This study was designed to evolve the methodology of teaching of home science at degree level. In the preceding chapter, 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. The categories of good teaching have been identified and interpreted in two phases-

1. Observations of effective teachers  2. Observations of less-effective teachers

The analysis and interpretations of effective and less-effective classroom teaching observation have been reported in the earlier chapters.

The present chapter deals with the discussions of results, formulations, implications and suggestions for further research. Thus, this chapter has been divided into five major heads

1. Discussion of results regarding teaching methodology evolved
2. Findings of the study
3. Limitations of the findings
4. Implications of the findings
5. Suggestions for further research

These aspects have been reported and discussed in detail in the following paragraphs
1. **Discussion of results regarding teaching methodology evolved:**

   The methodology for home science teaching has been analyzed into four categories; methods, techniques, skills and maxims of teaching.

   The analysis was attempted teacher wise with regard to methodology used. The observations have been summarized in the terms of frequencies, its percentage and ranks were also assigned on the basis of percentage. These have been reported in the following tables.

   **Table-1A**

   **Showing Teaching Methods Used by Effective Teachers of Home Science**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Teaching Method</th>
<th>Method used by the teachers in terms of Freq.</th>
<th>Teacher’s teaching method %</th>
<th>Ranks on the basis of %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lecture</td>
<td>15</td>
<td>60</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Discussion</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Demonstration</td>
<td>3</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Note-Dictating</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Questioning-Answering</td>
<td>7</td>
<td>28</td>
<td>2</td>
</tr>
</tbody>
</table>
Table-1B

Showing Teaching Methods Used by Less-Effective Teachers of Home Science

<table>
<thead>
<tr>
<th>S. No</th>
<th>Teaching Method</th>
<th>Method used by the teachers in terms of Freq.</th>
<th>Teacher’s teaching method %</th>
<th>Ranks on the basis of %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Lecture</td>
<td>12</td>
<td>48</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Discussion</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Demonstration</td>
<td>2</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>Note-Dictating</td>
<td>10</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>5.</td>
<td>Questioning-Answering</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Table-1A & 1B indicate that lecture method is most frequently used by the effective and less effective teacher of home science at degree level as the first rank is assigned to this method. So this is the first method which is commonly used by the teachers of home science. The frequency of lecture method is 15 for effective teachers and 12 for less-effective teachers. The percentage of teacher’s teaching method on the basis of frequency is 60 & 48 respectively. The highest percentage of teaching method used by teachers of home science is shown in this method. So it can be concluded that this method is most frequently used by the teachers.

The second method which is commonly used by the effective teachers is questioning answering method as second rank is assigned to this method. The frequency of questioning answering method is 7 and the percentage is 28 and the frequency of this method of less-effective teachers is 1 & the percentage is 4 only.
The next method is note dictating is not used by effective teachers but the frequency of this method of less-effective teachers is 10 and percentage is 40. The above result shows that lecture method is the most commonly used method by both effective & less-effective teachers. But the direct observations done by the researcher reveal that there is a mark difference between the presentations of the lecture method by effective & less effective teachers. This difference has arisen due to the different techniques, skills and maxims adopted by the effective and less effective teachers while delivering through the lecture method.

These techniques, skills and maxims have been reported in following tables

**Table-2A**

*Showing Teaching Techniques Used by Effective Teachers of Home Science*

<table>
<thead>
<tr>
<th>S. No</th>
<th>Teaching Techniques</th>
<th>Techniques used by the teachers in terms of Freq.</th>
<th>Teacher’s teaching technique %</th>
<th>Ranks on the basis of %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Explanation</td>
<td>25</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Reading Book</td>
<td>5</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>Questioning-Answering</td>
<td>18</td>
<td>72</td>
<td>2</td>
</tr>
<tr>
<td>4.</td>
<td>Note-Dictating</td>
<td>3</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>5.</td>
<td>Home Assignment</td>
<td>7</td>
<td>28</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 2A shows that 1\textsuperscript{st} rank is assigned to explanation technique, 2\textsuperscript{nd} rank to questioning & answering while home assignment is ranked third in case of effective teachers. This is also revealing from the table that most of the effective teachers have adopted all the three important techniques in their teaching method. Only few have used other two less effective techniques namely reading book and note dictating techniques.

