



TEACHING AWARENESS IN INSTRUCTIONAL STRATEGIES FOR CHEMISTRY TEACHING

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Abstract: Instructional strategies encompass any types of learning techniques a teacher uses to help students learn or gain a better understanding of the course material. They allow teachers to make the learning experience more fun and practical and can also encourage students to take more of an active role in their education. The objective of using instructional strategies beyond subject comprehension is to create students who are independent strategic learners. Selection of the right strategies and use them effectively is an important task. In chemistry teaching there are instructional strategies that can be used effectively at all levels and subject areas, with a wide range of learning styles. These learning strategies motivate students by improving their engagement, capturing their attention and encouraging them to focus on not only remembering course material, but truly understanding it. This paper inquires about the chemistry teachers' relative use of different instructional strategies in High school chemistry teaching. This paper also to find impressions of High School Chemistry teachers in take up new instructional strategies. The present study was conducted on 63 High School Chemistry Teachers of Kerala. A semi structured Interview schedule was used to collect the data, The study reveals that high school chemistry teachers are much aware of the different instructional strategies and time constraint is found as the most important reason behind the reluctance of the teachers to implement new instructional strategies.

Index Terms- Instructional Strategies, Teaching Awareness, Constraints.

1. INTRODUCTION

Education plays an important role to mould the personality of any individual. Education is the process of developing the potentialities and capacities of the individual. Education system is expected to prepare younger generation to adopt better in the society. It is a process where in one is trained to understand and fulfill the roles expected from them. The main goal of education is to create an individual who is capable of doing new things with inquisitive mind. A good system of education should contribute to the physical, social, emotional and intellectual development of the individual.

Instructional Strategies

The responsibility of the class teacher is to help students attain maximum achievement in their learning tasks. Several competencies are expected of the teacher in order to achieve this goal. Some of the competencies include ability to use appropriate instructional strategies in teaching. In most of the schools oral explanation is the common method of teaching. But using visual aids like pictures, models, live examples and practical experience along with oral explanation help in developing interest, increase concentration and curiosity among children, which enable to grasp easily and quickly. Modification in instructional methods is a must to bridge the gap in access to quality of education and learning according to the needs of children. Introduction of novel methods in classrooms can not only break the monotony of lecture method but can also lead to interesting and participating learning process.

Chemistry as a branch of science is highly important in modern societies because of its requirement as a prerequisite to the study of many other science oriented courses. It thus appears that for a nation to develop in science and technology, the teaching and learning of chemistry need to be improved. It is therefore becomes pertinent that performances in Chemistry and in science generally should be of high levels.

1.1 Importance of Instructional Strategies in Chemistry Teaching

Chemistry has been found to be a complex and abstract subject to learn (Gabel, 1999 ; Johnstone,1993), because chemistry concepts are often apply to a molecular level that is not accessible to direct observation (Kozma & Russell, 1997). Most concepts can be examined from three different perspectives: the physical chemical (macroscopic), the underlying reaction equations and mathematical expressions (symbolic), and the molecular properties (sub-microscopic) (Johnstone,1993). Advance planning is crucial for active student engagement in teaching Chemistry. Teachers should first decide on the conceptual learning goals for their students, focusing on broad concepts within the big ideas in chemistry. Spiraling the curriculum, building on and making connections to what students already know, will encourage student participation and understanding. Identifying the essential or guiding question at the beginning of each lesson focuses the attention of teachers and students on key learning objectives. Several lesson formats, such as guided inquiry and investigations in the laboratory, promote a deeper understanding. Prominent factors contributing to the persistence of student's performance in Chemistry are:

1. Ineffective teaching methods adopted by the Chemistry teacher.
2. Lack of infrastructures and teaching materials.
3. Lack awareness about advanced instructional strategies.

4. Lack of organized strategies for problem solving and poor reasoning.

II.OBJECTIVES OF THE STUDY

1. To study the relative use of certain relevant Instructional strategies among High School Chemistry Teachers
2. To study the awareness of High School Chemistry Teachers about the use of new instructional strategies
3. To study the Major constraints faced by High school Chemistry Teachers in practicing certain instructional strategies.

III.METHODOLOGY

Methodology for the present investigation is as follows.

