

Classroom Assessment Techniques to Improve Teaching Learning

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Abstract

A teacher should be able to measure what she expects her students to learn. Not only this, but it is the duty of the teacher to help the students to learn. All this involves much more than just providing knowledge in the specific discipline. In higher education, it is believed that a teacher is the friend, philosopher and guide of a student. A teacher who believes in this philosophy tries level best to know the learners and also to make teaching learning an exciting and interesting process. Classroom Assessment Techniques (CATs) are simple, flexible, non-graded assessment techniques which provide not only ongoing feedback to teacher and students but also make the teaching learning process exciting and interesting. This article discusses with examples about how to use CATs while teaching courses in the discipline of Education. It also talks about how to use the findings of the assessment techniques for the betterment of teachers and students.

Keywords: Classroom Assessment Techniques, Formative assessment, Education, Background knowledge probe, Memory matrix, Misconceptions check.

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Introduction

A million dollar question that comes to the mind of a teacher during the teaching learning process is "*Are my students getting what I think I am teaching?*" The depth of this question depends on various factors like the nature of subject taught, the nature and the level of students in the classroom, the learning experiences that a teacher provides in the classroom, the learning outcomes that need to be achieved etc. In the classroom environment, there always exists a gap between a teachers' expectation and student's knowledge (Craig, M. et al, 1997). This gap further reinforces the question that is raised above.

In a discipline like "Education" which is multidisciplinary in nature, the relevance of this question increases further. The students from various discipline backgrounds i.e., sciences, social sciences, humanities etc. come into this discipline. Diploma in Elementary Education (D.El.Ed.), Bachelors of Education (B.Ed.), Master of Education (M.Ed.), Master of Arts in Education (M.A. Education) are some of the important programmes offered in this discipline.

These programmes are preparation for professional practice and consist of both theoretical and practicum courses. While the relevance of the practicum courses can be reflected directly in their professional practice, the relevance of theoretical courses cannot be reflected immediately and hence, teaching of these courses becomes a more challenging task to the teachers. Also, students who come to pursue these courses come from various disciplines and hence there exists a huge gap between teacher's expectations and students' knowledge. Sometimes, students enter into this discipline after an academic gap in their educational career. This also increases the gap between teacher's expectations and students' knowledge and creates many barriers not only in teaching learning process but also has a negative impact on the learning outcomes. Further, the nature of the courses in this discipline demands more intellectual skills like getting information, manipulating information, presenting information, problem solving etc. from the students. Hence, a teacher along with the discipline knowledge also has to assess the development of these skills among the students. Hence, frequently the question "*Are My Students Getting What I Think I'm Teaching?*" arises in the mind of a teacher.

In the classroom teaching learning process, there exists a triangular relationship between learning outcomes, learning experiences and assessment(Koul. Lokesh, et al., 2017). Unlike the earlier days, where the assessment practices used to focus on identifying what the learner does not know, now, the focus of assessment practices is on what learners understand and can do and how best a teacher is able to perform in the class. Hence, "Assessment for learning" is gaining importance in all stages of formal education and is a

hot topic now (Kathleen & James, 2010).

Classroom Assessment Technique (CAT) for the purpose of formative assessment are simple, flexible, non-graded during class activities which give ongoing feedback to both teacher and student and can be very useful to answer the above mentioned question. They not only help in assessment but can easily and slowly take the learners towards the development of higher order thinking skills (Adams, 2004; Angelo & Cross, 1993; Cross & Angelo, 1988; Shaffer, 2013; Steadman, 1988). Unlike the other interventions for which a teacher needs to take prior approval or there need to be collective acceptance from other faculties, CATs are fully the choice of a teacher and it does not require adoption across a department or acceptance from other teachers. There are a wide range of CATs which help in assessment of all round development of a learner and not just the cognitive domain. Angelo and Cross (1993) in their book on "Classroom Assessment Techniques: A Handbook for College Teachers" wrote about a wide range of classroom assessment techniques that a teacher can use to assess learners soft skills, performance skills, values, attitudes, interaction in the classroom, involvement in teaching-learning process etc. CATs vary in their uses, their complexity, and the time they take to prepare, administer and analyze (Adams, 2004).

Use of CATs not only adds a variety in the teaching learning process but it continuously informs the teacher and the learner about their performance. However, the planning, implementation and analysis of CATs is a time demanding activity and hence, a teacher needs to be very careful in its selection, implementation. A teacher should never use such CATs which will increase her burden and also which does not fit the nature of content and level of students (Cross & Angelo, 1988; Angelo & Cross, 1993). The present paper will focus on three important CATs which are very useful to a teacher to know about her learners.

Classroom Assessment Techniques

Background knowledge probe, Memory Matrix, misconceptions checks etc are some of the CATs useful to assess cognitive domain aspects as given by Blooms Taxonomy. A teacher who wishes to answer the question "*Are My Students Getting What I Think I'm Teaching?*" should first try to know the background knowledge of the students. The most important single factor that influences learning is "to know what the learner already knows" (Ausubel & Hanesian, 1968). Knowing this background knowledge will help in reducing the gap between the teacher's expectation and students' knowledge. This will also help the teacher to plan the learning experiences accordingly. The CAT "Background Knowledge Probe" can be used aptly to know the level of prior knowledge and level of prior experiences of the students (Cross & Angelo, 1988; Angelo & Cross, 1993; Adams, 2004).