Table 2B shows that 1\textsuperscript{st} rank is assigned to reading book technique, 2\textsuperscript{nd} rank to note dictating while explanation is assigned third in case of less-effective teachers. This is also apparent from the table that most of the less-effective teachers have adopted all the three less effective techniques in their teaching method.

It is also important to mention here that though some of the effective techniques have also been used by both effective & less-effective teachers but the difference in judging them as effective or less-effective has arisen due to their
use of different teaching skills and maxims. This has been reported in the following table:

<table>
<thead>
<tr>
<th>S. No</th>
<th>Teaching Skills</th>
<th>Skills used by the teachers in terms of Freq.</th>
<th>Teacher's teaching Skills %</th>
<th>Ranks on the basis of %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Black Board</td>
<td>15</td>
<td>60</td>
<td>6</td>
</tr>
<tr>
<td>2.</td>
<td>Stimulus Variation</td>
<td>21</td>
<td>84</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Illustration</td>
<td>14</td>
<td>56</td>
<td>7</td>
</tr>
<tr>
<td>4.</td>
<td>Reinforcement</td>
<td>11</td>
<td>44</td>
<td>8</td>
</tr>
<tr>
<td>5.</td>
<td>Questioning-Answering</td>
<td>20</td>
<td>80</td>
<td>2</td>
</tr>
<tr>
<td>6.</td>
<td>Pupils’ participation</td>
<td>16</td>
<td>64</td>
<td>5</td>
</tr>
<tr>
<td>7.</td>
<td>Voice intonation</td>
<td>17</td>
<td>68</td>
<td>4</td>
</tr>
<tr>
<td>8.</td>
<td>Enthusiasm</td>
<td>18</td>
<td>72</td>
<td>3</td>
</tr>
</tbody>
</table>

Table-3A
Showing Teaching Skills Used by Effective Teachers of Home Science
### Table-3B

table showing teaching skills used by less-effective teachers of home science

<table>
<thead>
<tr>
<th>S. No</th>
<th>Teaching Skills</th>
<th>Skills used by the teachers in terms of Freq.</th>
<th>Teacher’s teaching Skills %</th>
<th>Ranks on the basis of %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black Board</td>
<td>11</td>
<td>44</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Stimulus Variation</td>
<td>12</td>
<td>48</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Illustration</td>
<td>05</td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>Reinforcement</td>
<td>04</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>Questioning-Answering</td>
<td>09</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Pupils’ participation</td>
<td>06</td>
<td>24</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>Voice intonation</td>
<td>08</td>
<td>32</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>Enthusiasm</td>
<td>07</td>
<td>28</td>
<td>5</td>
</tr>
</tbody>
</table>

### Table-4A

table showing teaching maxims used by effective teachers of home science

<table>
<thead>
<tr>
<th>S. No</th>
<th>Teaching Maxims (From)</th>
<th>Maxims used by the teachers in terms of Freq.</th>
<th>Teacher’s teaching maxims %</th>
<th>Ranks on the basis of %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Simple to Complex</td>
<td>23</td>
<td>92</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Part to whole</td>
<td>14</td>
<td>56</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Whole to part</td>
<td>18</td>
<td>72</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Known to unknown</td>
<td>20</td>
<td>80</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Indefinite to definite</td>
<td>21</td>
<td>84</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>Concrete to abstract</td>
<td>17</td>
<td>68</td>
<td>5</td>
</tr>
</tbody>
</table>
Table-4B
Showing Teaching Maxims Used by Less-Effective Teachers of Home Science

<table>
<thead>
<tr>
<th>S. No</th>
<th>Teaching Maxims (From)</th>
<th>Maxims used by the teachers in terms of Freq.</th>
<th>Teacher's teaching maxims %</th>
<th>Ranks on the basis of %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Simple to Complex</td>
<td>13</td>
<td>52</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Part to whole</td>
<td>11</td>
<td>44</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>Whole to part</td>
<td>9</td>
<td>36</td>
<td>5</td>
</tr>
<tr>
<td>4.</td>
<td>Known to unknown</td>
<td>12</td>
<td>48</td>
<td>2</td>
</tr>
<tr>
<td>5.</td>
<td>Indefinite to definite</td>
<td>10</td>
<td>40</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>Concrete to abstract</td>
<td>8</td>
<td>32</td>
<td>6</td>
</tr>
</tbody>
</table>

The comparative study of all four tables above i.e. 3A, 3B, 4A & 4B shows that many of the effective teachers have used most of the teaching skills and maxims commonly in their teaching. While on the contrary, only few of the less-effective teachers have used all or most of the teaching skills and maxims in their teaching.

