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CONTINUITY AND DISCONTINUITY IN THE DEVELOPMENT OF TEACHER EDUCATION RESEARCH IN SINGAPORE*

by Ho Wah Kam

Introduction

In documenting what has been done so far under the rubric of research, we find that teacher education research in Singapore, in particular, has a longer history than is commonly assumed. As Sim (1988) recalled, the Conference in 1983 on Research and Teacher Education, held at the Institute of Education in Singapore, was an important turning point - it marked "the beginning of re-thinking towards a proper 'juxtaposition of research and teacher education' and a new resolve in conducting research relevant to the problem and practice of teacher education".

The purpose of this review is three-fold: to document as fully as possible what has been done in the area of teacher education research since the early days, to explain against this background the new direction that this research has recently taken, and to identify the areas of lack in teacher education research that would need looking into. Institutionally-initiated research, which is the case with most of the work reported here, is often decision-oriented; where appropriate, mention will be made of the way policy decisions have taken the findings into account. In brief, this review highlights the strengths and limitations and the continuity and discontinuity of the research.

This review is limited to pre-service teacher education mainly because very little research work has been carried out in the field of in-service education. Based on their content, the studies can be grouped under what I have called macro and micro headings, viz. macro: the system of teacher education, reasons for choosing teaching, additional selection criteria, objectives of the training programmes; micro: the assessment of coursework, teaching practice, and follow-up studies of former trainees.

The System of Teacher Education

Teacher training or teacher education in Singapore was institutionalised in 1950 with the setting-up of the Teachers Training College. Its early development as part of a deliberate policy to improve the standard of teaching in the schools was first

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studied by Suen (1955) against a background of indigenous attempts by the Chinese community in particular to improve the provision of education in Chinese schools set up by private communal initiative, and by Owen (1957) taking into account the problems of education in a multiracial and multilingual community of disparate ethnic groups and an expanding school-going population. In particular, the English school system was expanding quite rapidly, and in view of that, Owen (1957:162) observed that "there was a grave risk of a progressive lowering of standards both in teacher training and in the standard of instruction provided in the schools". Ma's (1970) investigation focussed on the training curriculum itself, paying special attention to the balance of liberal and professional education and between theory and practice in the professional aspects of training. Tan (1981), taking the organisational perspective, studied the later phase of development in teacher education documenting in useful detail the change in institutional status from Teachers Training College to Institute of Education, which took place in 1973. In brief, the problems in teacher education encountered in the early years (1950 to 1972) are best conceptualised in terms of what Wong (1974) has called the quantitative-qualitative dilemma (in bridging the gap between an increasing demand for teachers and a quality supply of them) and the legitimate-expedient dilemma (resolving a number of specific problems, eg. part-time in-service vs. full-time on-campus training).

Reasons For Choosing Teaching

The question of motives for the choice of a career in teaching was addressed by two studies (Lau et al, 1968; Soh, 1983), separated by an interval of some 15 years. The study by Lau et al (1968) entitled Why Teach?: A Study of Motives for Choosing Teaching As a Career represented the first major project of the Research Unit of the former TTC. The project was started in 1965. Although the main purpose of the project, as stated, was "to make an objective and scientific enquiry into the attitudes of our teacher trainees" (p 2), it was, in fact, principally a study of the 'motives' determining an individual's choice of teaching as a career. Why Teach? reported that 71.9% of the respondents were firm in their decision to teach, while the rest would readily change jobs if they had another chance to choose a career. What the report called 'popular' reasons for choice of teaching were "an opportunity to render service to society" and "an opportunity to further [their] education". Another 'popular' motive was "to help develop and educate the younger generation". For women, who formed the majority of the respondents in the English-medium programme, reasons such as "fondness for children" and "teaching is suitable for women" were often given. It would appear that 'idealistic' reasons predominated. And in commenting that "this could be due to genuine idealism in the trainees or to their readiness to profess socially acceptable motives or a combination of both", the researchers drew attention to the basic difficulty in such surveys, which is the degree of frankness that one can attribute to these expressed motives. The complex nature

of motives was recognised.

