

Using vignettes to diagnose information seeking strategies: opportunities and possible problems for information use studies of health professionals

Christine J Urquhart

Department of Information and Library Studies, University of Wales

Aberystwyth

cju@aber.ac.uk

INTRODUCTION

Vignettes, or vignette-type questions have rarely been used in studies of information seeking, although in many respects the methodology is suited to studies of information behaviour. Vignettes can be described as stories, usually short, about particular characters and situations. They are generally hypothetical, but often rooted in the reality of research findings. In an interview or questionnaire survey setting respondents may be asked open or closed questions to reflect their response to the situation, to describe what could or should be done. A vignette approach was used in a small scale study of nursing professionals in the UK (Urquhart & Crane, 1994) and a similar approach used in the EVINCE project (Davies *et al.*, 1997) to assess information seeking strategies. The technique offers advantages in that perceptions of particular information sources can be obtained in a non-threatening manner, an important point for studies of information seeking behaviour with a group such as nursing professionals who may feel very uncertain about their information retrieval skills. This paper briefly reviews the use of vignettes in social sciences and in the health sciences, for both research and educational assessment. Analysis and interpretation of vignette studies is discussed with reference to the EVINCE project findings. The way nursing knowledge is acquired and codified may affect the validity of the vignette technique for eliciting information seeking strategies. Professional knowledge may be tacit (i.e., largely personal and hard to communicate) or explicit (codifiable, formal and systematic) (Polanyi, 1966)

and the relationship between tacit and explicit knowledge may have to be considered. Medical knowledge is possibly structured differently and case-related experience may affect reactions to a vignette in unpredictable ways.

USE OF VIGNETTES IN SOCIAL SCIENCE RESEARCH

Descriptive vignettes have been used to elicit attitudes or perceptions which might be more difficult to reveal using a more direct approach. Attitudes and beliefs may be labile in that response may depend on the particular situation, and the interaction between situation and existing values, rather than reflecting fixed codes of ethics or beliefs. In contrast, attitudinal statements invite respondents to express beliefs in a vacuum (Finch, 1987). Adding context to the question as a vignette may help to clarify whether, for example, a fixed code response or stereotyping exists, or whether real life assessments would be made on the basis of the evidence. Cline and Ertubey (1997) used vignettes to establish whether teachers' evaluations of children with problems had a gender bias (as more boys than girls receive provision for special educational needs).

Format of vignettes

Vignettes may be used in several different ways in social science research. The situation description may be long or short and may be presented written down or given orally. Sometimes the vignette is in the form of a video (e.g., Doblin & Klamen, 1997) and virtual simulations (Pierce & Aguinis, 1997) have been suggested. Responses (oral or written) may be collected through closed or open-ended questions.

The vignette itself may be devised on the basis of qualitative research as a means of encapsulating particular scenarios (Miles & Huberman, 1994) or as a means of testing the constructs developed by the researchers for validity by presenting scenarios based on the constructs to test the validity on a small sample of subjects (Greenhalgh *et al.*, 1998). In another more quantitative approach an outcome study of schizophrenia categorised severity against certain variables using analysis of variance. Vignettes of the patients with the best and worst symptomatic outcomes were compared (Johnstone *et al.*, 1995). More often the vignettes are developed from hypothetical but realistic and relevant situations with some validation by expert practitioners (e.g., Johannsson & Wertenberger, 1996 (nursing), and Campion & Gabriel, 1985 (GP consultations, later replicated in Morrison *et al.*, 1991).

The subjects may be presented with one vignette or several, depending partly on the purpose of use of the vignette in the research, though Lanza & Carifio (1990) stress that control or placebo vignettes should be used. Hebert *et al.* (1990) developed five vignettes to assess the ethical sensitivity of medical

students in different years and found that it was feasible to use vignettes to discriminate between students (each student saw one vignette). In a later study (Hebert *et al.*, 1992) student subjects were presented with all four revised and reviewed vignettes, and the consensus 'gold standard' of expert judgements on the number and type of ethical issues identified was used as the basis of comparison with student judgements. In other studies the independent variable may be manipulated in a factorial type of design, an example being a study of physician judgement of chronic low back pain where factors for pain intensity x medical evidence x affective valence were manipulated across eight written case summaries (Tait & Chibnall, 1997).

