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ABSTRACT

Studies of teacher development face the issue of providing a valid and generalizable analysis reflecting the influence of differences in people and contexts and their interactions. To adopt a study designed upon a single set of data, whether extensive or intensive, is limiting--both types of data are needed. Effective research provides for a wide set of data gathering instruments to be used, and the construction of categories and constructs that are validated across individual participants and the populations from which they are drawn. Theories and interventions based upon such research will have more generalizability than those developed from a series of case study research projects. A study of the characteristics and processes of teacher development in the management domain, based on data from student teachers, beginning teachers, and expert classroom managers, illustrates use of this research approach. The study shows how cohort and case study components can be included in a study of teacher development in ways which allow the generalizability of the insights and findings to be studied with cross-sectional and longitudinal cohort data. The study resulted in identification of five management approaches for classifying belief, advice, and self-description responses and resulted in construction of five management schema types that trace development changes. (JDD)

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COHORT AND CASE STUDY COMPONENTS
IN TEACHER EDUCATION RESEARCH

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COHORT AND CASE STUDY COMPONENTS IN TEACHER DEVELOPMENT RESEARCH

Introduction

A considerable amount of past research on teacher cognition has consisted of case studies examining teacher decision making, planning and interactive thinking. Studies have also focussed upon describing differences between teachers at different career points. Some have used a case study methodology at different career points (Leinhardt & Greeno, 1986) while other studies have focussed on group differences (Bents & Bents, 1991).

These studies of the processes and content of teacher cognition or of teacher changes during their courses have incorporated an interpretive approach to data collection and analysis. While the research was descriptive in character, the interpretation and application of this research seemed to assume that the constructs and, at times, the substantive findings could be generalized to other groups of teachers. These studies are rich in the descriptions they offer, but they are limited in their applicability to other groups because of the absence of findings about the reference groups from which the subjects were drawn. The value of these studies for teacher education has been seen as providing constructs and profiles for developing an understanding of teachers and teaching more than providing guidelines for assisting teachers in their development (Clark & Lampert, 1986).

Where differences between groups of teachers have been investigated the studies may be restricted in the application of their findings by the small and non-representative groups used. Where more extensive and representative groups of subjects are drawn at times from different teaching districts or teacher education programs, researchers have employed a design with a more confirmatory approach using instruments which were more structured, easily administered and scored. The last set of studies provided a better basis for deriving statistical inferences about the relationships between variables but have lacked the richness of the descriptive case studies. The combination of an intensive case study approach with an extensive or larger group of subjects from which the case study subjects are drawn provides opportunities for combining the rich descriptions of individuals with the examination of differences within and between the groups from which the individuals were drawn.

Differences between groups of teachers have been examined using cross-sectional (Strahan, 1989) or short term longitudinal designs (Morine-Dershimer, 1993). The cross-sectional studies have provided profiles of the differences between the groups. While such studies may provide constructs which can be used in studying teacher development and offer possible indications of development, they do not address the change processes in teacher development. The short term longitudinal studies do address such processes and have reported areas of change as teachers move through their teacher education course or through particular points of their career. Because development may be a gradual and fluctuating process, longer-term longitudinal studies and retrospective studies are needed to provide a more comprehensive understanding of the nature of teacher development.

The most effective research into teacher development will combine these different forms of research: cross-sectional, longitudinal and retrospective research and the use of both intensive case studies and more extensive groups of subjects. Combination of these designs will enable the appropriate constructs to be identified, and relationships among variables to be studied across larger groups as well as in case studies from the same groups. Furthermore, combining cross-sectional and longitudinal research will show differences over time and provide for confirmation of differences through comparison of

cross-sectional groups. Retrospective research could assist in the identification of transitions in and influences on teacher development. Since there is so little research into teacher development in the management domain, both interpretative and confirmatory research designs are needed. In this area of study, confirmatory research may need to draw upon descriptive comparisons of different data sets more than upon tests of statistical significance.

