CHAPTER V

A COMPETENT PHYSICS TEACHER - A PROFILE

5.00 Introduction

In Chapter III, two approaches adopted to achieve the objective of the study were mentioned. Chapter IV dealt with the results related to the first approach; this chapter reports the results related to the second. More specifically, a profile of a competent physics teacher has been developed on the basis of content analysis of the views expressed by the students of Standard IX about their physics teacher.

Alongside, the results of factor analysis as well as those of content analysis have been discussed in the context of the knowledge already existing in the area of teaching competency. In doing so, the competencies arrived at as a result of factor analysis have been validated by those expected of teachers by their students.

Besides, the educational implications of the study and suggestions for further research have been discussed.

The details follow.

5.1.0 A Profile of a Competent Physics Teacher

This section describes a competent physics teacher as portrayed by the students of Standard IX. The views expressed by the students in response to an interview and an open ended question in the Student Liking Scale have been content analysed. Based on this analysis, a profile of a competent physics teacher has been developed.

The analysis revealed that the different dimensions of teaching about which the students have expressed their opinion closely related with the ones that emerged as a result of factor analysis. These dimensions differentiated teachers they liked from teachers they disliked. It was also seen that these opinions were commonly held by all students.

The different dimensions of teaching are as follows: (i) introducing the lesson, (ii) fluency in questioning, (iii) probing questioning, (iv) explaining, (v) stimulus variation, (vi) pacing,(vii) using audio-visual aids, (viii) illustrating with examples, (ix) using the blackboard, (x) reinforcement, (xi) achieving closure, (xii) recognising attending behaviour, (xiii) classroom management, and (xiv) giving assignment.

At this juncture, it is necessary to bear two points in mind: (i) The views expressed by students were in terms of the effects the above mentioned teacher acts would have on them and not in terms of the teacher acts themselves. (ii) Although the interview centred around the fourteen dimensions

of teaching, more often than not, the students expressed their opinion regarding other aspects of the teacher that were indirectly related to teaching.

As far as possible, the language of the students is retained while describing a competent physics teacher. Some typical expressions used by them are given within inverted commas. The profile is presented below.

A teacher who is liked best by all the students creates interest and curiosity in students to learn physics through many ways. He does not confine himself to the text book but goes beyond it and gives an idea of the significance of physics in everyone's life. He narrates interesting stories and historical events of scientists. He gives them interesting science books and magazines and encourages them to read more about physics in their free time. He shows good photographs and colourful pictures and teaches them to do models and draw figures connected with the lesson. He revises the previous day's lesson in the beginning of the period thus ~~refreshing~~ 'freshening up' the memories of students.

Students strongly feel that the teacher should ask questions often. This will help them understand the lesson better as well as keep themselves active in the class. But they do not like questions to be asked before anything is taught, but after explanation of the lesson is over. They prefer simple, short and clear questions to tricky and long

questions. And they like answering it themselves; they want that atleast one chance to every student be given before the teacher answers it himself. They get ~~irritated~~ irritated if the question is repeated too many times.

They want that the teacher should ask them difficult questions sometimes, but they strongly dislike the teacher who 'shows off' by asking 'high' questions. In case they cannot answer the difficult questions or 'use their brains', they like to be helped with more examples and hints. They feel they can ∅ try even 'hard' questions if the teacher encourages them to do so.

Students like the teacher who is brief and clear in his explanation and who does not elaborate unnecessarily. They want the teacher to explain in simple English and not to read from the text book or dictate lengthy notes. They believe that the lesson should be explained 'point by point' systematically. There should be continuity and fluency when he talks and he should not 'go out of track'. When he gets out of track, they strongly feel that they cannot make out 'the head or tail' of what is being explained and this results in confusion. They like the teacher who, while explaining, can make them imagine difficult things. Meaningless use of words like 'then', 'now', 'you know', 'understand', etc., during explanation irritates them. Also, they like the teacher to explain in English and not switch over to Kannada now and then. To sum up, they like the teacher who can express himself in such a way that they can

understand the lesson without any confusion.

A teacher who makes the students 'forget themselves' by his interesting teaching is liked best by all students. In such classes everyone is attentive and no one gets disturbed at all. A teacher who moves forward and backward, and up and down the platform unnecessarily,nods his head often and moves his hand meaninglessly is disliked most. At the same time, they want the teacher to go round the class and have a 'watch' on them. They like the teacher's 'style' of walking and standing to be attractive.

