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Lecture Notes on Methodology.

Unit III. Learning by Doing.

Teaching of Science (Source book – First Year D.T.Ed.).
Teaching of Science
(Source book of First Year D.T.Ed.)
Lecture Notes on Methodology

Unit III ~ Learning by Doing.

- Aims and objectives - Importance of learning by doing – methodology - influence on the learner – Explanation of the method with an example from the content

Contents:

Learning by doing:
- Introduction and definition.
- Aims and objectives.
- Methods / procedures of teaching this method.
- Steps involved in Learning by doing.
  - Experiencing the activity - sharing the results – Processing the activity – Generalizing and Applying
- Learning by doing model (experimental learning model)
- Experimentation – Venues & Process / methods – acquiring Process skills -
- Importance / Characteristics of Learning by doing -
- Merits of learning by doing
- Limitations in learning by doing.
- Activity Based Learning and its approach in the class room.
Learning by doing

The main objective of science teaching is to impart training in scientific method and scientific attitude. This can be developed and facilitated through the method known as learning by doing. Learning by experience is the event of acquiring knowledge from day to day observation and analysis of the knowledge and information. Such knowledge acquired by experience is utilized in new or forthcoming situations for decision making and problem solving. The application and usage of this knowledge gained through the experience varies with the individual to individual based on their personality and environment. The personality itself requires good knowledge and its application with the learning experience over the environment. Such learning experiences can change or modify the thoughts, ideas and behaviour. This type of gaining the knowledge through the experience can be achieved through the learning by doing method.

The learning through the experience (learning by doing) is acquired through:

- Change or modification of individuals thought and ideas.
- Proper understanding of activities or events.
- Enhancing the curiosity and creativity in events or activities,
- Development of new concepts or hypothesis,
- Change or modification of individual behaviour.

Aims & Objectives:

The student-teacher should get the knowledge and the skill of execution following objectives listed for the teaching method learning by doing.

- Acquiring the actual experience
- Understanding the value of each activity
- Acquiring the skills and qualities of Group activity
- Develops the ability and skills of thinking and doing the activities
- Facilitating manipulation of tools and equipments.
- Defining the problem.
- Planning the problem solving methods.
- Illustrating the methods and processes of learning by doing.
- Identification of steps involved in the process of learning by doing.
- Performing an activity through the learning by doing.
**Teaching learning by doing method:** Methods and procedures

The learning by doing is an important aspect in experiencing the knowledge or events or activities. Also this is an integral part of learning through the experience. This learning by doing can also change the lifestyle and behavioural change of an individual in their course of learning processes.

There are many types of methods or procedures are adopted for teaching the method of learning by doing. The teacher himself / herself should be an active participant and role model for their students. The following steps are pronounced for teaching / experiencing the method of learning by doing.

**Steps involved in Learning by doing:**

I. Experiencing the activity,
II. Sharing the results,
III. Processing the activity,
IV. Generalizing and formulating the concept or hypotheses,
V. Applying the hypothesis or concepts.

**Experiencing the activity:**

Thus is the first step. Students or learners are introduced to a new activity or environment to gain a new experience either individually or in group. The participation in this new or existing activity or environment gives individual a good experience.

**Sharing the results:**

This is the next step which list out the observation and recording of activities or events and interrogating the activities happened. Exchanging the views or a short discussion of observations among the learners leads to the sharing of information. Such activities formulate this step as sharing the results.

**Processing the activity:**

Shared information must be getting analyzed in this step. The results shared are verified with the direct experiences or experiments or discussions. The proper understanding of
activities or shared results and its cause-effect relationship can be arrived through the processing the activity.

**Generalizing (and formulating the concept or hypotheses)**
This is the important step in learning by doing. This step integrates the new experience or results, the concepts derived the changes in old experience and behaviour, updated information with day to day events or activities. This is nothing but the generalization of the concept or results derived from the experiences.