Teacher development research needs to provide both an understanding of the phenomenon being studied in a way which allows this understanding to be generalised so that more valid basis for teacher education interventions is formed. This paper shows how cohort and case study components have been included in a study of teacher development in the management domain in ways which allow the generalisability of the insights and findings to be studied with cross-sectional and longitudinal cohort data. The aspects of the study focussed upon in this report are category construction (with the example presented being the management approaches identified in the data), and the identification of schema types. The implications of the use of the extensive and intensive phase data sets for the construction of a theory of development are also examined.

Background to the study

This study focusses upon teachers' development paths as a means of studying characteristics and processes of teacher development in the management domain. An emphasis on theory construction rather than verification is evident from the use of a grounded theory approach incorporated in the study.

Three conceptual schema aspects, content, structure and meaning, two knowledge forms, declarative and procedural, and schema actions were studied both separately and in their interrelationships as a means of identifying and analysing schema change. While management schema was a primary focus in this study, teacher efficacy schema was also studied so that its role within schema change and schema and action relationships could be examined. Another aspect included in this study was management contexts where the influence of teacher-perceived cooperative and difficult contexts was examined through observation of teachers in these different contexts and through the organisation of student teacher data collection before and after the teaching practice (practicum) experiences. The role in development of interactions between teachers and people assisting them in the different contexts was also considered in the study.

The complexity of the phenomena being studied was acknowledged by the use of multiple data sources and multiple instruments to measure the different schema elements and their interrelationships. The study of teacher development was addressed first through the use of cross-sectional data to identify patterns of relationships amongst schema elements and possible signs and directions of schema change. This was followed by the analysis of longitudinal data to identify different development paths and the illustration of these paths through intensive case study examples.

Phases of study

This study included two concurrent phases, an extensive phase and an intensive phase, designed to complement each other, so that differences or transitions in the teachers' management schema identified within one phase of the study could be verified and explored

further in the other phase. The data sources used in the two phases were also examined for their possible roles in teacher education for facilitating teacher development. The extensive phase involved whole cohorts of subjects while the intensive phase involved a small group of subjects of whom all but two beginning teachers were also involved in the extensive phase.

Most of the data were collected within two consecutive years. Some intensive phase data gathering occurred in the third year either to allow a longer term study of some subjects or gather more cross-sectional data related to particular aspects of the study. A group of subjects from one of the extensive phase cohorts also provided data in the third year so that their data from the three years of their teacher education program could be analysed.

Data were collected from Year 1, Year 2 and Year 3 student teachers, beginning teachers and expert classroom managers. For each year cohort data were collected before and after their secondary school practicum experience except for the Year 1 students in the second year of the study for whom there was no practicum experience. Data from this Year 1 cohort were collected before and after their first professional skills unit.

Cross-sectional and longitudinal dimensions

The collection of extensive phase data over two years allowed the comparative analysis of two different sets of cross-sectional data, each set of cross-sectional data including data from Years 1, 2 and 3 student teachers and expert teachers. The cross-sectional data collected during the second year of the study provided an important base for comparative analysis as it included data from novices before they had formally studied any generic teaching skills ("Professional Skills") unit.

Category construction

The grounded theory approach to the construction of a theory of teacher development in the management domain required that close coding and analysis of the data proceed concurrently with and be allowed to influence further data collection (Glaser & Strauss 1967). The measurement and analysis were grounded in the data collection to ensure the construction of a comprehensive and dense theory derived from rich descriptions of the phenomena being studied rather than from logical deductions based upon prior assumptions about development or its goals. This procedure saw theory construction as the second level of data analysis and results which was dependent upon the establishment of valid categories as the first level of data analysis and results.

The research focussed upon qualitative and quantitative differences in schema variables and their inter-relationships as means of identifying different development paths. This required a close and iterative analysis of the data (Erickson, 1985; Miles & Huberman, 1984) to derive sets of categories which were sensitive to such differences both within and between subjects as found in the cross-sectional and longitudinal data.

The use of the data-derived categories with the multiple and different types of data was based upon the categories' ready applicability to the data. Any dissonance or mismatch between data and categories needed to be followed by a re-examination of the categories, their definitions and their areas of applicability. Different coding systems were used for the

same schema aspect whenever the nature of the task (e.g., ¹schema structure in ordered tree compared to verbal questionnaire responses), and/or more salient differences emerging from the data (e.g., ²schema structure in vignette compared to belief and advice responses) required them. To enhance the comparability of data sets the different coding systems were related as much as possible on underlying dimensions: for example, while there was an early intention to use the same sets of categories for coding schema meaning when analysing ordered tree, belief, advice, self description and vignette responses, the data analysis showed the need to develop a different, though related, category system for identifying differences in schema meaning as expressed in vignette responses.

