

AN EXPLORATORY STUDY TO TEST THE APPROPRIATENESS OF QUALITATIVE METHODS TO INVESTIGATE PRIMARY SCHOOL TEACHERS' BELIEFS ABOUT THE NATURE OF KNOWLEDGE AND OF LEARNING

Christine Perrott

Armidale College of Advanced Education

ABSTRACT

The paper reports details of research undertaken in 1982 with the objective of testing the appropriateness, and to trial the practicality of using qualitative methods to investigate the beliefs of primary school teachers about the nature of knowledge and of learning; indicates why the methodological approaches of most previous related research was seen as inadequate for the posed research questions; outlines the theoretical considerations used to justify the methods chosen; describes the research procedures including data collection, analysis and interpretation, and the mode of reporting the findings; and concludes with an evaluation of the appropriateness of the methods used.

1. The Purpose of the Study

It has been recently claimed (cf. Soltis 1981) that different views on the nature of knowledge and of learning underwrite different views of educating. From this claim it can be argued that what a teacher believes about the nature of knowledge and of learning underwrites, affects and is manifest in that teacher's pedagogic practice. Two important questions arise here, however, whether such a claim is empirically supportable, and what in fact are teachers' beliefs in the nature of knowledge and of learning. Whatever the answers, they have significant implications for educators most of whom tend to accept, either implicitly or explicitly, that teachers' practice needs to rest on a theory of learning or of knowledge, and accordingly should exhibit certain characteristics. For example, assumptions exist throughout educational literature and research that there is some connection between a teacher's "theory" in relation to learning and knowledge and his/her "practice" in teaching. They are especially prevalent in current literature about educational innovation and change (e.g. Olson, 1980; Tisher and Power, 1978) and in writing for and about the training of teachers (e.g. Weil and Joyce, 1978; Lamm, 1976). There has also been a number of studies into what are variously called teachers' attitudes (e.g. Oliver, Butcher, Oliver and Butcher 1953, 1965, 1962, 1968; and Kremer 1978), opinions, (e.g. Morrison and McIntyre 1967), values, (e.g. Martin 1980), philosophy, (e.g. Borschee and Hein 1978; Starky and Barr 1972) ideology, (e.g. Young 1978, 1980; Finlayson and Quirk, 1979) role conceptions, (e.g. Adams-Webber and Mirc, 1976) which assume or claim that a teacher's theoretical position is, or should be, of some importance or influence in teachers' pedagogical behaviour.

Educational writers of renown from Plato to Bruner draw educational implications from theoretical positions and/or have supported their pedagogical advice with carefully argued rationales. These rationales consist of explicit metaphysical and/or epistemological and/or psychological claims. Many recent educational policy documents do this also (e.g. Plowden Report; Reports of the Australian Schools Commission).

Some recent and influential writings on the nature of the school and schooling and based on a neo-Marxist position (e.g. Bowles and Gintis, 1972, 1973) also assume or claim some form of connection between teachers' theoretical position and what happens in the classrooms of our schools.

Despite this imbuing of educational literature with claims or assumptions which suggest a connection between a teacher's theory about learning and knowledge and his practice, there has been little satisfactory empirical investigation of this - "we simply do not know enough about what kind of theorising teachers engage in when they are teaching" (Bolan 1983:79).

This is, however, not surprising when one considers the complexities and difficulties involved in such research. Studies of relationships between what have been termed "attitudes"

and behaviour have clearly demonstrated many of the difficulties. (cf. Ehrlich, 1969).

Perhaps the greatest problem is to define and collect those data which would accurately indicate a teacher's theory of knowledge and of learning. In addition, there are complications involved in the task of establishing what would indicate an affect, or a connection, between this "theory" and teacher behaviour.

It was the purpose of this study to attempt to clarify some of the major theoretical difficulties associated with a study into what are teachers' views on the nature of knowledge and of learning and to trial those investigatory procedures seen as most appropriate in the light of this clarification.