Then in 1981, Soh (1983) repeated the Lau et al (1968) study by adapting the questionnaire used in the earlier project and administering it to some 562 trainees at IE in 1981. By 1981 when the second study started, the social, economic, political and educational conditions had changed quite dramatically for the better. For instance, compared to the conditions in 1965, there was by 1981 a greater variety of jobs available to provide attractive alternative job opportunities. Furthermore, the salaries of teachers in 1981 increased substantially over those of 1965. The 1981 study was then repeated in 1988 (see Soh, 1989), using Certificate in Education female students.

Additional Selection Criteria

At IE, selection procedures for admission have been based on academic attainment and the relevance to teaching of subjects studied (as a first screen), then competence in the language of instruction and also general suitability for teaching, of which attitudes to teaching would constitute a major component. It was felt that these criteria, while necessary, might not be sufficient in themselves to ensure success in teaching. Hence the need for additional selection criteria. In the search for additional criteria that could be included in the selection process, five instruments have been examined, viz. the Minnesota Teacher Attitude Inventory or MTAI and the 16 Personality Factor (16PF) Questionnaire from overseas, and three locally constructed attitude, responsibility and locus of control scales (Tan, 1983; Soh, 1986, 1988a) The studies were aimed at improving and refining the selection process. In this early phase, IE researchers were looking for instruments that were able to differentiate between effective and less effective trainees.

Objectives of the Pre-service Training Programmes

The objectives of training should be clear to those involved in it and the priorities understood. To find out whether this was so, a survey of Teacher Education Objectives (Mosbergen, 1982) was conducted in 1981; using a questionnaire, it polled the views of students enrolled in the full-time (1980/81) Diploma programme on "the repertoire of knowledge, skills and personal qualities needed by new graduate teachers" (p. 2). The selection of objectives was based on a framework, which was conceptualised in terms of two dimensions. One dimension comprised three domains (viz. Knowledge, Skills, and Attitudes) and the other dimension three aspects (viz. Professional, Academic, and Personal). The three domains and three aspects formed a matrix of nine categories, from which 22 objectives were generated.

The 229 preservice trainees surveyed accorded "high priority" to the knowledge and skills needed directly for effective classroom teaching (collectively the core objectives): for example, knowledge of the syllabuses, assessment procedures

and educational policy and goals; skills in subject teaching, motivating pupils, classroom management and communication. However, skills in setting and marking exercises and in the selection of resource materials were of "medium priority" (collectively named in the report as supportive objectives). Objectives accorded "low priority" (or the peripheral objectives) included those set out to develop skills in using and making teaching aids, and in classwork supervision and routine administrative duties. In the area of personal qualities, the trainees rated as highly important such qualities as being responsible and confident, having good interpersonal relationships and showing integrity. The report commented that the trainee teachers tended to assign greater importance to qualities closely associated with the conduct of lessons than to other aspects of a teacher's work. This should not be surprising at all since at the time of the survey the trainees were still undergoing training and had completed only ten weeks of classroom practice.

This study of preservice trainees followed upon a similar survey (Mosbergen, 1980) which gathered and analysed the views of (a) principals of secondary schools and junior colleges and (b) the academic staff of the Institute, on teacher education objectives. There was considerable agreement between the findings of the two surveys. While, in the main, the samples of respondents in both studies were agreed on the priority to be accorded to a set of teacher education objectives (the core, the supportive and the peripheral), it was the lecturing and school administrative staff who had a longer-term view of the objectives in teacher education. It would appear that trainees had already developed a pragmatic approach to their expectations from courses and block teaching practice.

The Assessment of Coursework

One of the responsibilities of IE has been to decide through some form of assessment whether a trainee is ready for accreditation as a full-fledged teacher. The assessment of trainees also requires the ability of the institution to discriminate between the best, the able and the less adequate. Although attitudes, knowledge and performance are considered important in the training of teachers, traditionally only knowledge and performance are assessed with attitudes taken into account implicitly in the assessment of teaching performance.