**Applying the hypothesis or concepts:**
The analyzed learning experiences and its concepts or hypothesis are forwarded to implement or execute in a new environment for like results. The repeated experiences makes individual specialized in this activity or event. Hence the learning by doing is an important part of learning experience.

Learning by doing is not only the selection and manipulating the object or activity but also the utilization of the experiences during the activities in a new environment and arriving the valid concept or hypothesis.

**Learning by doing model** (experimental learning model)

Learning by doing method cannot be successful for everybody. The motivation is a prime factor for learning. The individuals especially learners’ fundamental needs, attention, interest, self reliance and curiosity are the deciding and developing the success of this method. This is the best method for teaching science experiments.

<table>
<thead>
<tr>
<th>Steps</th>
<th>Action</th>
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<tbody>
<tr>
<td>Experiencing</td>
<td>Doing an activity</td>
</tr>
<tr>
<td>Sharing</td>
<td>Sharing the experience happened</td>
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<tr>
<td>Processing</td>
<td>Performing the actions / activity.</td>
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<tr>
<td>Generalizing</td>
<td>Relating and formulating the results from events or activities happened</td>
</tr>
<tr>
<td>Applying</td>
<td>Utilizing the results or experience in real life environment</td>
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</table>
Place / Venues for experiments:

The laboratories and demonstration kits are not so necessary for the experiments to be done for primary, upper primary middle school levels. The required objects, tools and materials may be collected and the experiments can be done within the class rooms also. The alternate and low cost materials or tools are also advisable. The place or venues of the experiments vary with the level of the students. Also the type of experiments and the objects used in the experiments also decide the place of the experiments. For example: For the III std. students, The solubility of water can be taught by giving salts or sugar with beaker and stirrer and giving instructions to do the experiment.
At the middle school level a smaller experiments can be assigned as home work (Preparation of the temporary magnets, Siphon, collection of metal and non metal products) 

Teaching of biology subjects can be done effectively through the observation of environment, conducting the nature walks, field visits etc. The students must encouraged for direct observation and recording of the environment and events.

Get to work!
Will ya?

Methods of setting experiments:

- Aims and objectives of the experiments must be clear and definite.
- The anticipated results of the experiments should not be declared to the students before commencing the experiment. The students themselves observe and know the results of the experiment conducted. If the results vary, the teacher has to give the exact reason and justification of the observed / derived result.
- The materials or tools for the experiments should be simple and easily available.
- The experiments which give the immediately only be taken in the class rooms.
- The materials or objects used for the experiment should not be over used or wasted.
- In order to save the time and resources the experiments can be done in groups.
- The experiments for the students of Primary and middle school level should be chosen by considering their age, physical and mental development.

Process skill

The students acquire the learning experience when doing or observing the process of the experiment. The first hand or repeated experience can change the modification in behaviors of the learners. Also students acquire the defining skill from the process of doing experiments.
Merits of learning by doing:

- Learners receive the best knowledge through the learning experiences.
- Develops and enhances the interest science among the students.
- The real time experience of Learning by doing makes the students true and honest in their society.
- The decision making skills and problem solving skill are developed by this method.
- Make the students confident and self reliant.
- Develop scientific attitude among the students.
- Execute the problems they have selected and finish it to completion.
- The learning experiences given by the learning by doing retains the knowledge of user in long term memory.

Learning by doing: Limitations.

- The teacher must be motivated and enthusiastic in this method.
- Time consuming method; it is difficult to finish the syllabus / course in a stipulated time.
- This method is costlier. The students need to spend some resources while experimentation by their own.
- Teachers need intuition to work in this method. Sufficient training can develop him in this method.
- The success of this method depends on the individual skills of both learner and teacher.

Kindly note: Student teacher has to refer and submit an assignment on the following titles:

Learning by doing: An example,

Activity Based Learning and its approach in the class room.

Let’s make things better,

Lovingly,
yours

Tahirgale