Smiling for no reason, raising the eyebrows now and then, showing unnecessary actions, underlining the words on the board mechanically and playing with the piece of chalk are all 'funny habits' according to the students and they get irritated by them. They cannot tolerate a voice which is too soft or which is too loud. Very loud voice is unbearable and irritating whereas students in the back benches take advantage of soft voice and make noise. Sudden high and low voice makes them laugh and distracts them. Monotonous voice is what 'gets on their nerves'. They prefer a voice that is pleasant and loud enough to be heard by everyone.

When there is some disturbance in the class or some students are not attentive, they want the teachers to stop the lesson for a while so that the students become alert. Giving a chance to everyone to answer a question also reduces

noise, they believe, as the students will be engaged actively in something worthwhile. They do not like the teacher to bang the duster on the table or shout helplessly. They get'damn bored' with the teacher who says, 'Look here', or 'This is an important thing' every second minute. They agree, they get used to such teachers but they confess they do not pay attention to what that teacher says.

Regarding the pace of teaching, students like the teacher who can adjust his speed according to the capacity of the students. They like the teacher to be neither very slow nor very fast. They contend that when the teacher is very fast, they cannot follow the lesson and when he is very slow, they feel sleepy and lazy in the class. On the whole, they like the teacher to be slow and clear. Further, some topics are easy and can be taught at a faster pace, whereas some difficult lessons have to be taught at a slower pace. They appreciate that teacher who is concerned about them and who adjusts his pace willingly depending on the needs of the students and the lesson. They dislike the teacher who is always bothered about 'finishing the portions' and not about them.

They enjoy classes when interesting photographs and pictures related to the lesson are shown. They like the teacher who conducts experiments whenever necessary. This makes them understand physics in a better way and creates interest and curiosity in them. A teacher who teaches physics

'theoretically' and not 'practically' is disliked by them. Such classes are boring and make the students lazy.

The students like the teacher who gives interesting examples that make the difficult lesson easy. They want many examples to be given and interesting stories related to the lesson to be told. Examples that are only lifted from the book are 'boring' to them; they like to have examples from different walks of their life. They appreciate if the teacher gives more simple and effective examples specially when he detects that students have not understood the lesson.

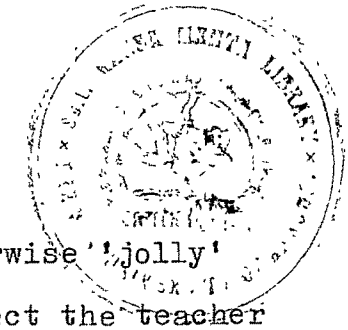
As far as the blackboard is concerned, they expect the teacher to use it in the following way: as the lesson progresses, important points have to be written legibly and neatly, diagrams have to be drawn whenever necessary, important points have to be retained on the board since looking at it constantly would help them to understand the lesson thoroughly. Words not related to the lesson at a particular point of time and written abruptly confuse the students. Scribbling some words here and there shabbily 'gets on their nerves'. They like the teacher who writes neatly and clearly and asks them also to write in the same way. The teacher who does teaching first and writing next is disliked by everyone.

Students seem to have very strong ideas about teacher's reinforcement behaviours. They prefer a teacher who appreciates

when they answer correctly and corrects and encourages even when they answer wrongly. They expect that the teacher should atleast commend their efforts to answer even when they are wrong. They like the teacher to be patient, sympathetic, understanding and cooperative. A teacher that is liked best is one who encourages the dull students and pays special attention to them by (i) giving group tests, (ii) conducting science competitions between the different groups, (iii) giving the examples of scientists who were dull in their student days, (iv) making a joke out of the nonsensical answers and releasing the tension in students, and (v) never giving severe punishment even when the answers are wrong. They strongly dislike the teacher who 'makes a face' or makes fun of the wrong answers, calls them fools, beats them badly, insults or teases them, or punishes them severely when they give wrong answers. They expect to be treated as individuals and do not like to be insulted before the other students under any circumstances.

They prefer teachers who summarise the lesson by giving important points at the end of the lesson. This will help them understand the lesson better than they would, in the absence of the summary. They like questions to be asked at the end of the lesson instead of a long summary being dictated by the teachers.

