

AN UNCONVENTIONAL WAY OF EVALUATING CONCEPTUAL UNDERSTANDING OF CHEMISTRY FOR 10+2 STUDENTS

Sub Theme: EVALUATION OF CONCEPTUAL UNDERSTANDING

Key words: Online, individualized, constructive feedback

1. Introduction:

Today's education scenario gives us a bizarre picture of students obsessed with marks rather than learning to gain knowledge and understanding the concepts. So as teachers it is more significant to help our students realize the importance of conceptual learning and understanding. Besides helping the students understand the concept, its evaluation is also necessary to determine how well a student has grasped the concept.

In our conventional way of evaluation, a student is marked on his/her ability to memorize and recapitulate rather than his/her depth of understanding and divergent thinking. Thus, the evaluation process more likely leaves the student stressed out and develop a dislike and fear for exams.

To avoid making our students 'burnouts' it is high time that we as educators develop an evaluation system which is interesting, stress free and more personalized according to the student's need.

Though as teachers, we may develop such evaluation system for our students there are some hindrances when we try to implement it. The first obstacle is the size of the classroom. At a junior college level with a class of an average of 90 to 100 students it becomes practically impossible to conduct continuous evaluation for every student at regular intervals. The next arduous task is the correction of all these papers and providing constructive feedback to every student. Also, a major setback in implementing this at the junior college level is to get the students appear for these tests. Taking into consideration all these difficulties the researcher felt the need to design an evaluation system which could help any teacher to reach out to every student and also achieve the objectives of evaluation.

Taking into consideration all the above difficulties the researcher decided to design her own evaluation method. In a quest for designing an evaluation system which would fulfill the objectives I came across a unique online platform named 'Edmodo'¹.

2. Objectives:

- i) To design an online program for evaluation of conceptual understanding of Chemical Thermodynamics in Chemistry for std XII.
- ii) To apply the online program for evaluation of conceptual understanding of Chemical Thermodynamics in Chemistry for std XII.
- iii) To study the effectiveness of the online program for evaluation of conceptual understanding of Chemical Thermodynamics in Chemistry for std XII.

3. Literature Review:

Extensive research has been done worldwide on the use of technology in classroom teaching^{2,3}. It has been observed that technology can be effectively used along with other teaching strategies for better understanding of concepts^{4,5}. But acceptance of technology in teaching - learning process is still in a primitive stage in India⁶.

3.1. Features of Edmodo:

- a) The teacher can create his/her own group with desired number of students.
- b) Teacher is the sole controller of the group.
- c) Correction and scoring of the assignment is done automatically by Edmodo program.
- d) Assignment can be locked with a submission date and time.
- e) Every student can be provided with a feedback by the teacher through Edmodo.
- f) Students can be rewarded with 'badges' for their performance.
- g) A consolidated marksheet for each student and the entire group is available for the teacher which can be shared with the students.
- h) Parents, too, can be made a part of the group.
- i) Collaboration with other teachers can also be done.

4. Research Methodology:

4.1. Action Research:

In order to implement the designed program immediately and to study its outcomes Action Research was chosen as the Research Methodology.

4.2. Tools and Techniques:

The tools used in this methodology is internet connection. The software 'Edmodo' was used as the online platform. To evaluate the conceptual understanding of student's different techniques such as multiple-choice questionnaire, crossword puzzle, numerical problem was used.

4.3. Population:

For the present study, a population of 90 XII std students from the junior college studying Chemistry was chosen.

4.4. Sample size:

It was a convenient sampling. The sampling was done based on the marks obtained in the Unit test exam taken by the college. The Unit test was conducted for 25 marks. The students scoring between 20 to 25 marks in the test were selected for sampling. A purposive sample of 20 students was chosen as per the above criterion.

4.5. Plan of Action:

The students were informed about the Edmodo and the evaluation procedure. Mail id of every student from the sample group was collected by the researcher. An online group named 'XII C' was formed using the Edmodo software. It was a close group and the researcher was the sole controller of the group. Every student was sent an online invitation by the researcher to join the group. Interested students accepted the invitation, typed in the received password and joined the group. An introductory note regarding the objectives of the methodology, its working and rules and regulations were shared with the group by the researcher. Before assigning the evaluation, the concept was explained in the class by the researcher. Thereafter, once in a week, on every Thursday, the student was given an evaluation to check his/her basic understanding of the concept of thermodynamics. Every evaluation was timed according to its type. It automatically got locked after the scheduled time and the student could no longer access it. Thus, it would prevent any malpractice on part of the student. Every evaluation would get automatically scored as the researcher had already fed the answer key. The researcher gave a constructive feedback to every student online through the Edmodo platform. The feedback was in the form of a video or an online website or a short lecture by the researcher, etc to help the student for better understanding and reinforcement of the concept.

5. Data Analysis and Interpretation:

5.1. Collection of Data:

The data was collected from 20 students of the purposive sample. It was collected in the form of assignments and its evaluation. Every student submitted the different assignments online. Every assignment was evaluated and scored. A posttest in the form of a questionnaire was also administered on the students to test the effectiveness of the program.

5.2. Interpretation:

All the collected data was analyzed to study the use of Edmodo for evaluation. Following were the analysis and interpretations: -

- a) The students submitted all the assignments on time highlighting the user-friendly quality of the software. As it was an online platform the student could submit the assignment at his/her convenience as it had no barrier of working hours and place.
- b) The program aroused curiosity and interest within the minds of the student because of its online nature.
- c) As every assignment was different and short, the students did not get bored.
- d) The students awaited eagerly for the assignment every week because it was different and unique every time.
- e) Timely constructive feedback for every student according to his/her need helped in better understanding and reinforcing of the concepts.

6. Conclusion:

From the above collected data, its analysis and interpretation one can conclude that use of online platform Edmodo as a medium for evaluation of conceptual understanding is very useful. Because of its user-friendly nature and connectivity with the teenagers the students find it trendy and updated. Also, as constructive feedback is given to every student individually, the fear of failure is reduced to a significant extent. Each student also is not more worried about his scores been displayed and discussed in public as it is confined only to his/her account. Timely badges awarded to the student for superior performance helps to keep them motivated. Feedback given in the different audio-visual forms are more effective than the conventional oral or written form.

7. Limitations of Study:

The major limitation of the present study is the unavailability of internet connectivity. It is impossible to use it in places where there is no internet connection. Also, it can be difficult for the non – English or Vernacular medium students.

8. Scope of future work:

This online platform can also be used for larger group of students as per the Teacher's convenience. Other subject teachers or peers too can be made a part of the group which will be more helpful to give proper guidance related to any specific concept or topic. Parents, too, can be made a part of this group where they will be in constant touch with the progress of their ward. Many other online resources can be obtained and the researcher can stay connected with the latest trends and developments in teaching methodology. An international platform of resources can be available at the click of a mouse.

9. References:

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