All the above tables together reveal that effective teachers have used all the four categories of effective teaching viz. methods, techniques, skills and maxims while only few less-effective teachers seem to have used the preceding categories.

Above tables have been formed on the basis of the researcher’s observation of the teachers. Now the researcher has compiled all the feedback which she received from the teachers and students separately when open ended question in the questionnaire “In your opinion what method should be used by the teachers to teach Home Science at degree level” was put forth for their opinion.
Feedback from Teachers:

1. The best method to teach students at this level is discussion method.
2. Teaching should be effective. Each & every thing which we are telling / teaching to students should be clear and informative. The language should be easy and local so that there should not be any problem in understanding.
3. The blackboard should be used.
4. Teaching & lecture should be given while standing not in sitting position. It makes the lecture effective.
5. Animation and transparencies should also be used to make lecture easy & understandable.
6. At the graduation level, as the students are raw, note dictating method should be applied while at the post-graduation level lecture method with blackboard skill must be applied.
7. All different types of teaching methods should be used at the degree level according to the content.
8. To motivate and to make students confident, assignment and seminar presentations should be frequently done.
9. Different teaching aids like charts, OHP, LCD projector should be used.
10. More exposure at field should be provided to them.
11. The students should be given full knowledge of the subject to clear their concepts about the subject.
12. To make the students carrier oriented, project method should be applied.
13. Students should be given more practical exposure by arranging their visits to different industries, museums, fairs, workshops etc.
14. The teacher should use method which make the students actively involved in the subject like group discussion, seminars etc.
15. At the degree level students should be encouraged to develop skills to self develop notes by referring library books and more emphasis should be given to self studies.
16. Method should be selected according to students’ strength and mental level. Method could be descriptive, objective or oral.
17. As the home science is a practical oriented subject so teaching should be lecture and demonstration based supported with lots of visual aids.
18. The knowledge of the subject should be up-to-date.
19. Teacher should plan her lecture well in advance and should have good expressions while delivering the topic.
20. Combination of method should be applied at the degree level.

**Feedback from Students:**

1. It is not what a teacher teaches, it is how she teaches, how she manages to make a student listen to her and understand, that is important.
2. Explanation with questioning & answering
3. We want full or detail explanation after that group discussion or presentation is required.
4. We want explanation with good use of blackboard.
5. Presentation by students in front of teachers.
6. Seminars should be held.
7. Feedback from the students should be taken regularly and complied with.
8. Field visits should be arranged.
9. Teacher should pay more attention towards the practical in comparison to the theory.
10. Easily understandable method should be adopted according to the students’ capabilities.
11. Detail information should be provided about each topic.
12. Teacher should have good behavior and good interpersonal relationship with the students.
13. Discussion method should be applied.
14. Lecture method with explaining techniques, supported with references and notes.
15. Any method will be alright just the language should be easy.
16. Unit test should be held to make the student regular in studies.
17. Students’ previous knowledge should be checked before applying any method.
18. Reinforcement skill should be applied.
19. Teachers should first explain the topic before asking the students to present the case or to take the seminar.
20. Teacher should have good subject knowledge and method adopted should be interesting and effective.
21. Teacher should provide good and healthy environment to the students for better learning.
22. Teacher should have good command of language and also should possess good communication skills.
23. Teaching should be done in the way to motivate the students.
24. Teacher should go beyond teaching for all-round development.
25. Feedback on homework and assignment.

2. 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:
3. **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 investigator in the following paragraph has made humble attempt to delineate the implications based on the findings of the study.

- 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 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.

4. **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.
5. **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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