Everyone likes the teacher who can control the class, maintain discipline and at the same time allows freedom.



A teacher who is strict in the class but otherwise 'jolly' and 'social' is preferred most. Students expect the teacher to be firm in their actions and not 'forgive them a lot'. They want to be granted complete freedom to clarify their doubts whenever they like. They do not like the teacher who is short tempered and who gets wild at every question of theirs and scolds them badly. Nor do they like the teacher who is moody, emotional, confused and very lenient. They feel that the teacher should remember their names and address them by their names instead of saying, 'you, fourth from the left', or 'you, next to the fatty', etc.

They do not like the teacher who employs certain methods of controlling the class which are totally ineffective. These are, banging the duster on the table, sending some students out of the class, giving imposition to students, changing the seats of students, etc. They want the teacher to be neither too strict nor too lenient. A strict teacher beats them severely, pulls their hair and punishes them in different ways badly. They are frightened of such a teacher and they cannot learn anything in fear. A very lenient teacher keeps the class noisy, there is no order and only students sitting in the front seats benefit from their lessons. They like a patient and understanding teacher who will look into the details of every situation and then act. A teacher should not punish all for the faults of a few. Inability to catch the guilty ones is not seen as an excuse to blame everyone. When the teacher tries to understand the difficulties of students,

students would also cooperate with him to maintain discipline in the class. Otherwise they would do everything to make the class unbearable for him.

Everyone wants that the teacher should give interesting and challenging assignments which teach more about physics. If the teacher asks them to do only the exercise given at the end of each topic in the text book, it is 'really boring'. They like to do something with their hands apart from writing, e.g., collecting pictures, making a model, solving a science problem, gathering some important facts about scientists, etc. They are very particular about the teacher checking the work given to them. There are teachers who give some assignments and never bother about it later. The teacher should also take action against those who do not do their assignment.

Apart from the different aspects of teaching discussed above, there are some general issues about which the students have developed different kinds of attitudes. Almost everyone likes the teacher to be jovial. They like that the teacher should make the class interesting by creating good jokes. But they are very particular about the type of jokes: they cannot enjoy cheap jokes, where teachers laugh for themselves; they do not like the teacher joking at the cost of a student because that insults the student; they like it better if the jokes are related to the lesson than to the teacher or the students. They believe that the teacher should not create

jokes throughout the lesson but only when the class appears dull; the joke created at the appropriate time would make the class interesting.

They like the teacher to have good pronunciation, a proper accent and grammatically correct English. They seem to be distracted by funny pronunciations, typical accents and wrong English. At times when necessary, they want that the teacher should spell the difficult words to them correctly.

Students expect to be treated with a degree of equity and they dislike the teacher who has favourites. A teacher who is partial and unfair in his actions while giving them a chance to answer, correcting test papers or appreciating the correct answers is strongly disliked.

The teacher is expected to be intelligent and knowledgeable. He is expected to clear students' doubts whenever he is approached. A teacher who considers any place as "the four walls of a classroom" and explains to students with patience is liked most. A teacher who says 'tomorrow', 'later' or 'you will understand it when you come to higher classes' instead of answering their questions is disliked most. The teacher who has mastery over the subject and has solutions to all problems in physics at the 'tip of his tongue' is respected most.

Apart from this, the teacher should be kind and punctual

and should 'keep his promises'. He should enquire about the difficulties of students and try to help them. Students strongly feel that the teacher should come to class on time; they will not be interested in the lesson otherwise.

Giving notes is another important aspect about which the students have strong ideas. They like the teacher to give them notes which is simple, clear and short. They do not care for notes which is picked directly from the text book. And they do not like the teacher to dictate lengthy notes fast like in 'Colleges'.

They want the teacher to repeat the lesson in case many students have not understood the lesson. The teacher who repeats the lesson verbatim on students' request is not preferred. They expect the teacher to give more examples and explain in a simpler way the second time.

