Summary

Introduction

Teaching and learning are so intertwined in the present fast growing field of education that besides teaching students, teacher himself needs learning in order to acquire latest knowledge and techniques of teaching so that he may effectively teach his students making them successful in their future life. A successful teacher believes that effectiveness of instruction can be increased by offering a variety of intellectual challenges to meet students' needs.

The traditional methods in teaching as well as learning, call for drastic changes in the modern age. The expansion of knowledge and aspirations of generations are fast developing in these years of fast changing world. The furors of quantity and quality in education needed for the time has posed a serious problem in education. The globalization and equalization of educational opportunities have emerged as vital democratic concepts. Hence, the traditional and authoritarian approach can no longer persist in any democratic institution. These conditions are bound to bring about innovative changes in teaching learning methods. As evidenced by psychological findings, the quality of education largely depends upon effective teaching and learning methods. We have to tune to a strategy of educational methodology evolving new techniques in teaching learning.

Statement of the Problem:

‘Evolving Effective Teaching Methods for Home Science Teaching at Degree Level with reference to Effective Teachers & Less Effective Teachers’.
**Scope of the study:**

The study was designed to evolve teaching methods for effective Home Science teaching at Degree level.

The effective Home Science teachers were identified on the basis of three criteria namely their teaching attitude, principal’s opinion, student feedback and student results. Then their class room teaching was video graphed and observed to explore the instructional procedure by the investigator herself. The classroom observations were analyzed and interpreted in terms of teaching procedures, teaching principles, teaching skills, structure of learning and teaching tactics. The teaching techniques and maxims were also identified to reveal the components of instructional procedure employed by them. The instructional strategies were identified for teaching terms concepts, facts principles, generalizations and problem solving with regard to its learning situations generated.

**Objectives of the Study**

1. To identify effective Teaching Methods of Home Science.
2. To identify teaching skills and activities of effective Home Science teaching at Degree Level.

**Hypotheses**

As the study was exploratory in nature therefore the hypotheses could not be formulated and the findings are based on actual observations of actual teaching process employed in classroom teaching by Home Science lecturers.
**Rationale of Study:**

Methods of teaching have an intimate relationship with teaching and instructional objectives. So the main aim of teaching is to bring about socially desirable behavioral changes in the children. Teaching is an art and methods are the way or mode to understand and practice this art. The teaching methods tell the teacher how s/he should teach his/her students. This is true that ‘as in the absence of the correct directions/true path a person cannot reach his destination, in the same way in the absence of proper method the student cannot be given desired knowledge’.

Home science is a multi-disciplinary and multi-dimensional study comprising Biochemistry, Biology, Human Physiology, Psychology, and Physics etc. In fact Home Science is not only a subject or merely a group of subjects. It is in fact a way of life. Home Science is divided into five major areas viz. Food and Nutrition, Human Development, Home Management, Clothing Textile and Extension Education. Thus in the field of Home Science, every area is unique and different from other areas.

Therefore to achieve the objectives of teaching each area of Home Science effectively, it became necessary to evolve pertinent teaching methods for teaching Home Science subject. Teaching methods play an important role along with its content. These teaching methods should be such which keep in mind the capability of students and the curriculum. Thus with the help of these methods the teacher can impart understanding of the subject matter along with the knowledge of the curriculum.

**Research Method**

Various research methods have been used by the researchers to conduct a study such as historical, experimental, ex-post facts, comparative, descriptive,
survey etc. The most suitable method for a particular study is chosen and used. To find out the most appropriate method for this study, a number of research studies conducted so far were reviewed by the investigator and it was found out that in most cases of this kind, the researchers have used analytical survey method. To achieve the objectives of the present study analytical survey method has been chosen since the study aims to evolve effective teaching methods for home science teaching at degree level with reference to effective and less effective teachers.

Thus analytical survey method seems to be the most suitable & relevant in comparison to other methods for the undertaken study.