Most of the courses in each of the preservice programmes were examined by assignment or progress rating. Only one of the major courses in the foundation studies component had a written examination, given at the end of the course. This was the Principles and Practice of Education course, which has since been re-conceptualised in the practicum curriculum. The examination consisted of objective-type and essay-type questions.

Most of the assessment research work centred on a major course, the Principles and Practice of Education (PPE). In the

earlier programmes, this course was intended to provide trainees with an understanding of the basic principles and practice of education. The content of the course was organised around four main themes, namely, the teacher and teaching, content and the curriculum, the pupil and learning, and the school and society. In one study on how this course was assessed, Lam et al (1986) found it necessary to do an analysis of the questions set in the 1985 PPE (essay-type) examination paper. The team's main objectives, among others, were to analyse qualitatively the questions set, and then compute the facility, discrimination and reliability indices of that year's examination paper. They found that the questions sampled a range of mental processes, with emphasis on the "discussion process". Most of the questions were relatively easy, and all questions were relatively low in discrimination power. Soh et al (1987), studying three sets of examination papers (1983-1985) for the same course, confirmed that there was indeed low discrimination based on a "part-correlation" between the score for a particular question and the total score for the remaining questions, but cautioned that since these were not objective-type questions, the low and sometimes negative discrimination indices had to be interpreted carefully. They said that the absence of substantial and positive part-whole correlations (or discrimination) of the essay questions indicated "a lack of cohesiveness of the three examination papers", which also in turn suggested that there was "diverse conceptualization and expectation on the part of both the students and the lecturers". A negative discrimination, Soh et al (1987) surmised, could also have resulted from differences in the disciplines that formed the foundation studies course and from different expectations. They recommended greater integration in the foundation studies course. This recommendation was taken into account when the course was reconceptualised in the practicum curriculum implemented in the same year.

Research attention was also directed to the method of marking the essay-type questions in the PPE paper, because the reliability of essay-type examinations is known to be weak. Yip et al (1986) found that analytical marking yielded the most reliable results, while Soh et al (1987) in a further analysis of the same data set concluded that an "individual-impressionistic" method (in which the marks from three different markers were used separately) was least effective because of large discrepancies between markers and low discrimination and reliability, while the "combined-analytical" method (which used the averaged mark of each pair from a team of three markers, yielding one averaged mark for each script) had all the advantages of low discrepancy and high discrimination and reliability. However, the latter method is time-consuming. For practical purposes, therefore, the "combined-impressionistic" method (using averaged marks based on impressionistic marking) seems to be the most practical in terms of time and reliability.

Teaching Practice

Concern about the arrangements for teaching practice and the

validity and reliability of the assessment of trainees in teaching practice initiated a great deal of interest in what may be called evaluative research. While the existing assessment procedures possessed face validity and, to a large extent, content validity, staff were concerned about the reliability of the procedures when subjectivity could well weigh heavily in such procedures. The problem was probably compounded by a possible lack of comparability across supervisors who came from different subject specialisations.

From the institutional point of view, it was important to know whether there was any agreement among the supervisors themselves coming as they did from different subject disciplines. Soh et al (1985) showed that there was a fairly substantial amount of agreement among the departments during the early phase of supervision (with correlations ranging from .59 to .79) and modest agreement during the later phase (with correlations ranging from .35 to .76). In awarding the summative teaching practice grade, the supervisors used as sources of information their own observation records, the trainees' lesson plans and notes, teaching practice files and also the cooperating teachers' reports. It was learnt that supervisors took into account the individual trainee's performance in relation to what they regarded as an "ideal" trainee, the complexity of the subject content the trainees had to teach, the school's social climate, the discipline of the class and, generally, the standard of performance of other trainees under their charge.

