<table>
<thead>
<tr>
<th>Title</th>
<th>Classroom-based research and educational change: The views of teachers and prospective departmental heads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author</td>
<td>Soh Kay Cheng</td>
</tr>
<tr>
<td>Source</td>
<td>ERA Conference, Singapore, 7-8 September 1991</td>
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<td>Organised by</td>
<td>Educational Research Association of Singapore (ERAS)</td>
</tr>
</tbody>
</table>

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As the saying goes:

There are three kinds of people --
Those who make things happen,
Those who watch things happen,
And those who ask, What happens?

Teachers are the interface between the students and the curriculum and hence should logically be those who make things happen. Ironically, teachers tend not to be seen as such people so much so that they learn not to see themselves as such people. Some teachers see themselves as people who watch things happen, others see themselves as those who ask, What happens?

People who make things happen need not only the knowledge, the skills and the attitudes to achieve what they set out to achieve, they also need constant monitoring of where they are going and what they have actually achieved. This means that teachers will be well advised to take a probabilistic, as contrasted with the deterministic, view of their teaching and make it their second nature to regularly, systematically, and objectively gather data and information for feedback purposes (Soh, 1990). Since every lesson is in a very real sense an experiment in which the students are given the treatment or intervention, a Think-Try-Check (TTC) cycle of reflective teaching by which teachers may think of alternative ways of teaching, try them out to see if they work, and gather information of the effectiveness, and then re-cycle (Soh, 1991).

The 'teacher-as-researcher' theme is in part a response to the concern that knowledge generated by 'outsiders' (mainly social scientists, including educational researchers), though given most weight, have not been able to contribute much to the solution of the day-to-day problems of classroom teachers. Several species of action research have been proposed and attempted as a means to localize the knowledge base the teachers need for effective functioning (Ebbutt, 1985; Schibeci & Grundy, 1987).

A few relevant questions to ask of the Singapore scene are: Do our teachers and their professional leaders see themselves playing the role of researchers in the classroom context? What are the possible benefits they see in classroom-based research? What skills do they need to prepare them for research activities? What resources and supports do they need to undertake teacher research? And, what do they see as the reasons for lack of definite contribution research makes to education?

While classroom-based research has good reasons to be an organic part of the teachers' professional repertoire in the ordinary or normal days, it is even more important at a time of educational change. The ability to conceptualize and conduct classroom-based research enables
the teachers to review objectively and systematically the outcomes of their own efforts in implementing the system's aspired changes and to provide reliable, valid, and useful feedback to the authorities. More importantly, such engagement allows the teachers to develop their own knowledge base as to what works and what does not, in terms of personal experience and observation. It further facilitates the teachers' understanding of the purposes and processes of the intended changes and their limitations in real terms. Hence, in view of the impending changes to education in Singapore, another question can be asked: What are the areas in which the teachers and their professional leaders see as needing research?

The past decade has seen much changes in Singapore's education system which introduced streaming at both the primary and the secondary levels. Moreover, a uniform curriculum was implemented in all schools with some special programmes catering to the needs of students with intellectual and language prowess and artistic or musical talents. Students at the other end of the ability distribution were given a less demanding curricular diet and longer years of study. The effects of these were reviewed, resulting in the recommendations of some important changes to be implemented soon in early 1992 (Yip et al., 1991).

Changes which are to be implemented beginning January 1991 include: (a) provision of a three-stage primary education with emphasis on English Language, the Mother Tongue, and Mathematics; (b) Revision of the distribution of curriculum time for the two Languages; (c) delay of formal streaming for one year, from Primary Three to Primary Four; (d) modification of the Primary School Leaving Examination to match the curricula with differential language levels in both English Language and the Mother Tongue; (e) the introduction of a Normal (Technical) Stream into the secondary education; and, (f) restructure of the Vocational and Industrial Training Board (Yip et al., 1991). A survey of teachers' views on these impending changes are reported at this Conference by Sim & Kam (1991).