3.1 Sample for the Study

The Study was carried out on a sample of 63 high School Chemistry teachers from different district of Kerala. The data collected from government and aided school teachers. This sample includes 25 male and 38 female teachers.

3.2 Tools for the Study

A semi structured interview schedule was used to collect the data. Interview was conducted in two phases. First phase is used to figure out the Instructional strategy that they are practicing. Second phase was to study their awareness about the use of Instructional Strategies in their class rooms.

3.3 Statistical techniques Used

Percentage analysis was used to find out the awareness level of High School Chemistry Teachers and their use on instructional strategies in their classes. Graphical representations also used to interpret the data.

IV. ANALYSIS AND INTERPRETATION

This part of the study discusses the relative use of certain relevant Instructional strategies among High School Teachers. Details are presented in Table 1.

Table 1-Data regarding the percentage of the Relative use of certain Instructional strategies among High School Chemistry Teachers.

No	Type of Instructional Strategy	% of awareness		
		Male	Female	Total
1	Activity Oriented method	98.52	95.87	97.19
2	Assignment and Project	97.64	93.35	95.49
3	Problem solving Method	94.52	92.82	93.67
4	Co operative learning	94.71	74.35	84.53
5	IT based learning	81.32	78.65	79.98
6	Issue based approach	85.12	72.95	79.03
7	Direct Method	66.87	59.54	63.20
8	Team Teaching	23.54	20.55	20.04
9	Whole Brain Teaching (WBT)	3.21	1.56	2.38

From Table 1, it is clear that teachers were using prevailing instructional strategies. The relative use of different instructional strategies is more among male teachers than female teachers. Activity oriented method is the favoured strategy (97.19%) used by the Chemistry teachers in their teaching. Assignment and project (95.49%) and problem solving method (93.67%) are also used. Teachers also used Cooperative learning, IT based learning, Issue based learning, the levels of acceptance being 84.53%, 79.98%, 79.03% respectively. The acceptance of Direct method is 63.20% and Team Teaching is 20.04%. Whole Brain Teaching(WBT) strategy(2.38%) was the least favoured one. Result of the analysis is graphically presented in Figure 1 for the easy visualization of the percentage of relative use of certain Instructional strategies.

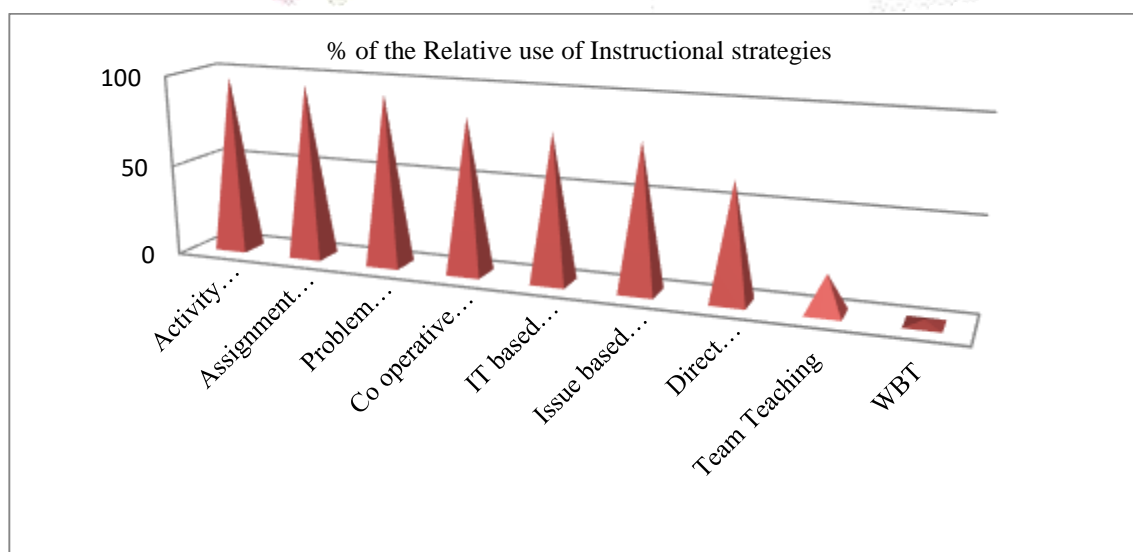


Figure 1. Graphical Representation of the relative use of Instructional strategies among high School Chemistry Teachers.