**Population**

The population for the purpose of this study was defined as the Home Science lectures teaching Home Science at Degree level in affiliated colleges of C.C.S University, Meerut. In this way the researcher has taken ‘accessible' population for her study.

**Sample**

112 Home Science teachers from the populations were selected as sample unit of the study.

**Sampling Method**

The researcher has used *Probability Sampling Method* and under this method she has used Random *Sampling Technique* (lottery method) in her study.
Tools Used

The researcher used following tools to achieve the objectives of the study:

1) *Standardized Teacher Effectiveness Rating Scale (KTES)* (Appendix-A)
2) *Sample Principal Questionnaire* (Appendix-B)
3) *Sample Pupil Questionnaire* (Appendix-C)
4) *Observation*

1) **Standardized Teacher Effectiveness Rating Scale (KTES):**

   This is a self assessment attitude test for teachers. This test was having 10 point scale for assessment of the effective teacher.

2) **Sample Principal Questionnaire:**

   A self designed questionnaire by the researcher, was given to the Principal/HOD, to collect feedback from the principal about her/his teachers. This questionnaire contained 9 questions pertaining to the quality of teaching staff. Each one of the questions was to be evaluated for the individual teacher by the principal/HOD under five point scale varying in degree from 1 (Min.) to 5 (Max.).

3) **Sample Pupil Questionnaire:**

   To collect feedback from the students about their teachers, a self designed sample questionnaire containing 10 questions were supplied to the meritorious students of the class and they were asked to evaluate their teacher on the same
five point scale. One open ended question was included with 10 closed end questions to know the views of the students about effective teaching method.

4) **Observation:**

Since the objective of the present study was to identify teaching methods used by the teachers of Home Science at degree level, therefore, the following tool has been used in the present investigation by the researcher, that is, *Non-Participant Uncontrolled Observation*. In the present study the researcher has made the observations both by taking long notes and by video recording of the lecture.

**Statistical Techniques**

In the present study the following statistical techniques were used:

1) Parton’s Formula -> For determining the size of the sample
2) T-score -> To give meaning to the raw scores
3) Chi-square test -> To test whether an obtained distribution of frequencies departs significantly from corresponding frequencies in a normal distribution.

**Procedure of the Study:**

By administering two self made sample questionnaire each for principal and the pupils for getting their feedback about the teachers and also by administering standardized self assessment attitude test to the teachers, the raw scores were separately found out for the above three questionnaires.
The raw scores, thus, obtained by above three criteria were first converted into individual T-Scores and then the three T-Scores were combined to get one T-Score for each individual teacher. These combined T-scores were then organized into frequency distribution. Now the Chi-square test was used to test whether an obtained distribution of frequencies departs significantly from corresponding frequencies in a normal distribution.

In this way 25 effective teachers (having T score >161.76) and 25 less-effective teachers (having score <161.76) were identified for class room observation purpose.

**Observation and Analysis**

To collect information about effective teaching methodology used by effective Home Science Lecturers in the classroom situation, the researcher observed the teaching methods used by the lecturers of Home Science by observing and recording each and every activity of the selected 25 Effective & 25 Less-Effective Teachers in the classroom. The classroom teaching process was observed almost of his/her whole period of teaching. The researcher also used the “Video Camera” (for about 5-10 mins.) which allowed behavior to be measured to a degree of accuracy which could not be achieved by the human observer.

After observations, the analysis of teaching home science has been analyzed teacher wise. The normative classroom observation strategy of research was used. The analysis was done in terms of teaching categories; method, techniques, skills and maxims.
Findings of the study

On the basis of discussion of results regarding teaching methodology evolved and feedback from the teachers and the students the following findings have been deduced.

- The highest percentage of teaching method used by teachers of home science at degree level is lecture cum explanation method.

- Teaching methods can be turned into very effective teaching methods only by using the right combination of teaching techniques, skills and maxims.

- What teachers do in the classroom affects pupils' achievement.