2. Deciding on the Methodology

a) The Review of related studies and their methodology

Most related studies have used questionnaires and interviews as their data collection instruments. Regardless of the individual merits of these studies, it is necessary to consider why such an approach was not thought adequate for this present study.

The major difference between these studies and the present one lies in their objectives. They had concerns of a different type to this researcher. Many, for example, wished to compare groups by using preestablished categories of "philosophies", "beliefs", "attitudes" etc. e.g. Abbas (1949), Oliver (1953), Butcher (1965), Oliver and Butcher (1962) (1968), Erlich (1963), Thomas (1968), Starky and Barr (1972), Thomson (1981).

Other researchers wished to examine "beliefs" to see if they were related to other variables such as occupation e.g. Kerlinger (1956) and Sontag (1968). (These researchers used a Q-sort technique, not a questionnaire).

Comparison of teachers' beliefs systems, and sometimes their practice, with a particular teaching approach has also been an aim of some related studies e.g. Brown (1969), Cantrell et al. (1977).

A different objective again has been to test an hypothesis explaining claimed lack of congruency between teacher "beliefs", "attitudes" etc. and their teacher behaviour e.g. Kremer (1978). Others have examined if teachers' views towards a particular teaching method or curriculum program were related to observed behaviour e.g. Olson (1980), Coman (1979), Tisher and Power (1978).

The objectives of these studies were such that they could rely largely on a form of methodology which collects teachers' statements on, or agreement with, certain views/attitudes/beliefs. This approach, in the main, rests upon assumptions that teachers' pedagogic perspectives fall into "types", can be categorised into "types", or can be compared to or measured against a "type". They begin their data collection with a formulated series of "ideas" or "views" as items. Such an approach is, however, not appropriate if one wishes to elicit the teachers' implicit and explicit beliefs on learning and knowledge.

Bussis et al. (1976), in contrast, used an indepth interview technique to find what teachers said about their teaching and the reasons behind and the underlying assumptions to their teaching. It was concluded that the degree of connection between a teacher's underlying assumptions (termed "deep curriculum" by these researchers) and his/her teaching in the classroom ("surface curriculum") was a product of how dissonant was the teacher's deep curriculum with what was expected of him in the classroom. This conclusion could not have been reached (and should not have been sought) using the questionnaire and interview schedule techniques of earlier mentioned studies.

Gibson (1973), Stebbins (1975), Berlak et al. (1975) and Edwards and Furlong (1978) wished also to look in some depth at the characteristics of classrooms and the roles of the participants, and for this reason chose as appropriate a methodology which they hoped would see beyond the surface representation to meanings.

The current research of Smith (1983) into teachers' "frames", their rigidity and flexibility, and how this affects teachers' practice, employs a methodology which does not

rely on questionnaires but involves teacher-researcher interview and observation of interaction.

Likewise, examination of the function of the teachers' interactive thoughts during teaching (cf. Marland, 1977) and the relationship of planning-thoughts to teaching behaviour (cf. Petersen et al., 1978) requires a methodology which takes what teachers themselves say and relates it to what they do and their rationales for, and comments upon, what they do. Teacher statements and explanations and teacher classroom behaviour formed the basic data-base in these studies.

In the light of the above summarised review of related research this researcher began to feel that the main concerns and question of the present study could only be answered adequately by employing a methodology which falls into the category 'naturalistic'. Data collection which concentrates on providing information for interpretation based on quantitative analysis would not enable the researcher to collect those data and offer those analyses and interpretations which reach beyond surface representations and the explicit.

b) Theoretical Considerations

A review of recent related literature on teacher assumptions and beliefs indicated that the area of concern to this study can be seen as falling under the rubric of "teacher perspectives" (Hammersley, 1977). "Perspectives" is explained as the matrix of assumptions by which sense is made of the world and on which is based action in dealing with the world. Esland (1971, 1977) uses the term "pedagogic perspective" to refer to those assumptions of interest to this study, and other writers lend support to this by analysing teaching as that action which involves the intention that some person(s) learn some thing(s). (Crittenden, 1974; Freyberg, 1980). Such intentions necessarily involve thought about the nature of learning (that some person(s) learn) and the nature of knowledge (that some thing(s) be learnt).