Thus, the different aspects discussed in the profile can be summarised as follows: teacher's competencies 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) adjustement of the pace of teaching, (vi) showing things and experiments related to teaching, (vii) giving interesting examples, (viii) good use of blackboard, (ix) appreciation of student answers, (x) summarising the lesson, (xi) maintaining orderliness in the classroom, (xii) giving

challenging assignment, (xiii) humour, (xiv) correct pronunciation and good accent, (xv) impartiality, (xvi) knowledge of subject matter, (xvii) punctuality, (xviii) giving notes, and (xix) repetition of the lesson when necessary.

The aspects of humour, correct pronunciation and good accent, impartiality, knowledge of subject matter, punctuality, giving notes and repetition of the lesson when necessary are not included in the fourteen dimensions of teaching mentioned early in this section. Therefore, for purposes of brevity and simplicity these are collectively assigned the dimension 'miscellaneous'.

5.2.0 Discussion of Results

This section of the chapter reports a discussion of the results obtained through principal component analysis and content analysis in the context of the knowledge already existing in the area of teaching competency.

The presage, process and product variables 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. These fourteen rotated factors were discussed and interpreted separately in Chapter IV. They were named as

follows: (i) General Teaching Competency, (ii) Competency of Teacher Concern for Students, (iii) Competency of Using Audio-Visual Aids, (iv) Competency of Professional Perception, (v) Competency of Giving Assignment, (vi) Competency of Illustrating with Examples, (vii) Competency 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.

Alongside, the opinions expressed by the students in response to an interview and an open-ended question in the Student Liking Scale were content analysed and a 'Profile of a Competent Physics Teacher' was developed (See Caption 5.1.0 for details). These opinions centred around fifteen dimensions of teacher behaviours. These are: (i) introducing the lesson, (ii) questioning, (iii) probing questioning, (iv) explaining, (v) stimulus variation, (vi) pacing, (vii) using audio-visual aids, (viii) illustrating with examples, (ix) using the blackboard, (x) reinforcement, (xi) achieving closure, (xii) recognising attending behaviour of students, (xiii) classroom management, (xiv) giving assignment, and (xv) miscellaneous.

Thus, on observation, it is clear that the fourteen competencies which emerged as a result of factor analysis

relate very closely with the dimensions of teaching about which students have expressed their opinion. For example, competencies of using audio visual aids, giving assignment, illustrating with examples, pacing while introducing, logical exposition, classroom management, use of questions, initiating pupil participation, use of blackboard, recognising attending behaviour and achieving closure have nearly one-to-one correspondence with the different dimensions under the profile of the teacher. As for the presage variables that are included in the two factors, namely, competency of professional perception and logical exposition, they have been expressed by students in such phrases as a 'teacher who is intelligent and knowledgeable, concerned, interested, cooperative, understanding, patient,' and so on. Thus, it is seen that there is a heavy overlap between the constructs that have been conceived of as a result of two kinds of analyses.

Here, it is important to note that some aspects discussed under the 'profile' have not been covered by the factorial structure of teaching competencies. These aspects are humour, correct pronunciation and good accent, impartiality, knowledge of subject matter, punctuality, giving notes and repetition of the lesson when necessary. This was due to the fact that the variables included for factor analysis were limited in scope depending on the frame of referance of available literature and the extent of thinking done by the investigator. On the other hand, the aspects discussed under the 'profile' were

based on the free expression of students and thus, were unlimited in scope due to the nature of the tools employed to gather the data.

However, the knowledge generated by the students' views about their teacher throws light on the possibilites of effects the teacher might produce on students as a result of certain of his characteristics. This would also give the educationists and the practitioners an idea about the teacher role that is expected of him by his students.

There have been a few factor analytic studies which have identified characteristics of teachers and which support the findings of the present study. Kaul (1974) factor analysed the personality traits of popular secondary teachers and arrived at four factors, namely, striving, self confident, ability and perseverance, and calmness.

Malhotra (1975) studied the variables of teacher attitude and adjustment, teacher classroom behaviour, students' liking and perceived behaviour by peers, principals and self. The sample was drawn from higher secondary teachers. He factor analysed these data and arrived at nine rotated factors. They are: reinforcing pupil participation, peers disapproval of stable behaviour, teacher attitude adaptability, teacher stimulated pupil initiation, teacher stimulated pupil participation, students' liking for indirectness, principal approved subject informative behaviour, perceived teacher behaviour, and silence-confusion.