- The effectiveness of any teaching method largely depends upon the qualities of the teacher. How the teacher has used the method in her pedagogy. Classroom observation gradually started to find patterns which indicated that more effective teachers tended to actively teach the whole class, spending significantly more time than ineffective teachers explicitly lecturing, demonstrating or interacting with the class than less effective teachers.

- Effectiveness of a method is associated with a number of general teacher/teaching factors such as
  - Good subject knowledge;
  - Good questioning skills;
  - An emphasis upon instruction;
  - A balance of grouping strategies;
  - Clear objectives;
  - Good time management;
  - Effective planning;
- Good classroom organization;

- The effective teaching components, which make a method effective, are:
  - Structured teaching;
  - Pupils having some responsibility for their work and independence within these sessions;
  - Covering only one curriculum area at a time;
  - High levels of interaction with the whole class;
  - Providing ample, challenging work;
  - High levels of pupil involvement in tasks;
  - A positive atmosphere in the classroom;
  - High levels of praise and encouragement.

- Methods which used class discussions and higher order questioning as teaching techniques proved to be effective.

- Key classroom factors contributing to effective outcomes were structured sessions, intellectually challenging teaching, a work orientated environment, communication between teacher and pupils and a limited focus within the sessions.

- Good classroom management creates the conditions under which high quality teaching and learning can occur.

- Before starting the Lesson, the teacher should write instructions on the board so that the students can get started with the lesson immediately.

- Seating arrangements need to be suitable for the type of lesson you are intending to give. For co-operative small group work, for example, it is recommended to place groups around tables to allow them to interact easily with one another. If, on the contrary, individual work is required
where pupils aren't supposed to interact with each other too much, this seating arrangement should be avoided. Whole class discussion can be facilitated by seating pupils around a big table or seating them in a circle or semi-circle, while seating them in rows must be avoided.

- Right momentum can be sustained by good lesson planning on the part of the teacher and avoiding over dwelling.

- Effective teachers experience fewer problems with ending the lesson than less effective teachers, through methods such as planning and pacing the lesson to leave sufficient time for activities at the end, giving out homework early so that no confusion occurs.

- Classroom climate is also one of the important aspect of effective teaching. A good learning atmosphere is created through the rules that are set out, the way the teacher interacts with students, and the way the physical environment is set out.

- An important component of effective method is the enthusiasm shown by the Teacher. If the teacher him/herself is unenthusiastic about the subject or lesson being taught, this attitude is likely to rub off on students. Teachers who enjoy teaching and their subject and can put their enthusiasm across are more likely to motivate their students.

- To make the teaching method more grasping use of OHP,LCD projectors should be used aspect of a pleasant classroom that the teacher has a large amount of control, which can aid learning in an almost subliminal way by drawing students’ attention to the displayed educational materials.

- The lesson should have a clear structure, so students can easily understand the content of the lesson and how it relates to what they
already know. The lesson should be started with review and practice of what was learnt during the previous lesson for example by going over homework, as this will allow the teacher to find out to what extent students have grasped the content of previous lessons, and therefore to what extent this content will need to be retaught. At the end of the lesson the main points should once again be summarized, either by the teacher, or, preferably by the students themselves, e.g. through asking them what they have learnt during the lesson.

- Number of other methods for structuring content like part-whole format should be adopted. A topic is introduced in its most general form, and then divided into easily distinguishable (and digestible) sub-parts. The teacher should make sure that the subparts are clearly and explicitly related to the whole.

- Pacing of the lesson is an important part of effective direct instruction. For more demanding content the pacing needs to be slower to allow students more time to develop understanding. The proper intonation is also very important aspect to make the lesson clear to the students.

- In the practical subject of home science demonstration method need to be applied. This can be more effective than using verbal explanations, especially with younger learners or those who prefer a visual learning style. It follows the following sequence: the teacher demonstrates the behavior by doing it, linking the behavior to skills or behaviors that learners already possess. S/he needs to go through the different parts of the behavior in a clear, structured and sequential way, explaining what s/he is doing after each step.