Besides, some changes which have been introduced into the education system in the recent past or are soon going to be introduced include: single session schools, full-day schools, independent schools, Special Assistance Plan (Primary) Schools, reduced class size, computer-based learning, pastoral care and career guidance, school psychological service, the Gifted Programme, the Music Elective Programme, the Art Elective Programme and, above all, EDUSAVE (an endowment fund scheme to further enhance the educational opportunities of all students in schools). These measures represent the nation's educational aspirations and provisions and are more fully explicated in "Education: investing in our people" in Singapore: The Next Lap (Singapore, 1991).

As an attempt to gain an insight into the views of the teachers and prospective heads of department regarding these questions in the context of the forthcoming changes, a survey was carried out with two groups of Further Professional Diploma in Education (FPDE) participants from primary and secondary schools. These FPDE participants had a Classroom-Based Research and Evaluation course in their programme which introduced them the basics of research methodology of an empirical-experimental kind. Their assistance was also sought to obtain responses from their teachers in school. As these are 'convenient samples', no representation is claimed for the results and generalization beyond those surveyed warrants due caution.
Teacher Involvement

What could be the place of classroom-based research in a teacher’s work? As Table 1 shows, both groups of heads of departments (HOD) would like to see teacher involvement in varying degree; they were of the view that research should become part and parcel of the teacher’s work and that teachers should devote some time to research and help in research projects when necessary. On the other hand, both secondary and primary teachers would prefer to help in research projects when necessary but not to have it as part of their work; some would devote some time to research but there were some who were of the view that teachers should not be involved at all.

Table 1: Views on Teacher Involvement in Classroom-Based Research

<table>
<thead>
<tr>
<th>Involvement</th>
<th>Sec Trs (n=18)</th>
<th>Pri Trs (n=21)</th>
<th>FPDE(S) (n=70)</th>
<th>FPDE(P) (n=34)</th>
<th>Comparison*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rank</td>
<td>Rank</td>
<td>Rank</td>
<td>Rank</td>
<td></td>
</tr>
<tr>
<td>Part of work</td>
<td>6 4 9 4</td>
<td>33 1 29 2</td>
<td></td>
<td></td>
<td>(3[42]1)</td>
</tr>
<tr>
<td>Involvement</td>
<td>28 2 29 2</td>
<td>30 2.5 35 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helping</td>
<td>56 1 38 1</td>
<td>30 2.5 27 3</td>
<td></td>
<td></td>
<td>(1[23]4)</td>
</tr>
<tr>
<td>No involvement</td>
<td>11 3 24 3</td>
<td>9 4 11 4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Groups within ( ) or [ ] do not differ significantly as indicated by the Duncan’s test (p=0.05)

Table 2: Views on Possible Benefits of Classroom-Based Research

<table>
<thead>
<tr>
<th>Possible benefits</th>
<th>Sec Trs (n=18)</th>
<th>Pri Trs (n=21)</th>
<th>FPDE(S) (n=70)</th>
<th>FPDE(P) (n=34)</th>
<th>Comparison*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Rank</td>
<td>Mean Rank</td>
<td>Mean Rank</td>
<td>Mean Rank</td>
<td></td>
</tr>
<tr>
<td>Aware</td>
<td>3.6 3</td>
<td>4.0 4.5</td>
<td>3.1 1</td>
<td>2.9 1</td>
<td>(2[13]4)</td>
</tr>
<tr>
<td>Plan</td>
<td>3.1 1</td>
<td>2.0 1</td>
<td>3.7 2</td>
<td>3.7 3</td>
<td>(2[314])</td>
</tr>
<tr>
<td>Understand</td>
<td>4.3 5</td>
<td>4.7 6</td>
<td>4.5 7</td>
<td>4.4 5</td>
<td></td>
</tr>
<tr>
<td>Critique</td>
<td>4.7 6</td>
<td>3.9 3</td>
<td>4.3 5.5</td>
<td>5.0 6.5</td>
<td>(2[314])</td>
</tr>
<tr>
<td>Discuss</td>
<td>4.1 4</td>
<td>5.8 7</td>
<td>4.3 5.5</td>
<td>3.9 4</td>
<td>(2[314])</td>
</tr>
<tr>
<td>Locate</td>
<td>3.5 2</td>
<td>3.6 2</td>
<td>3.9 3</td>
<td>3.2 2</td>
<td></td>
</tr>
<tr>
<td>Lead</td>
<td>4.8 7</td>
<td>4.0 4.5</td>
<td>4.1 4</td>
<td>5.0 6.5</td>
<td></td>
</tr>
</tbody>
</table>

* Groups within ( ) or [ ] do not differ significantly as indicated by the Duncan’s test (p=0.05).