Use of vignettes to explore perceptions

Vignettes are frequently used to explore beliefs and perceptions on topics where there may be some reluctance or uncertainty on the part of the subject to respond truthfully. Examples of the use of vignettes include a study of the attitude of nurses towards patients with AIDS (Forrester & Murphy, 1992) and the Family Obligations Project (Finch & Mason, 1993) Kane & Parahoo (1994) deliberately introduced an awkward situation for a junior nurse in a vignette concerned with patient lifting, and results revealed the desire to avoid negative reactions from other staff, a 'conforming' behaviour despite knowledge that the lift would be unsafe.

Vignettes can be used to obtain details of both knowledge and attitudes of different stakeholders on controversial issues. Emanuel *et al.* (1996) interviewed patients, oncologists and members of the public to assess their attitudes and experiences in relation to euthanasia and physician-assisted suicide for patients with severe cancer-related pain. Jorm *et al.* (1997 a, b) interviewed surveyed health professionals and the public for their reactions to a vignette of a person with either depression or schizophrenia, to assess what they thought was wrong and what types of help should be sought. Results revealed a wide discrepancy between professionals and public on the apparent 'helpfulness' of various interventions and recognition of the implications of those mental conditions.

USE OF VIGNETTES TO EXPLORE INFORMATION SEEKING BEHAVIOUR

A search of LISA revealed few studies which have used vignettes except as general illustrative descriptions of particular places and situations, or as exemplars (e.g., the reference interview in a law library (Moss, 1979). Stenhouse (1981) considers vignettes as part of case study research as a reporting method, for studies of senior school pupils' approach to independent

library-based project work. A review of qualitative methods in information retrieval research (Fidel, 1993) make no mention of vignettes as either a process in data analysis or as a means of obtaining perceptions of users. There are studies which consider the meaning of 'accessibility', the cognitive stages of the search process, but much of the research is rooted in consideration of the match between characteristics of the information system and the information user, with emphasis more on user skills and competencies to meet the technical demands of the system. Kuhlthau (1991), however, stresses the importance of the affective aspects of the search process, noting that at initiation of a search task feelings of uncertainty and apprehension are common, and these feelings recur during the exploration phase when the information has to be internalised.

In a small scale study (in Plymouth, UK) to determine appropriate library and information services for changing needs in nursing continuing education, vignettes were used to determine perceptions of sources available and assess information seeking strategies (Urquhart & Crane, 1994). Part of the reasoning behind this approach was the observation on the part of the library staff that some of those attending continuing education courses and study days seemed very unaware of information sources, of any type. The first stages of user education and support seemed to be the stage of providing confidence that a difficult clinical situation could be viewed as a problem which information could help to resolve. Kuhlthau (1993) modelled the information search process as one which involved uncertainty, stages of optimism, confusion and doubt, confidence and finally satisfaction and disappointment. The affective nature of information seeking, based on longitudinal studies of an information search process (e.g., Kuhlthau, 1991) is emphasised, and in the Plymouth study it was important to assess attitudes towards the various local library and information services that nurses might view as 'useful'. Other techniques which might be used to explore behaviour include the critical incident technique (Flanagan, 1954), though this, by contrast, requires a memorable incident where the purpose of the act seems clear and the consequences are reasonably certain. Critical incidents by definition concern an event, and will provide details about the patterns of information need and use, but the technique is less suited to examining perceptions which may affect whether, and how, information needs are expressed or ignored.