This technique can be used by the teacher at the beginning of a new unit. It can be a short simple questionnaire (Adams, 2004) prepared by the teacher and can consist of both supply type and selection type questions. It can include variety of questions like, fill in the blank, multiple choice questions, circle the correct response, match the items etc. The main objective of such assessment is not to grade the students but to know about their level of readiness for the topic that they are going to study and hence, this should be clearly communicated to the students. Students should also be given freedom to maintain their anonymity if they wish. A teacher can also list few basic terms or concepts related to the topic to be taught and use a rating scale to know the awareness of students regarding those terms or concepts. Example, if teacher has to discuss about "Social Stratification and Role of Education", she can list all the important terms and concepts of the topic (like class, power, status etc.) and frame rating scale items like "Have never heard of it", "Have heard of it, but do not know what it means", "Have some idea about it, but not very clear", "Have a clear idea of it and can explain it". Thus, the probes used to know the background knowledge of students can be both fact based and experience related and should be such they motivate the students to think about their prior knowledge.

The analysis of the students' responses helps the teacher to know if the students have no relevant background knowledge, or some relevant background knowledge, or significant relevant background knowledge and the teacher can plan about the starting point for the lesson and the learning experiences accordingly. Further, from the information that is obtained, a teacher has to take care to discuss the terms or concepts of the topic as soon as possible (Adams, 2004). A teacher can ask the same or similar probing questions at the mid or end of the unit to assess the changes in students' knowledge about the topic being taught. This will also indirectly give the feedback to the students regarding their own performance.

The two important problems that may arise as a result of using the background knowledge probe technique are: when the gap between the teachers' expectation and students' knowledge is more a teacher may get discouraged or face difficulties in planning the learning experiences. Also, on the basis of the findings there are chances that a teacher may develop permanent pre-conceived notions regarding students which may not be correct. Thus, only when a teacher has confidence that she can provide or bring changes in her teaching learning activities according to the level of students she has to use this background knowledge probe technique.

Another important CAT that will help to convert high information content into a pictorial image in the mind of students is the memory matrix. Memory matrix is one the best classroom assessment technique that a teacher can use to assess both the teaching of the teacher and the learning of the students. This technique helps the students to bring clarity

in the topics where they find there is overlapping. A memory matrix is a specially designed table (two by two or three by three two by three etc.) to assess the learning of students after the completion of a lecture or lectures that focus on clearly categorized information (Angelo & Cross, 1993). To get the maximum benefit of this technique, a teacher while developing it should keep in mind to categorize the row and column headings properly and provide enough blank space in the cells to cater to the needs of all types of learners (low achievers, high achievers etc). Teachers before using this technique in the classroom have to first test it on themselves to ensure a good fit between the row and column heading and make necessary revisions accordingly. Factors like, lack of good fit between row and column headings, lack of sufficient space in the blank cells, lack of clear instructions to students (to write only words or brief phrases) may reflect the performance of both students and teachers in a wrong way. This assessment technique is useful to assess students' recalling and organizing skills (Angelo & Cross, 1993) in such courses which are information loaded.

Students from the discipline of Education have to study about various education commissions and committees in various courses like "Contemporary Indian Education", "Policy Perspectives in Education" etc. The learning experiences that a teacher has to provide regarding these topics are highly informative and theoretical and often there are chances for the students to get confused about the recommendations and suggestions given by various committees. Use of memory matrix assessment technique can be very useful to the teacher to assess the level of students learning in such topics. A teacher can develop a memory matrix like the below (table 1) and provide sufficient time to students to fill the gaps in the table. Initially she can start with just two education commissions or committee's recommendations and gradually she can increase the number of rows. Depending on the nature of task to be completed, a teacher can even encourage for a group work among the students. To begin with a teacher can set a lower limit on number of words or phrases that a student has to write in each cell and can gradually increase this lower limit as the content and students interest progresses (Angelo & Cross, 1993). This will encourage the students to recall more rather than restricting to one single best answer.

Table 1: A sample memory matrix for Education Commissions and Committees

	Elementary Education	Secondary Education	Teacher Education	Higher Education	Examination reforms
National Policy on Education - 1986					
Education Commission 1964-66					

From the data that is collected in the form of memory matrix from each student, a teacher can use simple statistics like frequencies, total, average to calculate the number of correct answers and wrong answers and identify the patterns in it. A teacher can further match those results with her teaching learning activities and analyze if there are still imbalances between what she taught and what students learnt. Higher imbalances indicate either a failure from side of student to successfully recall or categorize the information or it may indicate less instruction or improper teaching learning experiences from the side of teacher.

Memory matrix is a simple and easy to assess formative assessment tool. However, the categorization scheme of it will enable to assess only the knowledge level aspect (Angelo & Cross, 1993) and a teacher cannot assess the comprehension, skills or application abilities of students.