Yeap et al (1985) in a separate study confronted directly the issue of inter-supervisor reliability when assessing trainees in teaching practice. They decided to find out whether inter-rater reliability among supervisors could be improved through group interaction after the supervisors had watched video-tapes of selected trainees' classroom teaching episodes, and also whether different teaching situations affected the ratings of supervisors. An experimental situation was set up with a control group. The experimental group (of supervisors) had the opportunity to discuss among themselves the lesson and their ratings of it after viewing the lesson together with the control group, whereas the control group did not discuss the lesson or their assessment of it. In the final analysis, no consistent treatment effects were observed, and the expectation of reduced variance within the experimental group was only partially borne out. The variance of the scores of the experimental group was reduced after the first treatment but this was not sustained. Nonetheless, what emerged as an encouraging sign was that the participating supervisors were at least consistent when rating different aspects of the same lesson a second time.

The implementation of the practicum curriculum in the Diploma Programme in 1986 was closely monitored, especially the practicum itself. In the tradition of action research, Sharpe (1986, 1987) surveyed the views and experiences of the first batch of trainees who were introduced to the new practicum arrangements, consisting in the main of two weeks of introductory school experience and ten weeks of teaching practice. Most of the

trainees had the opportunity to observe four to six teaching periods, taught one or two periods themselves, usually large classes, and were able to make links between coursework and school experience. Those who taught had very encouraging experiences.

From the post-teaching practice survey findings, it would appear that their major (subject teaching) methods course prepared the trainees well for the school-based practicum. While the level of confidence of trainees with regard to their ability to perform the different classroom roles was high over the ten-week teaching practice, which reflected well on the courses, their confidence in handling the evaluating role did not improve very much over the same period.

At the same time, several steps were taken to improve the arrangements for and the supervision of teaching practice. Priority was given to the training of supervisors. Workshops were held at which experiences were shared. Chew-Goh's (1986) study set out to investigate the effects of a training programme on selected supervision skills and the evaluative behaviour of some prospective heads of departments (in schools) who were being trained as supervisors of teachers and trainees. The subjects were 33 experienced teachers in a full-time inservice programme who were required as part of their training to undergo a supervision practicum aimed at preparing them to supervise teachers and trainees. They were teamed with 47 second-year Certificate in Education (preservice) trainees. The research design used was described in the report as "pre-experimental", consisting of a pretest, a treatment programme (of workshops on teaching and supervision skills) and then posttest I and posttest II, without a control group. The pretest and posttests were administered to the inservice teachers. On the pretest, the inservice teachers had low scores for the four supervision roles (those of observer, feedback, instructor and evaluator). However, on posttest I, there was an overall improvement in the scores for supervision, with the largest gain made in the feedback role. Significantly, the teachers who demonstrated the greatest improvement after the treatment were those with no experience as cooperating teachers and those with more than twenty years of teaching experience. On the second posttest, which took place in the school, the results were equally positive, with statistically significant gains made on all supervision roles by the whole sample of teachers. Although the findings were very encouraging, the researcher, however, did caution against an over-optimistic interpretation of the findings because of the small size of the sample and the lack of a control group. What this experiment did show was that prospective supervisors would benefit from supervision training workshops that are task-oriented and well-organised.

Ng (1987) investigated the use of a five-phase clinical supervision model for the specific purpose of studying the clinical supervision process within the context of the practicum in the revised training curriculum. Naturalistic inquiry methodology was used. Ng (1987:95) found that clinical

supervision worked well with trainees (in the Diploma programme) who were mature, able and highly motivated. By contrast, the method worked less well with trainees who felt less secure with a non-judgmental approach. She also found a truly collegial trainee-supervisor relationship difficult to achieve in the local context where the norms for behaviour are a little different. The traditional respect for superiors requires a hierarchical relationship that must be absent in clinical supervision. Other than this minor problem, the trainees were on the whole receptive to this non-directive, collaborative approach to supervision, and the researcher recommended that a wider use of clinical supervision in IE's training programmes be considered.