Grewal (1975) factor analysed measures of verbal and nonverbal intelligence, personality traits, adjustment, attitude towards teaching, interests and pupils' and colleagues ratings of 520 trained graduate teachers, teaching in secondary schools. He extracted twelve factors out of which he named only eight. They are as follows: group factor of interest, group factor of personality, group factor of attitude, group factor of adjustement, group factor of general intelligence, two specific factors of attitude and specific factor of adjustment. He concluded that the factor structure mainly supports the validity of various instruments used in the study.

Joshi (1977) factor analysed data regarding secondary school teachers' self perception of their classroom behaviour, their observed classroom behaviour and the students' liking for their teachers. The factors arrived at were: general students' liking for the teacher, teacher communication through auditory-visual media, teacher stimulating student participation and teacher concern for classroom management.

In an other study, Denton et al. (1977) administered a 55-item instrument to the students of junior high school (seventh and eighth grades) and gathered data regarding the student teacher's personality and his technical instructional skills. The data were factor analysed resulting in eight meaningful factors: probing inquiry style of teaching, tolerance for divergent behaviour, use of technology in teaching, nature of class questions, encourages independent thinking,

expository teaching, teacher-led discussions, and teacher openness.

The factors extracted in the above mentioned studies are similar to the ones arrived at in this study except for those in Kaul's study, in the sense that they deal with only personality characteristics of teachers which have not been considered in this study. The factors which relate closely with those of this study are given in Table 5.1 for purposes of clarity and simplicity.

It is evident from the table that Malhotra's factor 'students' liking for indirectness' and Joshi's 'general students' liking for the teacher' closely relate with the 'competency of teacher concern for students' of this study. These factors deal with those efforts of teachers which take into consideration students' liking for them with respect to different aspects of teaching. The factor, 'use of technology in teaching' extracted in the study of Denton et al. and 'teacher communication through auditory-visual media' of Joshi's heavily overlap with the 'competency of use of audio-visual aids' extracted in the present study. The presage variables like teacher's attitude towards and interest in teaching are inherent in the factors, namely, 'competency of professional perception' (present study), 'teacher attitude-adaptability' (Malhotra) and 'group factor of interest', 'group factor of attitude', and two specific factors of attitude (Grewal).

Table 5.1

COMPARISON OF FACTORS OVER DIFFERENT STUDIES

The Present Study	Malhotra (1975)	Grewal (1975)	Joshi (1977)	Denton et al. (1977)
Competency of teacher concern for students	Students' liking for indirectness	-	General students' liking for the teacher	-
Competency of using audio-visual aids	-	-	Teacher communication through auditory-visual media	Use of technology in teaching
Competency of professional perception	Teacher attitude - adaptability	Group factor of interest, Group factor of attitude, Two specific factors of attitude	-	-
Competency of logical exposition	-	Group factor of general intelligence	-	Expository teaching
Competency of classroom management	-	-	Teacher concern for classroom management	Tolerance for divergent behaviour, Teacher openness
Competency of use of questions	Teacher stimulated pupil initiation	-	-	Probing inquiry style of teaching, Nature of class questions
Competency of initiating pupil participation	Reinforcing pupil participation, Teacher stimulated pupil participation	-	Teacher stimulating student participation	Encourages independent thinking

The factor 'competency of logical exposition' extracted in this study has much in common with 'group factor of intelligence' (Grewal) in relation to the variable of intelligence, and with 'expository teaching' (Denton et al.) in relation to exposition. The factors, namely, 'competency of classroom management' and 'teacher concern for classroom management' are more or less the same; similarly the factors, viz., 'tolerance for divergent behaviour' and 'teacher openness' seem to describe behaviours that cater to the pupil needs and thus help the teacher maintain order in the classroom. The use of questions and thereby stimulation of pupil initiation are implied in the factors of 'competency of the use of questions' (present study), 'teacher stimulated pupil initiation' (Malhotra) and 'probing inquiry style of teaching' and 'nature of class questions' (Denton et al.).

Efforts of the teacher to initiate pupil participation are indicated in the factors, namely, 'competency of initiating pupil participation' (present study), 'reinforcing pupil participation' and 'teacher stimulated pupil participation' (Malhotra), 'teacher stimulating student participation' (Joshi) and 'encourages independent thinking' (Denton et al.). Although words like 'initiative', 'reinforce', 'stimulate' and 'encourage' have been used by different researchers, the meaning implied by these words is more or less the same.