- A strategy that can help to structure the lesson in students’ minds is the use of conceptual mapping. A conceptual map is a framework that can be
presented to students before the topic of the lesson is presented, providing the student with an overview linking different parts of a topic and with a ready-made structure (or schema). This helps students to store, package and retain the concepts, and to link different lessons to one another. This is especially useful for more complex topics, which take several lessons to cover.

- Interaction between teachers and students, whether for teaching basic skills as part of direct instruction or for addressing higher order skills through scaffolding or open-ended discovery activities is very important.

- Questioning and answering method is effective at the degree level in home science. The following points make this method more effective:
  - When and How Often to Use Questioning
  - Eliciting a Student Response
  - The Cognitive Level of Questions
  - Open and Closed Questions
  - Responses to Answers
  - Prompting
  - What is the Correct Wait Time?

Implication of the findings

Any research effort goes waste if it does not contribute to the existing knowledge or help the discipline in which it has been made. It must have certain implications and should facilitate the growth of the discipline. The implications based on the findings of the study are:

- Teaching is the most important factor in the whole formal system of education. The findings of the study have implications in both theory as well as practice of methodology of home science teaching at degree level.
The study contributes new knowledge regarding the teaching methodology for competent home science teachers. The home science teacher educator may also provide of home science teaching to their pupil teachers. Thus, the information about home science teaching methodology may be useful for both pre service and in service teacher for improving their class room teaching.

The evolved teaching methodology may be used in our class room situations for improving the results of the students.

The present system of education focuses to the objectives which are to be achieved by the students rather than the content field. From this point of view of interpretations, these evolved methodologies are not only based on the objectives related to the students’ growth but also it os capable of ringing better improvement in respect of classroom teaching.

The practical usefulness of the research finding is for preparing competent home science teacher in teaching education programme. Micro teaching as a feedback device may be used effectively for developing the methodology for preparing home science teacher.

In service home science teacher can also use the feedback devices for improving their classroom teaching. Thus, in every teacher training college greater emphasis should be given on using methodology of teaching. In this way, the teachers of home science will be familiar with the methodology of home science teaching in which methods techniques, skills and maxims of teaching are used.

The evolved teaching methodology may be used by research scholars for new research studies in different subjects at various levels.
- The study can also be useful for other educators for applying the evolved effective teaching method in home science at degree level to other levels in the same field or other related fields.

- The evolved methodology can be used by less effective teachers in home science to improve upon their teaching methods and skills based on the findings of this study.

- Thus viewed, this evolved methodology accelerates the growth of the students in competitive capacity and provides some basis for sustained growth and development. It may raise academic standard of home science teaching.

**Limitations of the findings**

In considering the result emanating from the analysis of the findings, it is important to mention that one is dealing with inferences from empirical data and therefore following limitations are stated-

- The teaching methodology of home science is based on 25 effective and 25 less-effective teachers of home science at degree level.

- The findings are based on both male and female teachers.

- Only degree colleges under Meerut University were selected for investigation.
The findings are based only on observation of lesson of the teacher and on the feedback to questionnaire as received from the teachers and students.

The study was confined only to the group of home science students at degree level.

The findings are limited by and may be expected to vary with conditions such as those noted in the introductory chapter of the report.

Suggestions of further research topics

The formulation of conclusion and generalization in the present chapter are to be evaluated in terms of constraints imposed on the study. On the basis of findings of the study, the experiences and insight of the researcher the following research topics may be conducted.

- Evolving teaching methods for effective mathematics teaching at primary level.
- Evolving teaching methods for science teaching at secondary level.
- Evolving teaching methods for effective value education teaching at secondary level.
- Evolving teaching methods for effective value education teaching at higher secondary level.
- Evolving teaching methods for effective Hindi teaching at secondary level.
- Developing teaching methods for effective sociology teaching at degree level.
- Developing teaching methods for effective chemistry teaching at secondary level.
- Identification of teaching skills and activities of effective teachers at degree level.
- To study effect of teaching style and competency on students’ achievements.
- Evolving teaching strategy for effective teaching at degree level.

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