Another arrangement for teaching practice, being considered as a possible alternative to the one-supervisor-to-one-trainee set-up, is pair teaching. Pair teaching in the practicum at IE (see Skuja, 1986) was first introduced on an experimental basis both to minimize the adverse effects of a 'cultural unfamiliarity' faced by a group of young teachers from another country doing their teaching practice in Singapore schools, and to maximise experiential learning. According to Skuja (1986), who initiated the use of pair teaching in IE, "the triad nature of the paired arrangement [i.e. two trainees and the supervisor, and occasionally with the school's cooperating teacher in conference] meant that [such] supervision was not as hierarchical as single supervision". From the interviews with 23 pairs of trainees placed in 14 schools, carried out by Chen and Skuja (1988), it was clear that pair teaching was effective for certain types of trainees and less so for others. Trainees who were more pupil-centred benefited more from the paired arrangement than trainees who were more concerned with self-development and self-achievement. Chen and Skuja (1988:3) suggested that the most successful candidates for pair teaching are those who are "other-orientated i.e. open-minded and having concern for others' points of view", and that the least successful candidates are likely to be those who are 'self-orientated...tend to be inhibited and feel threatened by others' perceptions of their performance". It was inevitable that given the interactive nature of the paired arrangement, the researchers concluded that based on the preliminary (Phase 1) findings the success of the scheme was dependent on the extent to which the trainees were able to relate to each other and work together.

Follow-up Studies

The early phase of settling into a teaching position (the first appointment) has been studied quite intensively by researchers in teacher education elsewhere, as it is a crucial stage in the career of a teacher. As practical follow-up studies they were useful in keeping the teacher education institutions informed of the kinds of problems beginning teachers faced in making the shift from trainee to teacher; in turn, teacher education programmes can be modified and more effective support programmes designed for beginning teachers.

At IE, studies following up on trainees who have started full-time teaching constitute part of the programme evaluation scheme. Since 1981, four formal surveys (Ho et al, 1983; Lim-Quek & Tay-Koay, 1987; Mah & Chew, 1988; Chew & Mah, 1989) have been conducted to find out the perceptions that different cohorts of Certificate and Diploma trainees had of their training programmes and whether there was any noticeable shift in their views about teaching as a result of full-responsibility teaching experience. In the end-of-1982 survey of Certificate-trained teachers (Ho et al, 1983), for example, which covered seven cohorts of trainees who graduated between July 1980 and July 1982, respondents felt that the preparation at IE was "adequate" for the classes they were teaching. However, for a small number in the sample the basic problem was one of adjustment to the real world of the classroom; they sometimes characterised the training as "idealistic". However, when asked whether they were able to apply in the classroom what they had learnt at IE, the majority said that they had applied to some extent different aspects of their training. In particular, the skills learnt in the course on educational technology were found to be most useful.

As in similar research reported elsewhere, the teachers were given a number of problem statements to rank in order of seriousness in the light of their classroom experience. Even experienced teachers would find pupils with behaviour problems difficult to handle in a class of some 40 pupils, so it was not surprising that many young teachers ranked this experience with difficult children as the most serious problem for them. Despite the differences in working conditions, the problems ranked as very worrying appeared fairly similar to those reported elsewhere, ie. across cultural contexts.

A subsequent follow-up study (Skuja and Lim-Quek, 1984) using the interview method sought more detailed information about the nature of problems encountered by a sample of beginning primary school teachers and the strategies used by them in dealing with their problems. Although this focus on problems and coping strategies might well mask what was productive and exciting in the experience of young teachers, there was much that was positive which came through in the interviews.

The data from the follow-up studies had the greatest potential to inform practice. In fact, steps were taken to make adjustments in the training programmes in the light of comments and suggestions made by the respondents to the surveys.