Thus, it is evident that the few factor analytic studies that have been conducted in this area support the findings of

the present study; also, the findings of these studies have been, by and large, validated by those of this study. It also indicates that the factors extracted in the different studies are stable over time and varied samples.

Furthermore, the teaching skills and their respective components which formed the basis of the Observation Schedule have been studied, analysed and validated ~~by~~ in this study. This is indicated in the factors, namely, competencies of using audio-visual aids, giving assignment, illustrating with examples, pacing while introducing, logical exposition, classroom management, use of questions, initiating pupil participation, use of blackboard, recognising attending behaviour, and achieving closure. These factors, by and large, account for the same variables as the components conceptualised under each of the skills. The factors and the teaching skills with which they closely relate are schematically presented in Table 5.2 for purposes of clarity and simplicity.

The table indicates that the competencies of using audio-visual aids, giving assignment, illustrating with examples, classroom management, use of blackboard, recognising attending behaviour and achieving closure have one-to-one correspondence with their respective skills in terms of the names given to them. The purpose behind naming the factors in the same way as their corresponding skills is to demonstrate that the variables explained by these factors are exactly

TABLE 5.2

VALIDATION OF TEACHING SKILLS

Sr. No.	Competency	Teaching Skill
1.	Using Audio-Visual Aids	Using Audio-Visual Aids
2.	Giving Assignment	Giving Assignment
3.	Illustrating with Examples	Illustrating with Examples
4.	Pacing while Introducing	Pacing and Introducing the lesson
5.	Logical Exposition	Explaining
6.	Classroom Management	Classroom Management
7.	Use of Questions	Fluency in Questioning and Probing Questioning
8.	Initiating Pupil Participation	Reinforcement
9.	Use of Blackboard	Using Blackboard
10.	Recognising Attending Behaviour	Recognising Attending Behaviour
11.	Achieving Closure	Achieving Closure

identical with the components under each of the corresponding skills. Thus, the above mentioned skills are validated.

As regards the competency of pacing while introducing, it is clear, as the name indicates, that this factor includes both the skills of pacing and introducing the lesson. While all the components of the skill of introducing are included in this factor, majority of the those of the skill of pacing has been explained by it. This shows that the skills of pacing and introducing are nearly validated.

The competency of logical exposition relates with the skill of explaining except for one variable, i.e., the variable of teacher's intelligence. But intelligence in this study being a test of a person's capacity to observe and think clearly has much in common with the underlying processes of the skill of explaining.

When the competency of the use of questions is considered, it is observed that it covers the skills of fluency in questioning and probing questioning. Though all the variables of the skill of fluency in questioning are not explained by this competency, the ones required in the process of questioning and those of the skill of probing questioning are included in this factor.

Although the skill of reinforcement is not explained completely by the competency of initiating pupil participation, three of the five variables are included in this factor. This shows that the purpose achieved by reinforcing is, by and large, achieved through the initiation of pupil participation.

It is evident that majority of the skills have been validated by the factors extracted in this study. Thus, the theoretical model hypothesised by Passi (1976) and De Sales (1976) has been empirically demonstrated to a considerable extent in this study.

Apart from the factor analytic studies, there have been studies which list characteristics of good teachers. The approaches employed in these studies have been usually the questionnaire/interview method and the referent groups from which opinion is sought have been varied. And a variety of terms such as qualities, traits, characteristics, competencies and the like have been used to designate the essential features of a popular, ideal, good, competent or efficient teacher. Some of the studies are discussed below.

Some early studies have shown that knowledge about the subject matter, good teaching skill, sense of humour, fairness to students, high ideals, and friendly personality are the important characteristics of good teachers (Lamson, 1942; Haggard, 1943; Bollinger, 1945; Elvira, 1946). Witty (1947)

examined 12,000 letters of children in connection with the yearly 'Quiz Kid' contests on 'The teacher who has helped me most" and listed the twelve traits mentioned most: cooperation, democratic attitude, kindliness and consideration for the individual, patience, wide interests, personal appearance and pleasing manners, fairness and impartiality, sense of humour, good disposition and consistency, interest in pupils' problems, flexibility, use of recognition and praise and unusual proficiency in teaching or in a particular subject. Shamsuddin (1973) reported the averages of student responses to a series of scaled questions and arrived at essentially similar conclusions.