Using vignettes for studying nurses' information seeking behaviour

In the Plymouth study the vignette was presented to the interviewees, at the end of completing a structured questionnaire concerning their continuing education needs and use of journals. The problem was printed at the top of the sheet, and interviewees asked to write down their response. The raw data were analysed using a coding process. By making comparisons, and drawing together several

themes, four mutually exclusive categories of information seeking emerged: 1) Use of more than two sources, with information seeking strategy; 2) use of more than two sources, with no evidence of information seeking strategy; 3) use of two or fewer sources, with evidence of an information seeking strategy; and 4) use of two or fewer sources, with no evidence of an information seeking strategy. Within category 1) Use of more than two sources, with information seeking strategy, there was a subset of responses which indicated a strongly entrepreneurial or project management approach to the collection of information, and subsequent collation and processing of that information. This small group included nurses who had done some research, possibly as part of a degree course at undergraduate or Masters level. The possession of a strategy was judged on the basis of evidence indicating awareness that certain sources would yield certain types of information, and/or that a particular sequence of steps would be followed in gaining information (if/then responses).

Analysis also revealed that the more expert information seekers (more than two sources used) did not use colleagues and managers, or the clinical specialists as information sources in a way that significantly differed from the less expert group (two or fewer sources used). The expert group were more likely to mention use of a library as one of the sources used.

One of the problems encountered in the research was the design of the vignettes, which were based on genuine queries presented to the College library or articles in the recent nursing literature. Some of the vignettes clearly worked better than others, but this was difficult to predict in advance. A selection of the more successful vignettes was later given to a group of final year pre-registration diploma students, who had no problems in completing the vignettes.

In a later project (EVINCE - Establishing the Value of Information to Nursing Continuing Education) vignettes were used again with some variation in the methods of presentation (Davies *et al.*, 1997). Most of the vignettes were piloted (though for some that was impossible). The interviews were made by telephone which meant that the vignette was read out to the interviewee and responses invited. A pre-coded checklist was used, based on the findings of the previous study to help the interviewer when taking notes. Vignettes (16 in total) were divided into categories for nurses working in: 1) acute units; 2) midwifery; 3) health visiting/school nursing; 4) supervisory roles; 5) clinical teachers; 6) mental health/ mental handicap; 7) geriatric nursing and 8) family planning. For the purposes of the EVINCE project responses were analysed to determine level of confidence in information seeking, awareness and personal knowledge of sources that could be used, strategies for finding information and reliance on colleagues and personal contacts. A typical vignette was:

Your colleague needs to know about all the ways in which alternative/complementary medicine might be used in your ward. She wants the pros and cons of the use of

alternative therapies, possible therapies and names of local practitioners or courses that staff might be sent on. How would you help her?

Vignette findings

The majority of interviewees were able to make some constructive suggestions about sources of information that could be tried. Around 60% would probably use two or fewer sources of information to solve the problem. There were some slight differences in strategy depending on the actual vignette used. Most of the 60% group knew some likely sources of information. The actual strategy might depend on their situation, and personal knowledge. Sometimes there might be a definite strategy outlined, indicating which source would be consulted first (and why), and what alternative route might be followed if the initial source tried had been unproductive.

However, this type of sequencing strategy was significantly more likely to be associated with the group who used more than two sources of information (chi-squared 13.2, 1 degree of freedom, significant at the 5% level). The group indicating that they would use more than two sources of information (around 40% of the total) were therefore more likely to be the confident information seekers, often prepared to set out a search strategy. Approximately one quarter of the interviewees could be viewed as 'expert' information seekers, prepared to use more than two sources of information, with a defined strategy. The remainder may have a strategy but less knowledge about different sources, or knowledge without a defined strategy.

Further analysis considered the combinations of sources used, and the evidence for appraisal and personal knowledge of the sources (formal and informal) mentioned. Very roughly, it might be estimated that within a group of UK nursing professionals, (and remembering that most may have some recent experience of formal continuing education):

- 25% are confident information seekers (*expert*)
- 15% would knowledgeable use a limited number of sources (*narrowly focused*)
- 15% know sources of information but are less sure about strategies (*aware*)
- 25% have some knowledge of source and information skills (*novice*)
- 20% have limited knowledge of sources and information skills (*dependent*)

There was little difference between the group using more than two sources of information and the less expert group (using two or fewer sources) in knowledge of the good and bad points of particular information services. While some comments indicated that library use was associated mainly with the requirements of course work, it was clear that many had used the local hospital or (often less

local) College of Nursing/HE library. Formal continuing education will provide opportunities for many to use an academic library, although the opportunities for informal contact with colleagues should not be forgotten either. Personal contacts are an important feature of continuing education, formal and informal, and such contacts will be used to help with a particular information problem. The small group (around 5 individuals at most) who appeared rather flummoxed by the vignette did usually say that they would approach their superior for immediate help with the problem. The more expert information seekers will use their network of personal contacts, often as a means of testing out opinions as much as for the information received.

