CHAPTER VI

A SUMMARY

6.0.0   Introduction

This chapter reports a brief summary of the study. The specific headings under which the summary is reported are the need for the study, statement of the problem, the objective, underlying assumptions, scope and the limitations of the study, method and procedure, conclusions, and educational implications.

6.1.0   The Need for the Study

The task of identifying competent teachers is crucial to the educational system insofar as teaching contributes to the realisation of educational goals, and, in turn, total human welfare. With the increasing recognition of the benefits of education, the teacher's role is becoming more crucial and a great deal of attention is being paid to the problem of teacher accountability. The Education Commission (1964-66) also has emphasised the role the teachers play in the national development.

But the role and the standards expected of the teacher are diverse in nature and degree and are determined by a

variety of pressure groups that are often difficult to
define. And, there is a dearth of knowledge about what
competencies a teacher is expected to possess, what ~~contri-~~ constitutes
~~butes~~ these competencies and how exactly he should be assessed
for possessing these competencies. Therefore, the problem
of teacher accountability cannot be tackled unless such
knowledge is made available to all concerned with education.

Further, the teacher training institutions are at a loss
to plan sound teacher education programmes in the absence of
accurate information about the relationship between the
teacher's competencies and their effectiveness in promoting
pupil learning. Although many studies have been conducted
to this end, the findings are inconsistent, noncoherent, or
meagre to make any useful contribution to the theoretical basis
of teacher education. More analytical and systematic research
on teaching is needed to improve the standard of teacher
education.

Of late, attention is being paid to the mddification of
the curriculum both at the secondary andthe higher secondary
stages in order to make education socially relevant and useful
(Ministry of Education and Social Welfare, 1977; 1978). With
the change in the curriculum, a change in the teacher role
can be envisaged. But nothing concrete has been taken up with
regard to the teacher and the teaching-learning process. Due
emphasis has to be laid on this vital area of research, i.e.,
teaching, which decides the extent to which the educational

objectives are fulfilled. Therefore, researches are needed
to scientifically analyse teaching in the light of the new
role of the teacher.

In spite of the unprecedented demand for competent
teachers, there is, as yet, no comprehensive theory of
teaching. The reason probably is that problems besetting
research on classroom teaching are varied, complex and over-
whelming. But one cannot hope to put teaching on a sound
footing unless concerted research efforts are made to specify
conditions for maximum pupil outcome, contributing to the
development of a theory of teaching.

Nevertheless, there have been a number of attempts to
answer the question, "Who is a competent teacher?" (Barr 1948;
Patrick, 1974; Anderson, 1974; Starr, 1975; Cockrell, 1976;
Cross, 1976; and others). But these studies do not contribute
anything substantial to the domain of teaching, in that they
have some inherent fallacies in them (see Caption 2.1.0 for
details). There are other studies which connect presage,
process and product variables and employ suitable approaches
and sophisticated statistical techniques, and contribute to
competence research (Holloway, 1973; Wells, 1974; Kaul,1974;
Malhotra, 1975, Grewal, 1975; Dean, 1977; Joshi, 1977; and
others). But these studies do not tell about competencies
required for a particular grade, subject matter or both.

The knowledge of competencies typical to a grade, subject matter or both would enable the educationaists and the practitioners to focus on the more crucial aspects of teaching. An attempt has been made in this study to identify desirable teaching competencies of a physics teacher of Standard IX in the context of certain presage, process and product variables.

6.2.0 Statement of the Problem

The problem underlying the study is stated as "Factorial Structure of Teaching Competencies among Secondary School Teachers".

6.2.1 Definitions of Key Terms

The operational definitions of the terms included in the title of the study are given below:

(i) Factorial Structure: This relates to the set(s) of teacher behaviours (called competencies) arrived at as a result of factor analysis of the data regarding the different variables.

(ii) Teaching Competency: It is the ability of a teacher manifested through a set of overt teacher classroom behaviours which is a resultant of the interaction between the presage and the product variables of teaching within a social setting.

(iii) <u>Secondary School Teachers</u>: This denotes only the teachers of Standard IX teaching physics through the medium of English in all types (government/ private, aided/unaided, and boys/girls/mixed) of secondary schools in the city of Bangalore.

6.3.0 The Objective of the Study

The study aimed at achieving the following objective:

To identify a set of desirable teaching competencies of physics teachers of Standard IX.

6.4.0 Basic Assumptions Underlying the Study

The study is based on the following assumptions:

(i) Teaching competency is an ability of the teacher and it manifests through his classroom teaching behaviour.

(ii) The behaviour of the teacher in the classroom is the most direct evidence that one can appeal to in a search for teaching competencies.

(iii) This behaviour of the teacher is capable of being observed by a trained observer.

(iv) The different sections of Standard IX are homogeneous in respect of pupils' ability, their socio-economic status, the classroom environment, the physical equipment, etc.

6.5.0 The Scope of the Study

(i) The findings of the study are applicable to only
the physics teachers of Standard IX of the secondary
schools of an urban area like the city of Bangalore.

(ii) Since this study is the first of its kind, the
findings may be treated as explorative rather than
conclusive.

6.6.0 Limitations of the Study

(i) The topics in physics that were taught at the time of
data collection are considered representative of the
entire syllabus of physics of Standard IX.

(ii) Every teacher was observed only once for a period of
30 minutes in his class due to lack of resources. The
behaviours that he exhibited in this period are taken
to be representative of the universal of his teaching
behaviours.