The gradual emergence of increasingly valid category sets arose from an iterative process beginning with a study of expert managers' responses, then examining differences between their responses and those from subsets of Year 1 and year 3 novices. The initial category sets were then used in the analysis of the cross-sectional data from the second year of the study, and finally analysing the data for patterns which may indicate possible schema changes and transitions. Category definition involved tracing underlying dimensions in both the extensive and intensive phase data.

The development of the categories needed to be applicable to the extensive and intensive phase data. The analyses of these two data sets needed to proceed concurrently so that concepts or insights found within one set of data could be examined for their applicability to the other set. The cross-phase approach to category development was adopted to ensure a richer and more valid set of categories. The use, in both phases, of instruments with minimal response constraints provided rich data which could be later used as a basis for category development and theory construction involving analyses of the relationships among different variables.

Management approaches

Five management approaches (A-E) for classifying belief, advice and self-description responses were identified. These five categories (See Table 1) were developed from an analysis of subjects' responses to the ordered tree task and the belief, advice and self-description items in the management questionnaire and from an analysis of interview transcripts. Within the management categories the goals ranged from teachers' concern with the ensuring of an orderly classroom, through the developing of relationships with the class, and achieving learning goals to the achieving of an effective learning environment and gaining pupil active cooperation, and the fostering of a social environment conducive to learning. The strategies ranged from one in which teachers' commands are to ensure orderliness to one in which the teacher structures the situation emphasising pupil responsibility within a positive learning environment. Responses in which no management approach was expressed or in which the strategy and intention were not clear were also noted.

¹Several qualitative and quantitative ordered tree structure measures were used while there was only one qualitative measure of belief structure.

²A more finely delineated set of structure measures were used with the belief responses than with the vignette responses, with the former focussing more upon concepts or principles presented while the latter focussed more upon procedures used.

Table 1
Management approach categories and representative responses for belief statements

<i>Category and its description</i>	<i>Representative response</i>
<p><u>Uncodable approach</u> Response is uncodable because strategy and intention are not clear.</p>	<p>Present beliefs about classroom management are of trust, attitude and planning. The teacher needs these beliefs to perform in a manageable classroom</p>
<p><u>Null Approach (N) Teacher presents no management approach</u> Response indicates that subject has no formulated management approach.</p>	<p>I have no set beliefs about classroom management.</p>
<p><u>Approach A Teacher directive strategy with the intention of ensuring teacher control and class orderliness.</u> This approach is one in which class orderliness is of prime importance and is a major criterion of teaching success. The teacher adopts the role of an authority who closely monitors the orderliness of commands, expectations and procedures.</p>	<p>I think that hard discipline with the students makes managing a classroom much easier. This involves clear, consistent statements of rules and consequences.</p>
<p><u>Approach B Teacher directive strategy with the intention of establishing good relationships with the class</u> The teacher is, again, the monitor of commands and expectations. There is, however, substantial evidence of a concern for the fostering of good relationships with the class, but these are contingent upon the maintenance of a high degree of orderliness. The desired relationships focus upon the needs of the teacher who wants to be liked or to get on well with the class rather than focussing upon pupil learning. The teacher's role here is one of a likeable authority figure. The teacher seeks two-way respect between teacher and pupils.</p>	<p>That to manage the class you must firstly gain the students' respect not only as a teacher but as a friend. You must be fair at all times or this respect is not going to be gained.</p>
<p><u>Approach C Teacher directive strategy with the intention being to achieve learning goals</u> The goal of the teacher in this approach is to achieve learning so that pupils are expected to be predominantly on task. There is a common understanding of expectations. Also, commands and expectations become more incorporated within established routines designed to ensure pupil behaviour appropriate to learning. However, the routines remain fairly explicit and are firmly and consistently monitored. Relationships with the class are important, though the major focus is on pupil learning behaviour, rather than on the needs of the teacher. Providing behaviour, such as pupil talk, is work related, it is tolerated by the teacher.</p>	<p>Some methods used by teachers are effective as most students behave in the classroom and most of the work that is set is completed.</p>

