinary team
- Creating trust in you in others
- Being seen to be accountable for actions
- Achieving autonomy and status within the team
- Functioning as a teacher for junior colleagues and other members of the team
- Becoming a patient advocate
- Fulfilling a leadership role within the team

6 Categories of Description were formulated (Forster 2015a), describing, in varying contexts and different levels of complexity, the ways in which Information Literacy is experienced. Each Category took the Dimensions of Variation at the same level of complexity from each of the 7 aspects. The Categories of Description, although central to the outcome of a phenomenographic study, are not relevant in themselves in the construction of an Experience Framework.

How could the Dimensions of Variation, arranged in order of complexity of experience under Themes of Expanding Awareness, be developed into an 'Experience Framework' from which an evidence-based Information Literacy educational intervention could be formulated? Variation Theory, an educational theory derived from previous phenomenographic research (Akerlind 2008), and applied previously in Information Literacy education (Webber et al., 2008), is applied to that end.

5. Applying Variation Theory

a. A Theory of Learning

There are a number of theories of how learning occurs. The research of Marton and colleagues, conducted using phenomenographic methods, led them to the conclusion that '*Learning is learning to experience*' (Marton and Booth, 1997, p.210); learning to experience something in a certain way for the first time. It is to learn to experience a concept in new ways so that it takes on additional meanings (Marton and Booth, 1997).

Bruce applied this approach to Information Literacy:

> '*Learning is about changes in conception – teachers need to assist students in developing new and more complex ways of experiencing Information Literacy'*. (Bruce 2006 et al., p.6).

Åkerlind (2008) describes two stages in the effective use of Phenomenography to inform the design and content of educational interventions:

> 1. *The phenomenographic investigation into the complete picture of the variation of the experiences of a concept.*
>
> *2. The application of 'Variation Theory' to a teaching and learning programme to maximise students' opportunities for discerning the full range of key features of the concept ….. in the previous investigation* (Åkerlind, 2008, p.638).

The Variation Theory of learning, which developed from phenomenographic research, proposes that learning occurs when a range of variations in ways of experiencing a concept are perceived for the first time (Marton & Booth, 1997; Bruce et al., 2006; Runesson, 2006; Marton & Pong, 2013).

b. Aspects of the Phenomenon Open to Variation – The Themes of Expanding Awareness.

As we have seen, phenomenographic research concentrates on the variations in the experience of a phenomenon. What accounts for the variations in experience? Variation Theory suggests that this is due to different aspects of the phenomenon being discerned in different ways by different individuals (Marton and Booth, 1997; Åkerlind, 2008). If a phenomenon has an aspect of itself open to variation in perception, then this aspect is a source of 'dimensions of variation' of perception of that aspect (Marton and Booth, 1997; Åkerlind, 2008; Runesson, 2006). The aspects of the phenomenon open to variation in perception can be identified as the Themes of Expanding Awareness; each with their Dimensions of Variation corresponding to the variations in the '*increasing breadth of awareness*' (Åkerlind 2008, p.636) or complexity of the discernment of that aspect of the phenomenon. Categories of Description, therefore, '*reflect the difference in structure and organization of awareness*' (Runesson 2006, p.406) and are '*a way of experiencing which is a complex of simultaneously discerned dimensions of variation present to awareness*' (Runesson 2006, p.406).

c. More Than One Aspect Must be Varied for Learning to Occur.

For Runesson, summarising the work of Marton and Booth (1997) and others, grasping a concept requires that '*certain aspects* [of the phenomenon] *must be discerned at the same time*' (Runesson 2006, p.401); for learning to occur variation must have more than one source - within more than one Theme of Expanding Awareness. By varying the way a phenomenon is brought to a student's experience, through the range of relationships between the Dimensions of different

Themes brought into conjunction, the student comes to appreciate new facets of the phenomenon and therefore potential ways of 'fitting it in' to their experiences in the future. Variation Theory posits that it is by varying critical aspects of the phenomenon, the critical aspects being those which are variable, and allowing the phenomenon to be experienced in differing combinations of the varying aspects, a deeper and more complex grasp of the phenomenon occurs (Marton and Booth, 1997).

d. The Necessity of Background Invariance. Should all of the Themes be simultaneous sources of variation?

For Runesson there is '*the importance of creating a pattern of variation and invariance in relation to the critical aspects* [those open to variation].' (Runesson, 2006, p.408).

Only through a background of 'invariance' can the variations and the relationship between aspects of the phenomenon be brought into focus for the learner. For Åkerlind, the educational intervention should draw '*attention to different aspects of the phenomenon by varying aspects whilst keeping others invariant*.' (Åkerlind, 2008, p.637).

Only some of the Themes should be varied together in any one educational activity; the others should remain unvaried.

e. Conceptual Expansion.