Scale: 1=Most important...7=Least important

Possible Benefits

Among the possible benefits from a training course in classroom-based research and evaluation, which were seen as more important by the HODs? And, by the teachers? As shown in Table 2, high on both the HODs’ and the teachers’ lists of important possible benefits are: (a) skills in planning research projects, and (b) the ability to locate research information related...
to work. In addition, HODs also considered as being important the awareness of research done in the relevant subjects and interest areas; this was also important to the secondary teachers, while their primary counterparts considered as being important the ability to read critically project reports and articles.

**Skills Needed**

As the HODs had the training in classroom-based research and evaluation, in which aspects of research planning did they feel confident? And, in planning a classroom-based research project, what would be the most needed skills as seen by the teachers? As Table 3 shows, where skills in planning classroom-based research projects are concerned, HODs indicated high confidence in (a) breaking a broad problem down to specific and manageable ones, (b) in formulating a research problem with clear focus, and (c) in deriving hypotheses from the research problem once defined. As for skills needed, secondary teachers indicated a higher degree of need for such skills in problem definition, problem focussing, and measurement, whereas the primary teachers indicated the needs for problem focussing, hypothesis formulation, and the choice of statistics.

**Table 3: Skills Needed for Classroom-Based Research**

<table>
<thead>
<tr>
<th>Skills needed</th>
<th>Sec Trs Mean Rank</th>
<th>Pri Trs Mean Rank</th>
<th>FPDE(S) Mean Rank</th>
<th>FPDE(P) Mean Rank</th>
<th>Comparison*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem</td>
<td>3.6 2</td>
<td>4.6 5</td>
<td>3.5 2.5</td>
<td>2.8 1.5</td>
<td></td>
</tr>
<tr>
<td>Focus</td>
<td>3.3 1</td>
<td>2.6 1</td>
<td>2.8 1</td>
<td>2.8 1.5</td>
<td></td>
</tr>
<tr>
<td>Hypothesis</td>
<td>4.1 5</td>
<td>4.1 3</td>
<td>3.5 2.5</td>
<td>3.1 3</td>
<td>(12[34])</td>
</tr>
<tr>
<td>Summary</td>
<td>4.8 6</td>
<td>5.6 7</td>
<td>4.2 5</td>
<td>4.8 5.5</td>
<td>(2[14]3)</td>
</tr>
<tr>
<td>Measures</td>
<td>3.8 3</td>
<td>4.1 4</td>
<td>4.0 4</td>
<td>4.6 4</td>
<td></td>
</tr>
<tr>
<td>Statistics</td>
<td>4.5 7</td>
<td>3.9 2</td>
<td>5.2 7</td>
<td>5.3 7</td>
<td>(43[12])</td>
</tr>
<tr>
<td>Design</td>
<td>3.9 4</td>
<td>5.3 6</td>
<td>4.8 6</td>
<td>4.8 5.5</td>
<td>(2[34]1)</td>
</tr>
</tbody>
</table>

* Groups within ( ) or [ ] do not differ significantly as indicated by the Duncan’s test (p=0.05).