Areas Given Limited Attention

There are probably several lacunae in the research coverage described so far. For instance, although it is generally agreed that the development of teaching skills and the relationship between knowledge (as examined in coursework) and classroom practice are important questions in any preservice programme, these two areas have been given relatively limited attention in the research except for four studies reported here. The first

study looking into the relationship between knowledge of teaching methods as examined in a paper-and-pencil test and teaching ability was carried out by Wiebe and Tan (1968), using samples of students from different courses (Science and Arts). The Spearman rank correlations computed ranged from .004 to .2, showing the lack of a statistically strong relationship between the two components in a preservice programme.

The question of using field experience as part of a training strategy was examined in Ho and Wong (1985) and Chin et al (1987), which reported on a special arrangement (conducted over four school vacations, 1982-1985) combining campus-based training with field experience, under the general rubric of "vacation learning camp". From the training point of view, these school-based camps challenged a sample of preservice and inservice teachers to "apply what they had learnt in the management of learning/teaching situations for children who experienced learning difficulties". The inservice teachers who took part had to demonstrate how the objectives of the camp could be realised, while the pre-service trainees, acting as teachers, had to develop skills of gaining the pupils' attention and cooperation, to maintain an atmosphere of goodwill that a camp should have and to try out different ways of teaching given topics to classes of different sizes. Pupil progress in terms of cognitive gains and changes in self-concept was closely monitored. At the third camp (see Ho and Wong, 1985), for instance, the trainees tried out, on an experimental basis, three different methods (traditional, task-based, and tutoring) of teaching selected topics in Mathematics and English. The principal learning experience for the trainees was that they could examine through direct experience the three pedagogical processes being used and their effects on the pupils. Furthermore, at the end of the second and third camps, the same pupils were also followed up when they returned to their regular schools to see whether the changes in self-concept that they experienced at the close of the camp were sustained some three months later. The results were encouraging for both teachers and pupils: the positive changes in self-concept were maintained for a good number of the pupils. In Ho and Wong (1985:33), it was clear that the pre-service teachers found the experience of working with pupils with learning difficulties most rewarding; they learnt at first hand that there was a great need to help these pupils build up their self-esteem before they (the pupils) could progress academically.

The shift of interest to the study of cognitive processes in learning has definite implications for the way teachers are trained. Seet (1986), noting the limitations of the lecture-demonstration-imitation approach in the training of language teachers and working on the assumption that preservice trainees having had the practical experience of a method of teaching English would tend to theorise on their own, developed what he called an "experiential approach" to the teaching of English, by exposing them to "authentic learning experiences" which they can make use of meaningfully (p. 37). For the empirical part of the study, using listening comprehension as a teaching topic, Seet (1986) designed a small-scale experiment to test the assumption