Ryans (1960) found outstanding teachers to possess superior intellectual ability, above average school achievement, good emotional adjustment, generosity, and interest in reading, music, painting, and social service concerns.

Barr (1961-62) while summarising the investigations of a number of researches suggests that seven qualities are found to overlap in varying degrees in the studies of good and bad teachers - knowledge, interest and proficiency in teacher - pupil relationships and affiliated problems, physical and emotional energy, emotional stability, flexibility, dominance and professional motivation.

Taylor (1962) found wide agreement among pupils' views about a 'good' teacher. Most children rated the good teacher

as being fair and firm in her discipline, having a good knowledge of the subject, able to explain difficult points and be helpful and encouraging.

Prasad and Singh (1962) found that the qualities of good teachers mentioned by students were knowledge about the subject, honesty, impartiality and good character.

Hargreaves (1972), who has reviewed most of the pertinent literature arrived at similar conclusions. He agrees that pupils take into account three distinct aspects of their teacher's behaviour, i.e., their instructional style, their discipline and their personality. Nash (1974) investigated how pupils' attitudes to their teachers actually set expectations which affect the teacher's behaviour. His analysis revealed six constructs which differentiated teachers they got on with from teachers they did not get on with. These were:

(i)	keeps order	-	unable to keep order
(ii)	teaches you	-	does not teach you
(iii)	explain	-	does not explain
(iv)	interesting	-	boring
(v)	fair	-	unfair
(vi)	friendly	-	unfriendly

Franklin (1976) concluded that the competencies possessed by the urban teachers of Standard IV through VIII who have been designated superior in the teaching of reading had a great deal to do with the personal attributes and positive attitudes toward learning of the individual.

These studies indicate that the characteristics/ competencies of teachers perceived by their students have nearly one-to-one correspondence with those in the present study. The competencies normally expected of a teacher in all these studies including the present one can be summarised as follows: knowledge of subject matter, ability to explain clearly, fairness and impartiality, and sense of humour. It appears that the image they have developed in their mind is that of a person who (i) clears their doubts authentically and gives knowledge beyond that given in the text book; (ii) explains clearly with many simple examples and asks questions in between the lesson to make them active; (iii) makes the class lively by his good humour; and (iv) is just and does not have favourites.

Although the specific competencies like use of audio-visual aids, questions, blackboard, and classroom management have not been spelt out by the students, these competencies seem to be implied in the ones they have specified. Further, some studies stress the personality factor as a necessary characteristic, but in many, including the present one, it does not happen to be so. The reason for this may be that the students are not aware of the effects the personality factors may produce on them; or they do not know to distinguish these effects from those produced by other competencies. Or it may be that these factors are implicit in characteristics

like honesty, good character, impartiality, etc.

Whatever be the nature of competencies they expect, explication of these competencies into further smaller components as has been done in the profile depicted by the students in this study, appears to be of great value to all educationalists and practitioners. This profile further indicates that the students are indeed perceptive of subtle cues. It also shows that they from very clear perceptions of their teachers and that they can report these perceptions by identifying observable behaviours. The examples of their perceptions suggest that teacher behaviours which have been viewed as merely a part of the teacher role normally have a significant impact on them separately and together. Although they are untrained observers and their observation of teacher behaviours is informal and unintentional, their perceptions show enough consensus with other students.

Similar have been the observations of Evans (1962), Rayder (1968), Davidoff (1970), Morrison and McIntyre (1973), Nash (1976), Whitfield (1976) and Meighan (1977). Rayder has suggested that the students' sex, age and grade point average and the grade received from the instructor have little relationship to student ratings. In an especially well designed study, Davidoff has provided strong evidence leading to the conclusion that student opinion of teacher behaviour is very stable over time. Contrary findings presented by Fortune(1966)

are interpreted by Davidaff in terms of possible confounding of ratings by pupils with their perceptions of how well they achieved. Nash points out that the views about 'good' and 'bad' teachers are held virtually by all children, by those who do well and like school and by those who do not.