Scale: 1=Most confident (needed) .... 7=Least confident (needed)

**Resources and Support Needed**

In initiating a classroom-based research project, what resources and supports would be the most needed by the HODs? And, by the teachers? As can be seen in Table 4, common to both secondary and primary HODs, to initiate classroom-based research projects, they would need (a) training in research skills, (b) collegial support, and (c) moral support of key personnel in the school. In addition, time was considered as the most important resource by primary HODs. As for the primary teachers, moral support of key personnel, training in research skills, and time would be most needed, whereas their secondary counterparts would most need time, training in research skills, moral support of key personnel, cooperation of colleagues, and advice on research methodology.
Table 4: Resources and Support Needed for Classroom-Based Research

<table>
<thead>
<tr>
<th>Supports needed</th>
<th>Sec Trs (n=18)</th>
<th>Pri Trs (n=21)</th>
<th>FPDE(S) (n=70)</th>
<th>FPDE(P) (n=34)</th>
<th>Comparison*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funds</td>
<td>4.4 6</td>
<td>5.6 6</td>
<td>5.0 6</td>
<td>5.7 6</td>
<td>(42[3]1)</td>
</tr>
<tr>
<td>Time</td>
<td>2.9 1</td>
<td>3.4 1</td>
<td>2.9 1</td>
<td>3.7 5</td>
<td></td>
</tr>
<tr>
<td>Skills</td>
<td>3.1 2</td>
<td>2.9 2</td>
<td>3.2 3.5</td>
<td>3.0 1</td>
<td></td>
</tr>
<tr>
<td>Moral support</td>
<td>3.7 4</td>
<td>2.6 1</td>
<td>3.2 3.5</td>
<td>3.0 3</td>
<td>(1[43]21)</td>
</tr>
<tr>
<td>Cooperation</td>
<td>3.7 4</td>
<td>3.6 4</td>
<td>3.0 2</td>
<td>3.0 2</td>
<td></td>
</tr>
<tr>
<td>Consent</td>
<td>6.1 7</td>
<td>5.9 7</td>
<td>6.2 7</td>
<td>6.2 7</td>
<td>(1[34]2)</td>
</tr>
<tr>
<td>Advice</td>
<td>3.7 4</td>
<td>4.1 5</td>
<td>4.5 5</td>
<td>3.3 4</td>
<td>(3[21]4)</td>
</tr>
</tbody>
</table>

* Groups within ( ) or [ ] do not differ significantly as indicated by the Duncan's test (p=0.05).

Table 5: Reasons for Perceived Lack of Contribution of Classroom-Based Research

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Sec Trs (n=18)</th>
<th>Pri Trs (n=21)</th>
<th>FPDE(S) (n=70)</th>
<th>FPDE(P) (n=34)</th>
<th>Comparison*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgency</td>
<td>2.7 2</td>
<td>3.3 3</td>
<td>3.1 3</td>
<td>2.7 3</td>
<td></td>
</tr>
<tr>
<td>Comprehension</td>
<td>4.8 6</td>
<td>3.9 5</td>
<td>4.8 6</td>
<td>4.7 5</td>
<td>(13[4]2)</td>
</tr>
<tr>
<td>Relevance</td>
<td>3.2 3</td>
<td>3.5 4</td>
<td>3.5 4</td>
<td>4.1 4</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>2.6 1</td>
<td>3.0 2</td>
<td>2.3 1</td>
<td>2.0 1</td>
<td>(2[13]4)</td>
</tr>
<tr>
<td>Commonsense</td>
<td>4.4 5</td>
<td>4.6 6</td>
<td>4.7 5</td>
<td>4.9 6</td>
<td></td>
</tr>
<tr>
<td>Strategy</td>
<td>3.3 4</td>
<td>2.8 1</td>
<td>2.7 2</td>
<td>2.3 2</td>
<td></td>
</tr>
</tbody>
</table>

* Groups within ( ) or [ ] do not differ significantly as indicated by the Duncan's test (p=0.05).

Scale: 1=Most severe...7=Least severe

Reasons for lack of contribution

What could be the reasons that research has not been able to contribute as much to education as it should? As shown in Table 5, all groups saw two severe limitations of research in this regard. Heading the lists of all groups is the lack of interest in research. Next, the urgency for solutions which research could not provide in time. In addition, both secondary and primary HODs as well as primary teachers also agreed that 'people do not see research as a problem-solving strategy' was a severe limitation, while secondary teachers saw relevance to school needs as a severe limitation.