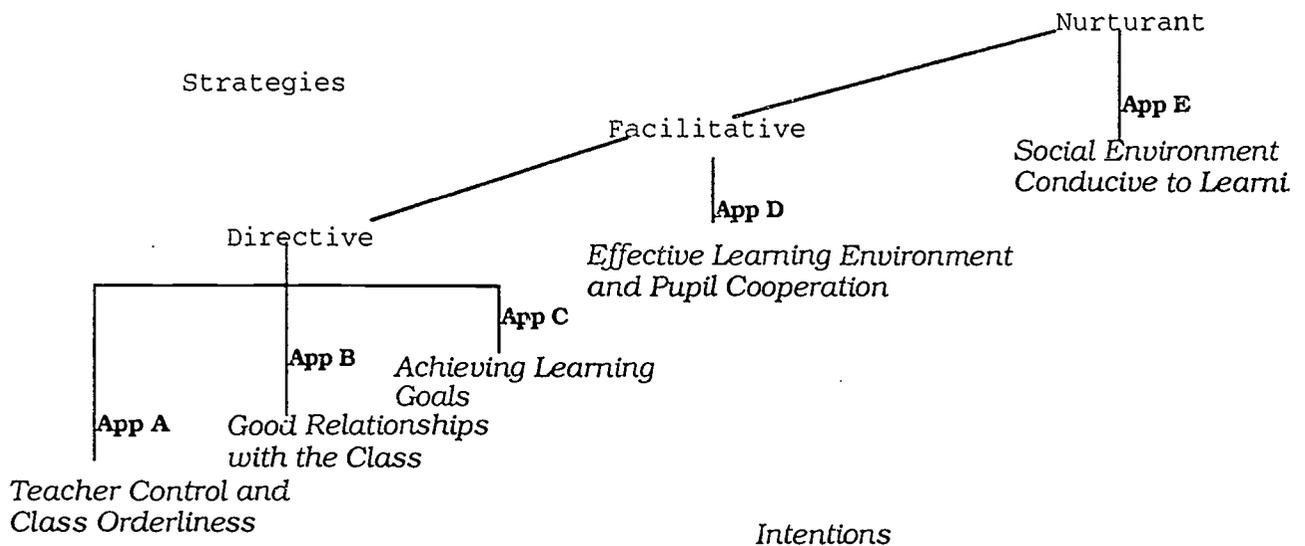
<i>Category and its description</i>	<i>Representative response</i>
<p><u>Approach D Teacher facilitative strategy with the intention of achieving an effective learning environment and active pupil cooperation with the teacher.</u> Teachers' role is to be a catalyst and facilitator of learning. As classroom managers, they see themselves as guides, mentors and helpers in achieving effective learning. These teachers focus upon enhancing learning and preventing management problems. Routines are still used but they require simple and less frequent cues. Behaviour limits are set but they are administered flexibly with regard for individual and situational differences. This teacher aims for pupil attention and cooperation which are freely given rather than being enforced by the teacher. In relating to pupils, teachers emphasise the personal dimension more than the pupil role dimension.</p>	<p>Classroom management is a two way situation which varies from class to class and year to year. It is two way in that students and teachers create a level which is set as normal. The environment plays a factor eg tidiness, heating facilities etc. but initial implementation and control is to be made by the teacher. Individualism, rules and goals are to be prerequisites easily changed but always enforced.</p>
<p><u>Approach E Teacher nurturant strategy with the intention of fostering social environment conducive to learning</u> This approach is one where good teaching and effective learning are very important but substantial attention is given to the group maintenance of the class. Teachers intend to provide a group climate which is comfortable, and usually enjoyable while still being productive. Teachers' strategies are marked by humaneness and often include the use of humour. They foresee and prevent difficulties. In their perceptions of pupils these teachers use a broader frame of reference so that they aim to develop pupil independence, self-management and self-motivation with less reliance on teacher intervention. These areas are sufficiently integrated to allow greater attention to be given to individual and group welfare.</p>	<p>It should be founded on a humane teacher approach and an acknowledgement that students need to be managed effectively. The teacher should have an understanding of the needs of the young and so satisfy these needs. thus aiding classroom management. It should be hoped that the goal is inner management by each student, rather than an external imposition of good order. Classroom management is a means to an end- the provision of an effective, caring learning environment. Such management should avoid the extremes of authoritarianism and "free for all".</p>