Åkerlind (2008) identifies the educational approach of phenomenographic Variation Theory to be 'conceptual expansion' rather than the conceptual replacement approach of some other theories. Less sophisticated experiences of a phenomenon

are not regarded as defective but merely incomplete, lacking aspects of the phenomenon '*that are focal in more sophisticated conceptions*' (Åkerlind, 2008, p.637). And therefore there is no rejection of ways of experiencing a phenomenon but an expansion of them to include those focal to the more sophisticated experiences. For Bruce et al. (2006), Åkerlind (2008) and others, the ambition of an educational intervention should be to develop in the student the capacity for all of the differing variations of sophistication of experience described by the Categories of Description, not just the most sophisticated. Students should be educated into the complete range of simpler experiences even if they are already experiencing Information Literacy with a high level of sophistication.

6. Developing an Experience Framework

Variation Theory, as we have seen, suggests that to provide a framework for evidence-based educational interventions, Themes of Expanding Awareness are paired or grouped so that variation in each Theme is experienced in the context of variation in its partner while the remaining Themes remain unvaried. How would this look in practice? And how would an 'Experience Framework' be developed from this principle?

a. Structure and Variation

As described above, the Themes of Expanding Awareness, are the 'aspects of the phenomenon open to variation' (Åkerlind, 2008; Runesson, 2006). The Themes therefore provide the structure of the 'Experience Framework' which in turn yields the context for educational activities, the purpose of which is to develop the experience of Information Literacy (or another phenomenon) exhibited in the

context of that Theme, through the simplest to the most complex Dimension of Variation and, therefore, Category of Description.

We have seen that Variation Theory implies that this is to be achieved through the recognition of '*the importance of creating a pattern of variation and invariance in relation to the critical aspects* [of those open to variation].' (Runesson, 2006, p.408). And that it is critical that variation is applied against a 'background' of invariance. Experiencing variation in the critical aspects of the phenomenon is achieved by '*drawing attention to different aspects of the phenomenon by varying aspects whilst keeping others invariant*.' (Åkerlind, 2008, p.637). The 'Experience Framework' identifies pairs or groups of Themes to be varied together while others remain unvaried, leading to descriptions of learning activities.

For example, (using the Themes Of Expanding Awareness from Forster(2015a) Nursing study as an example), Theme 2: *Relationships with patients, patients' families, colleagues and other professionals* could be varied with Theme 5: *Skills and Processes of evidence and other information gathering* together, while not varying other Themes. This would produce learning contexts which would focus on:

> *What does it mean to relationships with other professionals and with patients and family to be able to employ a range of techniques to identify and locate information for them and to share with them in differing contexts? What does Information Literacy mean within these parameters?*

b. Four Stages of Variation

How to move from these basic principles to a comprehensive framework? Marton and Tsui (2004) describe 4 stages in the process of variation to be applied as a

complete programme. The programme makes sure that variation is achieved consistently, thoroughly and appropriately for maximum educational advantage.

The first stage is *Contrast*. The choice of contrast is regarded as vital. The choice of Themes to form a pairing must be meaningful, and the Dimensions of Variation from the two Themes must be brought together in such a way to allow the full significance of variation within these Themes to be clear. For example, varying Themes 3 and 4 in the Nursing study (Forster 2015a) together will show that the varying complexities of Information Literacy experience in the context of Evidence-Based Practice and in the development of Best Practice in Nursing have a very significant effect on each other. Similarly Theme 3 could be varied with 5 and 6 to vividly show the contrasting effect of the varying complexity of experience of the skills and knowledge underlying effective information gathering, on the ability of Information Literacy to initiate the knowledge and knowledge-based decision making ability needed to achieve such complex goals.

Generalisation: All Themes must be involved at some stage, and in contrast with more than one of the others if possible. There should be sufficient range of contrasts to give a complete ‘picture’ of the phenomenon being studied. This helps the student recognise and contextualize their own limited experiences and (hopefully) promotes learning. As well as a full use of the Themes, the variation in each Theme must be completely demonstrated. For instance, in terms of the nursing study, by allowing a nurse to be made aware of all of the potential value to patients, to her team and to her own professional expertise and standing, of the adoption of more (and in some cases less) sophisticated aspects of Information

Literacy experience, considerable motivation to develop that experience may be created.

Separation: This refers to the necessity of varying only some of the critical aspects of the phenomenon discussed above. This allows the features of the phenomenon to be distinguished clearly by the student. In our examples above and below only two or at most three Themes are varied together.

Fusion: Requires variation of aspects of the phenomenon to occur simultaneously to allow the relationship of the aspects to be made clear and therefore the whole structure of the phenomenon. Themes must be varied in pairs or threes, not individually.

The use of contrast and generalisation combined with separation and fusion should provide sufficient comprehensiveness, focus and differentiation to produce learning experiences for nursing students which are likely to be effective (Åkerlind 2008).

c. The Experience Framework of an Information Literacy Module for Nurses

We can now present the 'Experience Framework': the Themes of Expanding awareness grouped for variation in order to generate learning contexts and aims. The Themes are meaningfully and tellingly varied (Contrast); all Themes are introduced at least twice (Generalisation) in pairs or threes (Fusion) while invariance in some themes is maintained within individual activities (Separation). Generalization has a depth and well as a breath dimension. It requires that learning materials should focus on experiences which cover the complete range of complexity within each Theme.