Some of the vignettes could be used with a larger number (at least eight) of the interviewees and the comments made indicate the wide range of approaches that might be taken to solve an information problem.

Example: Discharge planning vignette

A colleague has read that discharge information on audio tape had an improved outcome on patients' physical functioning. She would like to you help her find out if this is true from research - and assistance in making a tape for your ward. How would you help her?

The action researcher

'would want to see her information first ... could do a CD-ROM search ... failing that could do a trial myself and see what results come up'

Instant expert information required

'audio tapes do have something to offer, particularly in stoma care... often there's too much to do and there are too many other things going on ... so audio is useful... would most likely approach practitioners - if known... libraries have some of this information perhaps .. but information must be quick and accessible'

Use of national services

'could ask RCN... no personal knowledge of this but I know that I could'

Combination approach

'would phone college to do literature search first, ask where they (colleague) got the information etc. like to use a personal approach - go and talk to the people doing it (audio tape)'

Personal contacts and expert opinions seem particularly important when there are a number of aspects of care that need to be considered and where the little things might matter a lot. For many nursing professionals 'seeing is believing' and observation of others' practice is important when assessing the relevance of primary nursing, for example.

Validity of vignettes

It is not easy to be sure whether projected actions prompted by the vignette would actually happen in practice. By asking questions about concrete situations

concerning hypothetical third parties it may be possible to find out about the norms and values subjects use (Finch, 1987), while distancing subjects from personal experience. In the EVINCE project it seemed more realistic to couch the vignettes in terms of advice given to colleagues as previous studies and personal observations indicated this would be a natural action on the part of the nursing professional. There is some evidence that answers to a vignette are related to the real life practice (Rahman, 1996), but proving this is really beyond the scope of most research studies on vignettes. Hughes (1998) suggests that for studies on risky behaviour (drug injecting and HIV risk) it is important to prompt the subjects to obtain details of what they think would realistically happen as well as what subject thought should happen. Interpretation of the vignette in that study was helped when the participants had some experience of the situation described, which was an impression gained on EVINCE by the interviewers.

In EVINCE the actual possible behaviour was of less importance to the analysis than the user's rationale for the behaviour. The vignettes revealed information seeking strategies and the reasons for those strategies effectively and provided an estimate of the information seeking skills deficits. In the project these findings were triangulated with other survey findings on reading selection criteria and use of computers, as well as the estimates of the value of any information received from the information services. A critical incident study provided more details about purposes of expressed information needs and sources used, but it was only through the vignette that some of the general strategies, and reactions to a information seeking problem (rather than a prescribed information seeking task) could be revealed.

Many of the vignette studies in the social sciences are exploring moral dilemmas and ethical courses of action based on general knowledge. Few studies consider the way that knowledge is acquired or structured, or the professional role obligations (though social role obligations are considered). However, if the problem solving approach critically depends on 1) the professional role and responsibilities of the user, and/or 2) case-related experience for professional knowledge, then the approach taken by subjects to one vignette may not be diagnostic of any general information seeking strategies, or information retrieval skills. Response may be governed by some combination of perceived professional obligations and familiarity with similar situations. For EVINCE, results from the critical incident part of the study, combined with results of an information impact analysis, suggest, somewhat surprisingly, that work role has little effect on nurses' information seeking strategies. Possibly the subgroup size was too small to show an effect, but an equally plausible reason might be that differences in information seeking strategies are at the individual level for nursing professionals. The strategies observed from analysis of the vignettes may be affected more by the extent to which problem solving skills,

formally or informally taught in pre-registration diploma or post-basic courses, have been internalised by individual nursing professionals, rather than expectations of the role and grade (which may be poor approximations of what nurses actually do).