These findings provide ample evidence that students form clear perceptions of their teachers and that they can report specific behaviours responsible for those perceptions. If one follows Combs's (1962) suggestion that "perceptions become the centre of the teaching - learning situation", the findings of this study become important to all educationists. The whole area of possible effects of taking pupils' perceptions raises some interesting possibilities as Blishen (1969) has indicated. It emphasises the need to obtain pupils' perceptions of teacher behaviour if one wishes to truly personalise his teaching.

5.3.0 Educational Implications

The study reported in this thesis is explorative in nature. It has tried to analyse that aspect of teacher's role that deals with only his teaching in the classroom. Hence, only the competencies of the teacher related to teaching have been identified in this study. These teaching competencies have use for teacher training institutions and school systems.

The teacher training institutions, in the light of these teaching competencies, could devise programmes which would aim

at training for these specific competencies among prospective teachers. This would mean that in the presence of the knowledge about what competencies a teacher is expected to passess, these institutions can choose a set of valid objectives, design curriculum which would facilitate the realisation of these objectives, and make the necessary modifications in the content of the course.

This implies that the teacher educators should be trained for implementing the changes e that occur in the structure of the course. Short term courses, seminars, workshops and the like can be conducted regularly in order to orient them to a competency based teacher education programme. The Observation Schedule developed in this study may prove of use to them in appraising the prospective teacher's classroom behaviour; concrete suggestions for necessary improvement may be given thereof.

Thus, a structural change in the teacher training institutions can be visualised where a continuous programme of training the teacher educators and the prospective teachers goes on simultaneously. In the long run, this may result in the knowledge about the extent to which such competencies are inborn or acquired. This would result in improved procedures for selecting candidates for the training course.

It is found in this study that students form very clear perceptions about their teachers and that they have certain

likes and dislikes about the teadhing practices. This would mean that they can objectively evaluate their teachers and give suggestions for improvement. This implies that the teachers should seek student opinion and modify their teaching on the basis of the opinion. This necessitates a positive outlook towards student opinion on the part of the teachers. The school principal can act as an initiator in this regard and devise formal as well as informal methods to induce a change in the attitude of the teacher towards student opinion.

The knowledge of teaching competencies of physics teachers may form the basis for the identification of competencies in other subjects. That is, studies on similar lines may be conducted in other subjects at the institutional as well as the university levels.

The competencies are useful to the school systems, in that they provide the basis for selecting, promoting or sacking a teacher. With the knowledge of what competencies a teacher is expected to possess, what constitutes these competencies and how exactly he should be assessed for possessing these competencies, the problem of teacher accountability can be tackled. Thus, a continuous and systematic appraisal of a teacher's competency is possible.

The Observation Schedule developed in this study serves as a viable tool for gathering data about teacher classroom behaviour. By relating these data with predetermined criteria,

knowledge that is helpful to the different pressure groups connected with the school system can be generated.

A teacher's clinic as suggested by the investigator elsewhere (Mathew, 1978) can be conceived of in every school which can diagnose the teaching deficiencies among teachers. The job of the clinic would be that of a doctor's in a health clinic, in the sense that it would point out those domains of his teaching skills that need improvement and provide the necessary remedy. The knowledge of the deficiency of teaching skills and sustained practice to overcome the same will help the teacher attain mastery in them. This would enable the teachers to have a continuous appraisal of their teaching resulting in better teaching practices. Even here, the Observation Schedule would be of use.

Although this study does not make a claim for a significant contribution to a theory of teaching, it acts as a starting point in the systematization of research processes in the area of teacher behaviour. Similar systematic efforts would, in due course, lead to the development of a theory of teaching.

4.5.0 Suggestions for Further Research

Based on the findings and educational implications of this study, a few suggestions for further research have been given here. These represent only a few of the many studies that loom large in the area of competence research. The number of studies suggested here is limited by the experience and insight of the investigator.

(i) Construction and standardisation of a test to measure teaching competencies identified in this study.

(ii) Development of auto instructional material to enable the prospective teachers to acquire these competencies.

(iii) A replication of this study or a study measuring the same variables but employing different tools in order to arrive at factorially invariant solutions.

(iv) A study conducted on a larger sample so as to maximise the number of possible dimensions underlying the variables.

(v) A similar study with different subjects considered separately in Standard IX.

(vi) A similar study with various subjects at different grades considered separately.

(vii) A study investigating presage and product variables other than those considered in the present study.