Having established that it was pedagogic perspective this researcher needed to investigate, the question remained - "How does one ascertain the assumptions of others?" This question is particularly problematic if one accepts that many assumptions are routine, taken for granted and largely second nature (Schutz, 1967). A questionnaire does not suffice in these circumstances. One method is the in-depth interview as used, for example, by Becker, 1977 to elicit information on teacher attitude and reaction to pupils, or as did Bussis et al., 1976 (see earlier). However, the indepth interview will not provide direct information about action, and sometimes provides incorrect information regarding this (Argyris and Schon, 1974; Goodlad and Klein et al. 1970). This suggested there was a need to combine observation and indepth interview in the data collection phase.

In addition to these considerations, this researcher became convinced that perspectives are the outcomes of the continual interaction between thought and action in daily existence (Ryle 1949; Hampshire 1959; Berger and Luckmann 1967). The point that perspectives are situationally interactive has been made by others to support the use of a non-positivist methodology to investigate them (Esland, 1971; Young 1978, 1979, 1980), but not to support specifically the use of observation of action. However, once one abandons the notion of the existence of largely unchanging underlying assumptions, one is forced to move into the interactive arena, that is into where takes place the action, in order to ascertain correctly what is a person's perspective. Also, by this means the researcher is more likely to be able to tap the less explicit levels which exist in a person's perspective (Schutz, 1967; Spodek and Monalakes, 1975).

For the reasons discussed in (a) and (b) above then, it was decided to trial a methodology which has as its main data collection procedures in-depth teacher interview and situation observation.

3. Methodological Procedures

Once a decision had been made on the general methodological approach, it was necessary to confront the more specific questions of who should comprise the sample, when should the data be collected and how this was to be done. These decisions and the reasons for them will now be explained.

(a) The Sample

It was decided that the sample be primary school teachers. This was not only because this is the area of interest to this researcher, but also because the circumstance of the primary teacher lends itself to the teacher being able to establish patterns and routines of pedagogical behaviour which can indicate his/her pedagogical perspective with more clarity than would be possible with high school teachers who have constant class changes. Also, primary school teachers are responsible for teaching a broad curriculum and their behaviour and perspective in relation to this gives a much wider basis for making judgements with regard to their beliefs on epistemic matters.

For the purposes of this investigation it was felt that a sample of teachers in the one school would be more appropriate than a sample consisting of teachers from a number of schools. In the former case, the institutional/contextual features would be more similar for the teachers than in the latter. Also, it was felt that a pattern of "intervention" regarding these features might emerge. It was inevitable that the sample be small because of time constraints (see below) and the use of the one school has the following additional advantages: when there are a few teachers "suffering" research together, it is usually easier to find willing participants; the researcher learns the routines of the institution and this enhances interpretation of events and behaviours; the researcher is seen regularly within the institution and is not overly regarded as a stranger; and the researcher can assist teachers in a number of areas (e.g. playing the piano at assemblies) and become generally more absorbed into and aware of the culture of the school. It was decided that four teachers, two in each of the Departments, Primary and Infants, would be manageable. As the researcher was a lecturer in full-time employment, it was necessary for the data collection to be done in a school near to the place of work. The periods of data collection chosen had to be ones where commitments of face to face lecturing were few (e.g. students away on practice teaching). A local school was approached, the Principal and Infants mistress being contacted in the first instance and their support obtained.

The school contacted has separate sections for the Primary (years 3-6) and the Infants (K-2). These sections are located on either side of the road in the same block. In many respects, therefore, the two departments, Infants and Primary, are independent, each having its own "principal". This independence is not complete in that the departments belong to the one school and the staffs see themselves as members of the one school.

In the primary section of the school most curriculum and teaching matters are supervised by a grade co-ordinator, there being three classes for each grade. The Principal of the Primary is not directly responsible for this. This contrasts with the situation in the Infants department where the Mistress herself acts as grade co-ordinator for grade meetings at each level (K-2).