From Figure1 it can be seen that teachers were using prevailing instructional strategies. Activity Oriented method is the favoured strategy and Whole Brain Teaching is the least favoured strategy.

From the above results, it is clear that majority of the teachers are aware of experimenting new strategies. Even though they are well aware, they feel some constraints in class rooms situations. The researcher detailed the various obstructions faced by the teachers in practicing of different instructional strategies in the classroom in Table 2.

Table 2 -Data regarding the Major constraints faced by High school Chemistry Teachers in Practicing certain Instructional Strategies.

No	Constraints faced by Teachers	Percentage of opinion
1	Time duration	95.21%
2	Lack of Infrastructure facilities	35%
3	Poor response from students	19%
4	Lack of proper training	18%
5	Unhealthy criticism from parents	8%
6	Poor self confidence and self motivation	6%
7	No support from authorities	4%

From Table 2, it is clear that time is the major constraint for practicing new instructional strategies. 95.21 % opines that time is an important factor in practicing and adopting new instructional strategies. It is the major reason why the teachers are reluctant in practicing such new methods. From these activities teachers are interested to implement these strategies. But they face many difficulties in adopting such strategies. Lack of infrastructure (35%), poor response from students (19%) and Lack of proper training (18%) are the next three factors identified by the teachers. They also face Unhealthy criticism from parents (8%) and poor self confidence and self motivation (6%) and Interview showed that no support from Authorities (4%) is the least important obstruct identified. Result of the analysis is graphically presented in Figure 1 for the easy visualization of the constraints faced by High school Chemistry Teachers in practicing certain instructional strategies.

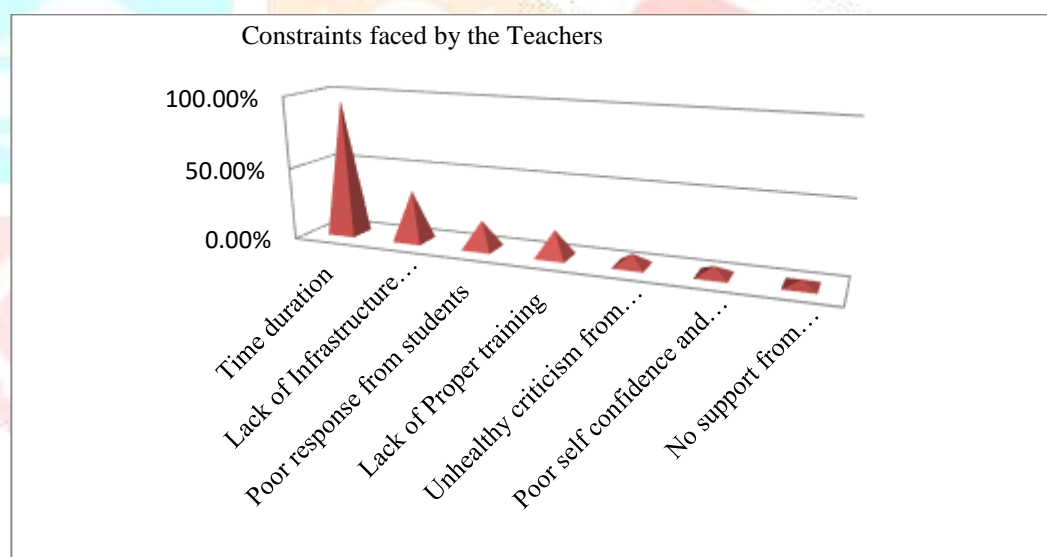


Figure 1. Graphical Representation of the Major constraints faced by High school Chemistry Teachers in practicing certain instructional strategies.

From Figure 2 it can be seen that majority of the Teachers opines that lack of time is the major constrain for practicing different methods. Poor self confidence and self motivation and less support from authorities are the least considered issues.

V. CONCLUSION

The way Chemistry is being taught in our secondary school has called for an appraisal because of its importance among other science subjects. The poor performance of learners in the subject also calls for improvement in the teaching and learning of the subject. This has led to the focus of the present study to find an alternative method apart from the conventional method commonly used by most schools. Since every child has individual differences, so teacher should consider different factors in a class room and should include different teaching strategies. Since many new and abstract ideas are introduced in High school Chemistry Text book, embracing new methods will definitely accelerate students learning.

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