Research Needed

As Singapore schools will be going into another phase of important changes beginning early 1992, in which specific aspects do the HODs and teachers think classroom-based research and evaluation will be needed? The responses to an open-ended question were presented below, with minor editing where necessary, under several broad areas of concern for which research
needs were indicated. It is of note that some of the research areas suggested pertain not only to
the impending changes but have a long lasting significance.

Policy changes: There are some calls for research on the justifications for policy changes
and effects on all parties concerned as illustrated by the following responses:

- Educational policy. [Why are there so many changes in our educational policy? Where
  have we failed? What has gone awry?]
- Effect of frequent changes in educational policy and system on students, teachers,
  and parents. [Frequent changes are worrying many people.]

School environment and facilities: The responses indicated some concern with the school
environment in connection with the implementation of full-day schooling. Reasons for the need
for research in this regard concern with providing a conducive teaching and learning
environment in the weather and the lifestyles of Singapore. Typical responses are cited below,
with reasons in the brackets.

- Full-day school and their effects on the teachers and students. [The Singapore
  climate, lifestyles and expectation are different from the West. How it will affect
  the teachers and students.]
- Full-day school. [Can the implementation of the full-day school achieve its
  purpose?]
- Environment/physical constraints in schools in Singapore. [Length of stay in
  schools will increase and the weather is not conducive.]
- The effects of full-day school. [Changes in lifestyle of teachers because of full-
  day school.]
- Does maximum learning take place in a full-day school? [School are functioning
  from 8.30 am to 5.00 pm.]
- How much the pupils can gain from the implementation of full-day schools. [To
  find out whether it is cost effective.]

Curriculum: Concerns for various aspects of the curriculum were also expressed. These
centered around a few themes such as meeting the needs of students with different needs, the
teaching and learning of the traditional subjects English Language, Science, and Math and also
the more esoteric 'subjects' such as thinking skills and problem-solving. The use of computer
as a learning aid and as a subject for the new Normal(Technical) Stream. Responses are cited
below:
• Are students being developed in their potential through our education system? [The curriculum in school are very wide and a vast majority of them leave school without any skills. Is this a healthy sign?]

• Basic subjects to be introduced at primary level. [The plan to introduce Science at P5 and hoping that students can/will cope is thought-provoking and worrying.]

• Differentiated schemes of work for mixed ability. [To cater to the different needs of pupils in the class.]

• The effect of learning a foreign language to express oneself on learning ability. [Many students do not speak English before they enter school. Upon entering school, they are taught English to express their learning skills. Is this one reason for some not being able to do as well as they should?]

• Teaching of English (ACT) -- How applicable it is to the local classroom situations? [Modifications needed to suit cohorts of neighbourhood schools taking into consideration their competency of the English Language and their home background.]

• Writing skills of children. [To come up with a more standard format to guide teachers in teaching this skill.]

• Train pupils in reading skills. [Reading is an important factor in language learning.]

• How to write a good composition.

• Whether the learning of Science helps pupils to be better problem solvers or whether it helps slower learners in achieving. [As Science is not to be taught formally in P3 and P4, what effect does it have on learning?]

• The teaching of thinking. [Teaching in Singapore is not focussed on thinking which is an important life skill.]

• Problem solving in Math. [There will be a change in the syllabus towards this area.]

• Whether problem solving learned in Math is transferable to other areas. [Otherwise, we are spending time and effort on something that is not crucial.]

• Computer-based learning -- how it affects students' learning? [Normal(Technical) Stream needs to study computer application as a subject.]
• Use of CAI in teaching -- will it be able to help the Normal stream students? [The implementation of a Normal(Technical) Stream with computer application studies as one of the subjects.]

Assessment: Since assessment plays a vital role in Singapore’s education system, the teachers’ concern is not unexpected. There are suggestions for the consideration of alternative assessment procedures as well as for specific subject areas such as English Language and reading ability.

• Evaluation; different ways of looking at performance. [At the moment, only one final examination to determine students performance.]

• Model of assessments (Informal assessment -- individual portfolio, project work). [How these are applicable in the classroom.]

• On English test items. [Cambridge examination is not a realistic and functional testing of actual needs.]