The categories provide a set of logically ordered categories in which the higher level approaches include dimensions. such as orderliness, expressed in the lower order approaches. The structure within the categories allowed them to be used as an ordinal scale for measuring differences in teachers' management approaches. The logical ordering within the categories is evident in Figure 1 where the direction is from left to right showing changes in goals within the directive strategy before moving to a facilitative strategy with a learning goal. The last shift identified in the data is to a nurturant strategy with the goal of a social environment suited to learning. While the logic of the categories is reflected in these tables the order of development does not necessarily follow in this sequence.

The sets of categories were appropriate for showing differences between cohorts of student teachers and expert classroom managers, with the majority of Year 1 novice teachers expressing a directive strategy for learning while most Year 2 students expressed a directive strategy for orderliness. The Year 3 cohort was characterised by a greater emphasis on directive strategy for learning while many of the expert managers expressed a nurturant strategy for a social environment conducive to learning. These management approach categories were used together with data on the other aspects of management schema for

both identifying five schema types and designing a theory of teacher development in the management domain.

Figure 1 Relationships between Management Approaches



Identification and use of management schema types

A set of five schema types which could be used to trace developmental changes in longitudinal data was initially constructed by examining the cross-sectional data from novice subjects in three different year cohorts and from expert managers. These data were collected from the novice subjects in the second year of the study. The schema types were constructed using two knowledge levels, firstly at the domain conceptualisation level with teachers' expression of their declarative and principle-based procedural knowledge and secondly at the instantiated conceptual framework level with teachers' expression of script-based procedural knowledge. Subsequent analysis of the schema types with the longitudinal data provided further validation and refinement of the schema types to be used in investigating development. The grounded theory nature of this study of development and the wide set of variables led to the use of data-derived and conceptually-related sets of characteristics, rather than the use of predetermined conceptually-defined sets, for the tasks of distinguishing groups of subjects across different occasions and constructing schema types.

The role of the schema types in analysing schema change processes is shown below through a brief description of a possible movement from schema type 1 through to schema type 5 and summarised in Table 2. In the analysis of these schema types changes (See Table 2) accretion referred to increases in the base of extensiveness of the base of any of the forms of knowledge. Tuning referred to changes in the relative importance of categories in their relationships to each other and/or changes of category prominence to management approach. Restructuring refers to the emergence of a new and different orientation within one's frame of reference as evidenced in changed approaches. To present a comprehensive description of schema change these processes need to be

examined in association with the congruences and disequilibriums within the schema, the different contexts to which the teachers are responding, the relationships between teachers' schemata and their management actions, and teachers' sense of efficacy.

Type 1 schema presented a directive strategy with a concern for pupil learning at the level of beliefs but a vicarious awareness, from one's own experiences as a pupil, of the need to be concerned with order at the level of first practicum experience for student teachers. This concern for order was expressed in a restructuring of the schema in the movement to type 2 with an explicit belief in the need to have a directive strategy, particularly one focussed upon pupil orderliness. This restructuring was accompanied by an accretion of declarative knowledge, a tuning of declarative and principle-based procedural knowledge content so that there was a congruence between one's management approaches and content. The new approach was related to changes in structure which became slightly more complex, consequential rather than additive, a simple across category relating of semes and more integration than differentiation. This emergence of the management schema is accompanied by a restructuring of the teachers' efficacy schema with respect to their possible influence on different external factors brought into the classroom. The facilitative for learning response to the personal-focussed vignette, the salience of the relationships content, and the directive for relationships approach in their self-descriptions indicate a possible disequilibrium continuing beyond the present restructuring of the schema.