The effect of case-related experience is difficult to estimate from EVINCE as the choice of vignette to be used for an interviewee was made to match their situation as far as possible (to make the problem relevant and non-threatening). The different approaches taken by subjects to the same vignette suggest that strategy differences are at the individual level, but how much this is due to case-related experience itself or the ability to reflect on that experience is hard to say. Inductive description of everyday events is assumed to precede the knowledge generating deductive phase in one model of promoting research based practice in nursing (Kitson *et al.*, 1996). How individuals do that may depend on their ability to reflect on practice. Hamers *et al.*, 1997) noted in a vignette study of the effect of expertise on pain assessments that expertise had no effect on assessments of pain intensity. Expertise had some effect on the subjects' confidence in their decisions. The indications from EVINCE seemed to be that general information problem solving strategies were largely independent of the content of the vignette, though some familiarity with the content area, might have prompted fuller responses. Ideally it would have been useful to use more than one vignette for each subject to assess what the effect of content might have been.

Case related experience and role: implications for using vignettes as a diagnostic tool

For doctors the effect of case related experience is likely to be more complicated. Many studies (e.g., Schmidt *et al.*, 1990) point to content specificity in diagnostic reasoning, and confidence acquired in treatment decisions on the basis of limited experience of similar cases. Schmidt *et al.*, (1990) suggest that clinicians use 'illness scripts'. These contain little about the pathophysiology per se, but much about the disease, the enabling conditions and the consequences. This model, they claim, accounts for the differences observed between novice and expert clinical problem solving, and the fact that experts gather less diagnostic data when making clinical decisions. An early study on the process of clinical problem solving (Elstein *et al.*, 1978) hinted at the importance of case related experience when criterial physicians could not be distinguished from the non-criterial (less expert) physicians. Problem solving competence appeared to be related to the case, rather than to general and transferable problem solving skills. Elstein *et al.*, suggest that the differences between experts and weaker problem solvers are probably related to a greater repertory of experiences, suitably organised in long-term memory. Reactions to

a vignette may depend more on clinical experience of similar cases than on generic 'problem-solving' strategies (Gruppen *et al.*, 1988), though some studies on 'situation-dependent' clinical cognition (Timpka *et al.*, 1997) indicate how realistically valid cases might be constructed. More recent studies on the use of case vignettes as a tool for assessing diagnostic medical competence suggest that results should be considered indicative only (e.g., Gude *et al.*, 1997). If response to the content of the vignette depends on the ease with which the doctor can match it to a pre-existing illness script then designing a clinical vignette which also tests information seeking strategies is likely to be difficult.

Problem-based learning is more in tune with information seeking skills and strategies of the type that were assessed in EVINCE. Case vignettes have been used to assess EBM competence, though the emphasis here was on the effectiveness of a training programme (Green & Ellis, 1997), rather than the pattern of individual competencies.

Results in the Value project (Urquhart & Hepworth, 1995) found some differences in the pattern of information seeking and use among groups of doctors which indicated that length of experience and role expectations did affect information seeking strategies adopted, though for senior doctors a variety of individual strategies was more evident. Possibly the physical constraints on information seeking (lack of time) for junior doctors, combined with particular role expectations do mean that there is a stronger 'group' effect for their information seeking behaviour.

Use of vignettes as a diagnostic tool for assessing information strategies might therefore be more problematic with doctors, and might depend on their exposure to 'problem-based learning', individual case experience, and expectations of their work role. Where professional knowledge does require learning a large body of facts, which is organised, for ease of recall, as 'case stories' or 'scripts', vignette methods would have to take account of case-related experience.

CONCLUSION

Vignettes offer an alternative method for assessing information seeking skills and strategies, though preferably in combination with other techniques. The method probably works best when differences in strategies are at the individual, rather than the group level. The effects of case-related experience makes construction and interpretation of vignettes more difficult for certain groups of professionals and the technique appears to be dependent on the way professional knowledge is acquired and developed.

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