The teaching across the school operates on a one-teacher-per-class of 25+ system. Each class is located separately in a particular and regular room. There is little interchange between teachers and classes during lesson time. The exceptions are the grade assemblies and sport and craft lessons for which all classes of the one grade come together once each week.

In both departments, parallel (heterogeneous) classes are preferred. However, in the higher grades of Primary, a cream of better pupils is skimmed into an "A" stream and the remainder placed into two parallel classes (Years 5 and 6).

The above organisation and arrangements within the school suited the purposes of this study's methodology. It was possible to stay almost entirely with the one class and teacher and observe for a week his/her teaching with the same group of children in the same teaching space.

The teaching spaces for all teachers observed for this study were similar. All rooms were square, or almost square, and had windows on two opposite walls. These windows extended almost the entire length of both walls. Chalkboards and/or display boards were attached to the remaining two walls. All rooms seemed crowded because of appointments additional to desks and chairs and attempts to create at least one "open" area free of tables and chairs and partially isolated from the body of the room. The visited classrooms had a neighbouring classroom adjacent to them and separated from them by a small hall-cum-cloak room. In one sense, the operational classrooms were isolated but in another sense, in location, they were not.

After support for the research had been gained from the Principal and Mistress individual teachers were approached personally and the study's objects explained to them. Some teachers approached declined to take part because of impinging circumstances e.g. practice teachers visiting, trialling a new course, going away to an in-service course during the period. Only two refused, one on the grounds that he felt "overresearched"; the other had been at the school for only two weeks. The sample was thus not made up of a cajoled or unwilling remainder.

Of the four teachers in this study two were in the Infants section and two in the Primary. Those from the former (M and G) both taught Year One classes whilst one Primary teacher (R) taught a Year Four class, the other a Year Six (P). This latter teacher, P, was the only male in the sample. With the exception of R, all teachers had over 10 years teaching experience.

(b) The Observation Procedure

It was seen as obvious that the central observation arena for data collection on pedagogic perspective would be the classroom. Other arenas which the teacher and his/her class entered during teaching hours, e.g. the library, the sports field, also were seen as relevant situations for data collection.

It was decided that the researcher should be "attached" to each teacher for one week during school hours. This decision rested largely on the consideration that a primary school teacher usually teaches to a weekly schedule of sessions with the class.

The data were collected by constant, verbatim note-taking of classroom verbal interaction and of gross movements within the classroom (e.g. teacher moves from desk to chalkboard and rules lines); by taking notes after conversations in the classroom or playground; and by summary "impression" notes at the end of each day of data collection. These summary "impression" notes included mini hypotheses as to what the data were indicating about the teacher's pedagogic perspective. These hypotheses were regularly reviewed as the observation and data collection proceeded.

(c) The Interview Procedure

It was decided to use a semi-structured interview with a number of key questions with probe guidelines for each item. The objective was to ascertain the teachers' statements on their pedagogic perspectives, to obtain stated rationales for the approaches used in their classrooms and to follow up questions and any unclear points arising from the observation.

The choice of the key questions was guided by theoretical considerations already mentioned and by a detailed review of the writings of a number of renowned "educationists" who expressed a position regarding the nature of knowledge and of learning and who also outlined the practical implications of their position, e.g., Plato, Comenius, Dewey, Bruner, Freire, Ausubel, Peters. Some examples of key areas arising in these writers' psychological and epistemic positions are: how the child learns, the place of the teacher and other influences in this process, the source, importance, organisation and the gaining of knowledge.

Each interview took place over a cup of coffee after teaching hours at the school and took a little over one hour. Interviews were audio-taped.

(d) Relevant printed and written matter

Documents and other printed materials (e.g. pupil work stencils) were collected. The teacher's curriculum programs were seen as of particular importance to the study's concerns and photocopies of these were collected by the researcher.