• Assessing pupils’ reading ability. [To help put pupils in the correct level according to their reading ability, especially in remedial work.]

• Validation of tests.

Students: It is natural for the teachers to be concerned with the educational path and ability of the students, hence much of the suggestions for research focussed on streaming, both at the primary and the secondary levels, especially the new Normal(Technical) Stream, and its probable effects. Besides, study skills, learning styles, and aesthetic education were considered as well. To illustrate the tone of teacher concern, answers to the open-ended question were cited below:

• Streaming pupils. Improving pupils' achievement. [We don't seem to have taken the right course of action so far.]

• Effectiveness of stream [Normal(Technical) and Normal(Academic) are catering to the needs of society.]

• How streaming may affect students' morale.

• Channelling of primary pupils to the various types of secondary education. [Is it too early to determine the path for the children?]

• Is it necessary for streaming to occur at the primary school level? [To ensure a more effective education system.]
• Effectiveness of streaming at P4. [It might be too young to stream -- late developers might be penalized.]

• Is streaming at P4 a correct measure? [Different pupils progress at different rates. Not every school will have the same cohort(sic) of pupils.]

• Streaming of the pupils at P4. [To find out if performance is any different from that when children were streamed at P3.]

• Impact of streaming P6 students into Normal(Technical) Stream. [It will help teachers to foresee problems that might arise.]

• Student motivation to study. [There will be more Normal students in my school]

• Streaming eg Normal(Technical/Academic). [Self-fulfilling prophecy, teacher attitudes and student motivation.]

• Introduction of Normal(Technical) Stream will bring more discipline problems to schools. [Need to prepare teachers to handle these students.]

• Counselling. [Discipline and welfare of students being admitted into the new Normal(Technical) and Express Streams.]

• Developing independence in study. [Students are too reliant on 'spotting' examination questions rather than to develop study skills for independent thought.]

• How students study. [Many students could not cope with school work because of the lack of learning skills.]

• Learning styles. [Are they effective in our local condition? How would this affect the high stress for achievement in results.]

• Students' ability to innovate and create and to appreciate the arts. [Students here are too examination-oriented and lacking in aesthetic sensitivities.]

Teachers: It is not unexpected that the teachers should be concerned with their own roles, morale, and image and the probable impacts of educational changes on these. Such concerns are reflected in the following quotes.

• Impact of educational policy changes on teacher morale and effectiveness. [It takes some time for changes to be accepted. What can be done to ensure a smooth transition when changes are introduced.]
• Teachers’ problems and professional image/motivation. [Teachers with low morale would not be able to contribute fruitfully as they are not motivated.]

• Teacher morale and the unattractiveness of the job. [High turnover rate of teachers.]

• Staff motivation. [Needed in view of present climate in many schools.]

• The role of the teachers. [Teachers nowadays have to cope with all kinds of other non-professional administrative duties. Teachers should be spending more time learning new methods of teaching.]

• Stress level of teachers (and students). [The number of projects have increased.]

Traditionally, research has not been given a more prominent role to play in teacher education. This inevitably excludes research from the teachers’ roles and limits their professional development and image. The fact that teachers are more willing to assist in ‘outsider research’ than to initiate and conduct their own classroom-based research is symptomatic of the neglect of more rigorous preparation of teachers for the role of teacher-as-research in teacher education programmes. Hence, it is not surprising that teachers, as compared with the prospective departmental heads, tended to see themselves as consumers of research knowledge and not producers of it for their own use. In other words, teachers see themselves as people who watch things happen or, worse still, people who ask "What happens?"

Teachers, however, are not unconcerned with changes that have taken place, are taking place, or are going to take place; they simply have regrettably not been technically prepared to find the answers to their own questions. In view of the significant, though may not be vial, role classroom-based research and evaluation can play in the teachers’ professional functioning and development, it is apt conclude by citing Atkin (1989:205) who has emphatically alluded to the close relationship that should exist between teacher research and educational change, thus:

"The progress of meaningful school reform will remain stalled until teachers emerge from their marginal positions in the research community and become full partners in the conception and the conduct of educational inquiry."

References