With Type 3 schema one sees a new emphasis on learning with less emphasis than Type 2 on the directive strategy in beliefs. This restructuring of the schema was also accompanied by a tuning of category prominence. Only teaching/learning and instructional were prominent in declarative and principle-based procedural knowledge responses. The focussing of the schema upon learning may have contributed to the more complex logical structuring of the schema, evident in all but the script based responses. The commitment to a learning goal is congruent with their high level of confidence in effecting pupil learning. Schema expressions varied across the situations encountered which may reflect an interaction between their beliefs, their previous concern for people and relationships, and their sense of efficacy in the situation.

The movement to Type 4 schema sees the focus on learning maintained. Schema change becomes evident at the script-based procedural knowledge level, with an increase in action steps and more evidence of a facilitative strategy. Some tuning of category prominence occurs at the declarative knowledge level with the re-emerging prominence of the relationships and organisation categories. This pattern of category prominence is, however, not congruent with the directive strategy reflected in belief and advice responses. The wider set of prominent categories is accompanied by a more differentiated structuring of the knowledge bases. While the level of structure in belief statements remained at the same level as type 3 (relational), there were declarative knowledge changes in tree responses where there was higher incidence of additive logic and associative tree type. A major change in their principle-based procedural knowledge was evident in the lower or pre-relational advice structure. These schema changes were accompanied by a reduction in individual teaching efficacy and the emergence of a discernible pattern of medium to high contextual efficacy. These efficacy changes seem to reflect an increasing concern for pupil learning rather than order or control as a goal. The earlier concern for relationships with pupils within the schema may now have found expression in a facilitative strategy emerging here in their vignette responses prior to its emergence in the belief responses of type 5.

Type 5 schema indicates a restructuring of domain conceptualisations and knowledge bases, which may have come from a resolution of the tensions within the schema and their extensive experience. Declarative knowledge and self-descriptions are realistically

congruent. The schema appears to be personally owned with the teachers being able to respond to different situations within a broader person-focussed and contextual framework. A personal integration and resolution of the different demands of management, such as organisation, relationships, and learning, together with accretions in declarative and procedural knowledge could have contributed to the higher levels of congruence and homogeneity evident in this schema. Relationships are now seen as part of the goal of management with the emphasis on a nurturant environment. The lower sense of individual teaching efficacy could be related to an increased awareness of the differences in people and contexts, a more action or experience based rather than a technical knowledge base, and a longer time framework when making efficacy decisions.

Validation of schema types

The characteristics of the schema types identified in the extensive phase data were subsequently validated through an analysis of the intensive phase case study data. This validation process involved the examination of all data for each of the case study subjects presented. These data included those from the extensive phase instruments, together with data from a series of interviews and classroom observations. The portraits of the different student teachers and management experts were then checked for their congruence with the schema type profiles constructed from the extensive phase cross-sectional and longitudinal data.

The schema types were validated through an analysis of the insights the data provided into the nature of teacher development and its transition processes. The study of the schema types within the intensive phase data provided additional insights which were not available in the extensive phase data. These included an observed lack of procedural knowledge, particularly for dealing with misbehaviour, incongruence between non-verbal and verbal observed behaviour and the intrusion of personal self concerns of the participants. The richness provided from using both extensive and intensive phase data was further seen in the comprehensiveness of the theory of development which emerged from the study.

Implications for the construction of a theory of development

A grounded theory of development toward expertise in the management domain was constructed from an analysis of changes in schema types and the identification of a set of development path patterns. This theory provides a research-based conceptual framework to assist teacher educators in both understanding the process of teacher development in this domain and planning teacher education components to facilitate such development.

The theory was designed to extend our understanding of how teachers learn to manage their classes, the learning and development processes involved in that task and how that learning and development are influenced by the contexts within which they occur. This theory takes account of the principle that there are multiple subjective realities experienced by student teachers in their professional development. While this theory acknowledged that teachers are professional people with their unique life histories and psychologies, it also provided a generalisable conceptual framework based upon extensive as well as intensive phase data.

To achieve this purpose hypotheses developed from either the extensive or intensive phase data were tested against the other set of data. This triangulation of the analyses from the two data sets provided a valid and more generalisable basis for the theory. This theory also

incorporated the insights which come from the more indepth analysis of case study material where the interaction of people and their contexts can be examined in more detail.