(e) The data collection details

The data were collected in two phases, one at the Infants department over a period of three weeks (two full weeks of non-participant observation) and one at the Primary section of similar duration. All data collection of the first phase took place in the latter part of term one and the second phase in the second (winter) term of 1982. These periods are usually the most routine and settled in Primary schools. This is because participants have had the early weeks of term one to become used to each other and there is not the disruption which tends to occur in term three, e.g. concerts, swimming schools.

4. Data Analysis Procedure

As has been mentioned above, mini-hypotheses were formulated and tested during the data collection phase. These mini-hypotheses concerned the existence of recurring assumptions in the teacher's pedagogic perspective. One example was the assumption that repetition and practice are vital in learning, another that the teacher is initiating the child into 'out there' knowledge. At the end of the data collection phase it was possible to hypothesise that the following assumptions or "themes" were repeatedly occurring in the data and were thus crucial indicators of what constituted to varying degrees, each teacher's pedagogic perspective. These themes were as follows: Learning: I do and I remember; practice makes perfect; teaching is important; learner product and accountability are of consequence; variety interest and enjoyment count; learning is enhanced if built on experience; praise and other rewards are crucial; nothing succeeds like success; and some are dull, some average, some bright. Knowledge: Knowledge is 'out there', teacher is initiator; there is acceptable and unacceptable knowledge, teacher is censor; understanding is involved in knowledge; tried is true; and knowledge is arranged into separate, distinct sections (disciplines.)

To discover whether these themes were indeed evidenced in the data as strongly as it first appeared, a coding system was devised with each theme receiving a coding indicator. This coding system was then used to analyse the data for both contrary and supportive examples. In the process of doing this some lesser themes were indicated as existing in the data and were added to the coding system, for example, learning from mistakes helps, understanding is more than learning.

There were also recurring indicators of the influence upon the teachers' pedagogic perspective of their perceptions of the role of the school and of the teacher, and of the existing context of the school. These themes were thus also given coding indicators and the data analysed for pro and con examples of these.

It appeared that these above themes were in fact substantive concepts in the teachers' pedagogic perspectives, because examples of them appeared over and over again in the data.

5. Interpretation Procedures

Even as the coding proceeded a cohesive picture of the teachers' pedagogic perspectives was emerging, largely because of the persistence of the "themes" throughout the data. It was originally thought conceivable that the reported interpretation would involve a teacher-by-teacher consideration and description, but in the event it was possible to interpret all the data via the themes. This is not to say all the teachers were the same. Variations were evident, and the data from one teacher in particular (P) showed contrary examples to the "themes" as described. However, this served to highlight the interpretation, and it gave evidence on which to base hypotheses as to why P was different.

6. Reporting Procedures

In the light of the above considerations it was decided to report the study's findings by describing the themes. As most of the data were notes of verbatim classroom interaction or of taped interview responses, examples from these could be directly quoted in support of the interpretation offered. Other data were referred to also. An example from the Study Report illustrates this best:

"Practice makes perfect

"...and then they learn by using that concept 'cause, I mean, what is the use of learning something and then not using it again." (G) interview.

Doing stencils, handwriting exercises, algorithms, recitation of number facts and words, writing out spelling words five or more times, silent reading daily etc. were activities typical of all classrooms visited. The word 'reinforcement' was especially common in the rationale statements of the two Infants teachers. Games activities were often used to give practice ('reinforcement') which otherwise might become tiresome. One of the teachers often arranged a game where a child left the room and the class chose a word from the weekly spelling list. The child then returned:

*"Is the word h..e..n, hen?
No the word is not h..e..n, hen! (class)
Is the word z..o..o, zoo?
No the word is not z..o..o, zoo! (class) etc. (M)*

Formal practising activities were also common such as placing the set spelling words into

sentences after writing them out a few times. Multiple re-writing of incorrectly spelt words and mental arithmetic mistakes also occurred in all classes observed and was clearly seen as having the purpose of perfecting the correction of errors.