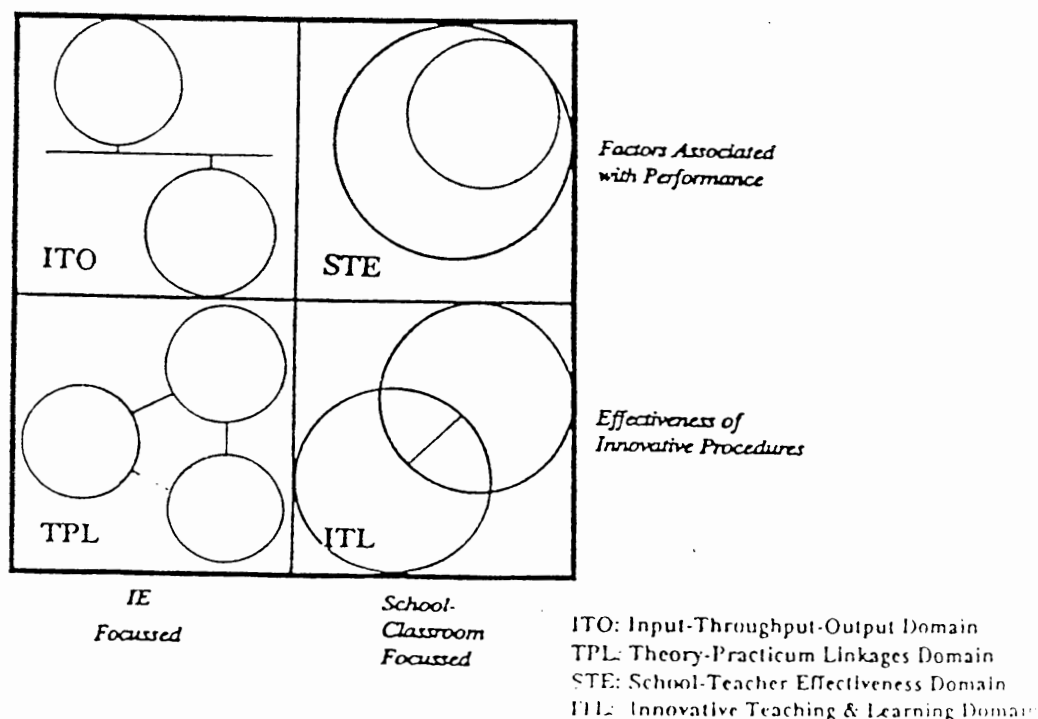
that those who had had the benefit of the experiential approach would show a better understanding of the underlying principles of teaching listening comprehension than the control group. The results show that after eight weeks of exposure to the special package employing the experiential approach, the experimental group scored higher than the control group on the overall scores for classroom observation and for the questionnaire administered at the end of the experiment. The mean differences were statistically significant at the .05 level. However, Seet pointed out the limitations of his study and stressed the tentative nature of his findings.

Another area given little attention in research is inservice education. Other than two reports reviewed earlier (Chew-Goh's (1986) and Ho and Wong's (1985) investigations which involved inservice teachers as participants in the studies), little work has been done by way of research in inservice training.

Retrospect and Prospect

The research studies reviewed so far are characterised by a variety of content and purposes. While the individual and team efforts have been most laudable, what seems to be lacking first of all is an overarching framework to give direction to such research. Such a framework was provided by Sim (1988), which is a conceptual map of the possible domains of research in teacher education (RITE), on which most work in RITE can be located and which in turn is able to generate a number of research questions in the four domains shown in Fig.1 on the next page.

Fig.1. A conceptual framework for research in teacher education



RITE can be perceived as multi-level, ie. Institute (IE)-focussed and/or school classroom-focussed, and in turn as dealing with either factors associated with performance or the effectiveness of innovative procedures. Several propositions have given direction to this conceptual map, but the main reason for having it is the need to build a pedagogical knowledge base for teacher education that goes beyond what is time-bound and situation-specific.

In this review, an attempt was made to provide a broad perspective on the development of teacher education research in Singapore over the last twenty years. There is a thread of continuity in the research sustained by a felt need to search for a better and clearer understanding of the complexities of teacher training and the discontinuity in the education, while development of the research has been the result of both organisational changes and changing emphasis according to research in a teacher education institution.

The documents examined, both published and unpublished, covered macro-studies of the system of teacher education in Singapore, the objectives of teacher education, trainees' motives for choosing teaching as a career, and additional selection criteria. At the micro level, training programmes were evaluated, coursework and teaching practice assessed, and the experience of beginning teachers documented. More recent studies, based on a new research agenda, grew out of a particular perspective about providing an indigenous strategy for RITE that will address directly the issues in teacher education and build up a pedagogical knowledge base that is grounded in the local school system.

But have the findings been taken into account in the implementation of training programmes, or have they made a difference to the way we train teachers? On the question of the utilization of research, some of the findings have formed the basis of implementation decisions. For example, the findings coming out of the project on additional selection criteria have influenced the development of certain decisions affecting the selection of candidates for training. In particular, adjustments in training programmes have been made, particularly in teaching practice arrangements and maintaining a proper balance between theory and practice, arising from the surveys on teaching practice and follow-up studies of beginning teachers in the schools (see Sim, 1986). Nonetheless, the utilization of research findings remains a critical issue in the context of using relevant research findings for the development of teacher education in Singapore.

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