Conclusion

Studies of teacher development face the inevitable issue of how to provide a valid and generalisable analysis of the phenomenon which reflects the influence of differences in people and contexts and their interactions. To adopt a study designed upon a single set of data, whether extensive or intensive, is limiting. Teacher education research needs to continue to address the use of both extensive and intensive phase data sets. Such research provides for a wide set of data gathering instruments to be used, and the construction of categories and constructs which are validated across individual participants and the populations from which they are drawn. Theories and interventions based upon such research will have more generalisability than those developed from a series of case study research projects.

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Appendix Table 2
Schema differences and inferred schema change processes

Schema Types and Differences	Inferred schema change processes
<p>Types 1 and 2 From: Strongly directive with variability of goal across knowledge forms, knowledge bases are minimal and unrelated. Low teacher efficacy.</p> <p>To: Order goal congruence with category prominence across belief and advice. Extensive DK base with more but simple relating of semes. Some focus on facilitation in script based and on relationships. Medium to high teacher confidence, especially with respect to influence upon different contexts.</p>	<p>The structuring of a management schema pervaded by a concern for orderliness attained by a directive strategy. Declarative (DK) and procedural knowledge (PK) category prominence have been tuned so that there is a high focus on organisation and deviancy bringing approach and content into congruence. Extensive accretion of management ideas evident in DK but not in PBPk. The change processes involved are associated with a simple level of relating of semes. High confidence in ability to offset factors from outside the classroom and some sureness about handling difficult students and obtaining outcomes. A restructuring of efficacy schema to effect congruence with management schema.</p>
<p>Type 2 to Type 3 To: Some variability of strategy with a commitment to a learning goal. Goal congruent with category prominence across belief and advice. Extensive DK base with complex relating of semes. Confident about outcomes but unsure about difficult students.</p>	<p>Reconstruction of schema with goal changed to learning. Category prominence has been tuned as TL and Instructional were all very high in frequency and salience to achieve very narrowly focussed schema possibly at the expense of Relationships and Organisation. Extensive accretion of management ideas evident in DK base. This narrow focusing of schema may have influenced improvement of structure to complex relating in a logical system. Very confident about obtaining learning outcomes, which indicates their commitment to the learning goal of the reconstructed schema</p>
<p>Type 3 to Type 4 To: More variability of strategy with strong focus on learning goals. Extensive DK base with all major categories having high prominence within a complex but more differentiated and looser structure. Change to listing of unrelated semes in advice. More confident in dealing with pupils different situations than in learning outcomes.</p>	<p>Extensive tuning in transition to a restructuring of schema based upon a facilitative strategy, but the process is incomplete. Change seems to be more evident at the script-based PK level where there is evidence of more use of a facilitative strategy and accretion of action steps. But these script-based changes are only just emerging in DK where there is some tuning of category prominence. Preparation becomes very important, while learning remains important. Relationships and organisation have also become important. Tension could result from an inability to reconcile category importance with a directive strategy. Schema structure could be hindering reconstruction as the increase in procedural semes and DK category prominence are accompanied by increased DK differentiation but not integration. There is also more confidence about handling; contextual differences.</p>

<p>Schema Types and Differences Type 4 to Type 5</p>	<p>Inferred schema change processes</p>
<p>To: Strong focus on learning with a facilitative or nurturant strategy which included attention to the social environment. Extensive knowledge bases with complex relating of senses and procedures. Flexibility in strategy, structure and extensiveness of response when responding to different situations. More confident in dealing with pupils different situations than in dealing with difficult students or in achieving learning outcomes.</p>	<p>Experience and resolution of tension have resulted in a restructuring of schema. DK and self-description are realistically congruent. Category prominence has been tuned for organisation and the importance of group environment has raised relationships to a goal. Flexibility of other forms of knowledge permits adaptation to situations. Structure is simplified in PBPK and in SBPK the perspective has been tuned to distinguish simple from complex situations and to respond appropriately. All knowledge-forms evidence past accretion with extensive knowledge bases. There is confidence about dealing with difficult children and about factors brought into the classroom but less sureness about getting the desired learning outcomes.</p>