"Don't forget if you got less than 20 in the tables you have to write out your seven and eight times tables, and more than four words, write them out - spelling test tomorrow!" (R)

In interview P said of the daily silent reading session:

"The purpose is we're trying to get the kids to practise the skills of reading"

and the language activities program *"well the main purpose is certainly to practice the skills of research but mainly to get the kids to learn by reading. I believe that the best way for them to learn to read is to read."* (P)

Practising the same task in a number of different ways was common e.g. audio taping the children's recitation of spelling so they could listen to it at another time, (M), and using an empty grid for multiplication practice.

"I just find that the more the child does something - if you look at one word today it mightn't stick, but after you've written it a couple of times and you've talked about it in context you'll remember it, after you've got used to it." (M) interview. "

7. Validation Procedures

Many of the validation difficulties of much 'naturalistic' research were avoided in this study because of the fact that the data were largely notes of observed interaction and of interviews taken verbatim.

However, it was realised that the interpretation of the data by use of various chosen themes involves an element of researcher inference. Although this researcher feels that the degree of inference here is no greater than in other research approaches, and is aware that there is now much support for this methodology (cf. Glaser, et al. (1967); Stubbs and Delamont (1976); Robinson (1974); Woods and Hammersely (1977) it was felt necessary to see if the teachers involved in the study agreed that the chosen themes were (1) crucial indicators of their pedagogic perspective; and (2) that the data used to illustrate the themes were perceived by them as accurately illustrating themes. Each teacher was given an analysis of the data relating to his/herself, indicating the researcher's view of his/her beliefs on knowledge and learning, and using the themes where applicable. This very cursory validation met with no objections. In fact each teacher was surprised at the perceptiveness of the analysis in indicating his/her belief accurately. With only this cursory validation a report of the study was prepared. When finalised it was given to the teachers in the sample for them to read and they were invited to fill in a comment sheet and were also interviewed. The comment sheet asked them particularly to note any points in the report relating to the two factors noted above. On two points there were comments - the acceptable/unacceptable knowledge theme, and an interpretation point about teacher (M) saying with a type of Freudian slip at the interview that she (M) believed in the new inquiry approaches to be used in Social Studies. These comments served to support the overall interpretation and hypotheses formed from the findings rather than undermine them.

With relation to the first point the teachers explained that usually it was not that some knowledge was "unacceptable" or "bad", but that certain things had to be done during the day and some happenings were seen as irrelevant or divergent to these goals. With regard to the second point, M said she did believe in it but that she found herself so set in her ways that implementing it was extremely difficult for her (perception of self intervening here).

8. Limitations of the Study

The main limitations were seen as not enough immersion of the researcher into the context; lack of time to obtain more satisfactory validation and triangulation influence of the researcher on the context (is impossible to calculate); lack of precise guidelines for coding (e.g. both episodes and sequences of classroom dialogue were coded if seen as examples); certain movements in the classroom were probably overlooked and not recorded.

9. Hypotheses arising from the Study

(Readers who wish to have more detail regarding findings are referred to a paper by the writer printed in the seminar paper booklet of National Curriculum Conference, 1983, Adelaide).

The hypotheses arising from the study were as follows:

- (1) those epistemic and psychological beliefs most evidenced were those supported by the context and/or by teacher perception of the roles of the school and teachers, and of self.
- (2) a predominant almost ubiquitous pedagogic perspective might exist amongst teachers.
- (3) the degree of socialisation into the school "culture" experienced by a teacher might be related to the extent of agreement his/her perspective has with the predominant perspective.

10. Conclusion

The objective of the research described was to trial the use of a qualitative methodology to investigate the beliefs of teachers in the nature of knowledge and of learning. Previous research and literature suggested that this approach would be most appropriate. What in fact emerged was a neat little study with emergent hypotheses. This occurred largely because not only were the procedures found appropriate and practical but the method of data collection provided a basis for an indepth interpretation and for verification of this interpretation.

Researching by participant observation also resulted in a deeper understanding of the context and this aided accuracy and contributed depth to the interpretation.

The limitations of the research approach used were seen as outweighed by its advantages and appropriateness for answering this study's research questions.

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