The additional detail provided by the Akerlind data analysis method, the variation of complexity in experience within each Theme in the form of Dimensions of Variation in Experience, allows the pairing of Themes to be rich and closer to the detail of experience. The capacity to experience Information Literacy in these contexts can vary from the 'simple' and day to day to the 'strategic' depending on the demands of context. The Akerlind detail gives a sure description of the nature of these variations to the advantage of educators.

A brief description of an Experience Framework and its potential application, based on Forster (2015a):

- **Theme 2: *Relationships with patients, patients' families, colleagues and other professionals*** paired with **Theme 5: *Skills and Processes of evidence and other information gathering***. (As described above).
  Students could be led to see the many different ways in which having good information gathering skills could provide the quality information which supports and develops relationships: supporting patients to make good choices or colleagues to improve their roles within the team.

- **Theme 3: *Helping to achieve 'Best Practice'*** paired with **Theme 4: *Understandings and Experiences of Evidence-Based practice*.**
  As briefly described above, this variation grouping investigates the application of evidence by the nurse to her attempts to achieve the best practice possible. The latter can become more ambitious as the grasp of the role of evidence is expanded.

- **Theme 3** ***Helping to achieve 'Best Practice'*** with **Themes 5** ***Skills and Processes of evidence and other information gathering*** and **Theme 6:** ***Understanding and Knowledge of the principles and concepts behind evidence and other information gathering*****.**

  As described above.

- ***Theme 4: Understandings and Experiences of Evidence-Based practice***, **Theme 6:** ***Understanding and Knowledge of the principles and concepts behind evidence and other information gathering*** and **Theme 7:** ***Information Literacy experienced through Applicable conceptions of information***

  This variation grouping would thoroughly examine the understanding and meaning of Information and Information gathering in each function of Evidence-Based Practice. A specific example might bring *auditing* and *knowledge of search strategy* and *information as a source of deeper investigation* into conjunction. What does Information Literacy mean when considered in terms of its role in audit; the varying conceptions of information used in Auditing; and the principles and concepts behind locating the information types that make auditing possible?

- **Theme 1:** ***Professional Self-development*** and **Theme 3:** ***Helping to achieve 'Best Practice'***

  This variation grouping examines the personal (ethical?) responsibility of the nurse in various professional roles to strive for Best Practice and how

Information Literacy links and forms the fabric of increasingly complex and valued professional roles and Best Practice outcomes.

- **Theme 1:** ***Professional Self-development*** ; **Theme 2:** ***Relationships with patients, patients' families, colleagues and other professionals*** and **Theme 7:** ***Information Literacy experienced through Applicable conceptions of information***

  This group concentrates on the intimate relationship between professional role and relationships with others, in the context of how the information used and exchanged in that relationship is conceptualised. For example, information conceptualised as 'A means of understanding a newly encountered clinical problem or phenomenon', for a nurse 'Becoming able to function non-dependently within the team' while 'Functioning as part of the multi-disciplinary team'.

7. Conclusion

Summary

The general principles set out above can be applied to the findings of any phenomenographic study into the experience of a phenomenon using Akerlind's data analysis methods.

Phenomenography's unique approach to investigating the variation in experience of a phenomenon, yielding a limited number of variations, is key to developing the 'Experience Framework'. Variation Theory, derived from phenomenographic research as a whole, shows how variations in experience can be used for

educational purposes. However there has been no previous understanding of the value of the 'extra detail and complexity' of Akerlind-type findings in the context of the use of Variation Theory to develop educational interventions. Interventions which can now reflect a more complex and detailed understanding of a groups experiences.

Next Steps

The 'Experience Framework' is now employed to:

1. *Develop scenarios for learning*. As described above, Theme 2: Relationships with patients, patients' families, colleagues and other professionals and Theme 5: Skills and Processes of evidence and other information gathering, when varied together would focus on in general terms:

> *What does it mean to relationships with other professionals and with patients and family to be able to employ a range of techniques to identify and locate information for them and to share with them in differing contexts? What does Information Literacy mean within these parameters?*

From this the educator might develop scenario work in which colleagues or patients are described in terms of their background and knowledge need. The students is required to search for relevant information and reflect on the consequences for that person of the nurse providing or not providing relevant information, and for the student's relationship with them.

2. *Pilot test the scenarios*. After pilot testing scenarios which cover all of the Theme groups and the varying levels of complexity expressed by the Dimensions of

Variation in each pair/group, the structure of a comprehensive evidence-based educational intervention takes shape.

Information Literacy or other LIS-focused educational interventions, if evidence-based in this way, have potentially greater ability to persuade professional organizations and HEAs of Information Literacy's value and validity, based as it is on actual experience and the demonstrable role of the phenomenon in the profession's or discipline's daily activities, or the student's learning processes.

Future Applications

The method described above could be applied to other contexts in LIS: any context in which a concept is experienced by users and the aim of Information professionals is an increase in the depth and complexity of that experience. 'Awareness of library services' or "understanding of the role of research' in the user's area of study, suggest themselves. An 'Experience Framework' might inform user education and induction programmes as well as more formal educational interventions.

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