6.7.0 Method and Procedure

This study adopted two approaches to fulfil the objective
of the study. First, the different presage, process and pro-
duct variables of teaching were measured and factor analysed
to arrive at the set(s) of desirable teaching competencies.
Second, the views expressed by students about their physics
teacher were content analysed and a profile of a competent

physics teacher was developed. The purpose of adopting
the second approach was to validate the competencies
identified through the first approach and make the results
and their ƗⱮ interpretation more meaningful and compre-
hensive.

The different variables included in the study are as
follows: four presage variables, 86 teacher classroom
behaviours under the process variable and one product variable.
The details of these variables are presented in Table 6.1.

TABLE 6.1

THE VARIABLES UNDER STUDY

Sr.No.	Presage Variables	Process Variable	Product Variable
1.	Teacher's intelligence		
2.	Teacher's attitude towards teaching	86 behaviours exhibited by the teacher in the classroom	Students' liking for their teacher
3.	Teacher's interest in teaching.		
4.	Teacher's self perception of his classroom behaviour.		

The study was conducted at two stages, namely, the pilot
study and the final study. The pilot study enabled standar-
disation of the tools constructed by the investigator and
also provided guidelines for conducting the final study.

6.7.1 The Sample

A live classroom was the unit of sample. The population
of the study consisted of all teachers of Standard IX teach-
ing physics through the medium of English and their students
engaged in the teaching-learning process in all secondary
schools of the city of Bangalore.

The sample for the pilot study consisted of 23 teachers
of grades VIII, IX and X, teaching the subjects of English,
science, mathematics and social studies through the medium of
English in five secondary schools of the city of Baroda, and
their 241 students. A rationale for restricting the sample
of the final study to physics teachers of Standard IX in the
secondary schools of the city of Bangalore is provided in
Captions 3.1.1 and 3.3.0.

For the final study, the sample comprised 130 teachers
of Standard IX teaching physics through the medium of English
in 79 secondary schools of the city of Bangalore. As regards
the sample of students, 2305 students were randomly chosen to
respond to the Student Liking Scale; 100 students were selected
and interviewed on a semi-structured Interview Schedule to
gather data regarding their views about their physics teacher.

6.7.2 The Tools

In all, seven tools were used to collect data regarding
the different presage, process and product variables. The

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tools employed, the variables studied and the respective
sample are presented in Table 6.2.

TABLE 6.2

THE TOOLS USED, THE VARIABLES STUDIED AND THE
SAMPLE OF THE STUDY

Sr. No.	Tool	Variable	Sample	Total number of variables
1.	The Standard Progressive Matrices, Sets A, B, C,D and E	Presage	Teachers	1
2.	Teacher Attitude Scale	Presage	Teachers	1
3.	Interest Inventory for Teachers	Presage	Teachers	~~14~~ 1
4.	Teacher's Self Rating Scale	Presage	Teachers	14
5.	Observation Schedule	Process	Teaching learning situation	86
6.	Students' Liking Scale	Product	Students	~~14~~
7.	Interview Schedule	Product	Students	
	Total	...	...	117

6.8.0 Conclusions

Data collected were factor analysed by the method of
principal component analysis. This resulted in fourteen
factors which accounted for 68.30 percent of total variance.
In order to attain parsimony and meaningfulness of results,

these factors were rotated through the varimax method.
They were named as follows: (i) General Teaching Competency,
(ii) Competency of Teacher Concern for Students, (iii) Com-
petency of Using Audio-Visual Aids, (iv) Competency of
Professional Perception, (v) Competency of Giving Assignment,
(vi) Competency of Illustrating with Examples, (vii) Compe-
tency of Pacing while Introducing, (viii) Competency of
Logical Exposition, (ix) Competency of Classroom Management,
(x) Competency of the Use of Questions, (xi) Competency of
Initiating Pupil Participation, (xii) Competency of the Use
of Blackboard, (xiii) Competency of Recognising Attending
Behaviour, and (xiv) Competency of Achieving Closure.

The opinions expressed by the students in response to
an interview and an open-ended question on the Student Liking
Scale were content analysed and a 'Profile of a Competent
Physics Teacher' was developed. The different aspects
discussed in the profile are as follows: teacher's competency
of (i) creating interest and curiosity in students, (ii)asking
many as well as difficult questions, (iii) clear explanation,
(iv) teaching in an interesting way to keep the students
attentive, (v) adjustment of the pace of teaching (vi) show-
ing things and experiments related to teaching, (vii) giving
interesting examples, (viii) good use of blackboard,(ix) appre-
ciation of student answers, (x) summarising the lesson,
(xi) maintaining orderliness in the classroom, (xii) giving
challenging assignment, (xiii) humour, (xiv)correct pronunci-

ation and good accent, (xv) impartiality, (xvi) knowledge
of subject matter, (xvii) punctuality, (xviii) giving notes,
and (xiv) repetition of the lesson when necessary.

It was found that the fourteen competencies that
emerged as a result of factor analysis related very closely
with those expected of teachers by their students. Thus,
the factorial structure of teaching competencies was vali-
dated by the profile of the teacher portrayed by the students.
Further, the teaching skills and their respective components
which formed the basis of the Observation Schedule were
validated through this study. It was found that the extracted
factors, by and large, accounted for the same variables as
the components conceptualised under each of the skills. Thus,
the three theoretical model hypothesised by Passi (1976) and
De Sales (1976) was empirically demonstrated to a considerable
extent in this study.

6.9.0 Educational Implications

The conclusions of this study have implications related
to teacher training institutions, school systems and research
on teaching.