Another important CAT that is very useful to the teacher is misconception/preconception check. It is an assessment tool to know about the preconceived notions or misconceptions of students regarding various aspects which are usually hidden in the mind of the students and are not reflected easily. It is an accepted fact that, students build their new knowledge and understanding on the basis of what they already know and believe (Schuh, 2003). Education is multidisciplinary in nature and the courses offered under it are also in one or the other way linked with other subjects. Students coming into this discipline from various disciplines come with a set of informal beliefs to class-not necessarily conscious, lucid, consistent, or accurateregarding aspects like meaning of education, nature of a child, nature of teaching learning process, learner's characteristics, pedagogy etc. To quote a few, many of the students come with misconceptions like education means that which happens in the four walls of school/institution; the main aim of education is only to earn livelihood (i.e, a good white collar job) etc. They also have preconceptions like students in the class are like blank slates and a teacher has to write on it; same teaching method or technique fits to all students etc. These misconception/preconceptions if not corrected or checked at the correct time may hinder the further learning of the students and also may develop a wrong perception about the discipline. Existence of misconceptions among students can prove to be a larger obstacle than lack of background knowledge and it will increase the gap between the teacher's expectations and students' knowledge (Adams, 2004).

At the beginning of a new topic, a teacher can carefully identify the misconceptions/preconceptions that may exist in students regarding the topic to be taught using self-designed tools like a questionnaire consisting of various types of items like multiple choice questions, short situational questions. A teacher can also use a likert scale to know about the extent of misconceptions/preconceptions using a scale like "I am absolutely certain that this statement is correct, "I have no idea whether it is true or false", "I am absolutely

certain that this statement is false" etc (Adams, 2004).

A teacher can also give a set of statements and ask students to classify them into categories. Example a teacher can give a set of sentences related to "gender" and "sex"; or "gender sensitivity" and "gender bias"; "equity" and "equality" etc and ask the students to classify them. This will reflect not only the knowledge of students regarding these aspects but also will help the teacher to rectify their misconceptions/preconceptions. For the proper achievement of the learning outcomes, a teacher should take care to rectify their misconceptions/preconceptions as early as possible before going indepth into the topic.

Moving further, recalling is considered to be at the lowest level in the cognitive domain (Blooms Taxonomy) and every student in the classroom has the ability to move towards higher order thinking skills. Students from the Education discipline just like students of other disciplines need to be good not only with content knowledge but also should be good in skills like reading, ICT, academic writing etc. Academic writing unlike the writing skills, demands that students use their own words and present the content. "Directed Paraphrasing" assessment technique gives the opportunity to students to write in their own limited words about what they understood and internalized from the lecture/s, assignment or discussion etc (Angelo & Cross, 1993, Adams, 2004). It is directed in the sense, students are given clear directions about what to paraphrase, how much to paraphrase, for whom to paraphrase, for which purpose to paraphrase. The success of this technique depends on the ability of the teacher to select appropriate topic for paraphrasing and appropriate audiences. In the initial stages of using this technique, a teacher has to be more specific in giving the instructions and as it becomes her regular practice it does not require many instructions.

Directed paraphrasing is one of the best friends of a teacher. Even though it is time consuming and demands individual feedback, it helps a teacher to reduce the complexity of teaching point. It not only acts as an assessment technique but also helps to improve the comprehension ability of students, presentation skills of the students and encourage students to think in multidimensional ways. It can also act as one of the best technique for peer teaching.

A teacher initially may also get discouraged to see the gap between what she taught and what students understood. However, when it is made a continuous practice in the teaching learning process, it will help both students and teacher. This technique helps the teacher to identify the individual differences among the students and acknowledge them. The best advantage of this technique is, students will start writing in their own words, the practice which they are losing slowly. Moving forward, this can develop academic integrity among students.

To ensure that students do not get bored, a teacher has to occasionally change their

audiences (same class students, students from other sections/division etc). Also a teacher can ask the students to maintain their own journal of paraphrases which would not only act as a summary notes which they can refer in future but also will act like a self feedback device. Further, to have a variety in the class, teacher can assign the paraphrasing of different lectures or assignments to different students and then ask them to present it in the classroom.

Teacher may ask students to paraphrase about what they understood about "role of society in Education", "importance of individual difference in the classroom", "their own philosophy of education" etc and direct it to their juniors or other colleagues.

A teacher has to review the performance of students and give them feedback continuously. She can also discuss the common patterns of clarity and confusions. If the students give their performance in written form, she can highlight both the clearest and muddiest points and provide written feedback to them.

Conclusion

Based on above discussion, CATs are very useful to a teacher who wishes to improve herself and her students. These techniques not only make the teaching learning process active but also alert. Using these techniques a teacher can keep the students involved and engaged in teaching learning process. It is important to note that these techniques are meant to supplement and complement and not to replace the summative assessments. Infact, they act like both teaching techniques and assessment techniques. In the courses offered in Education discipline, where students come from various age groups, various disciplines, CATs are very useful to teacher not only to understand the students but also to modify the teaching learning process according to the level of students and thus make the teaching learning process lively and successful.

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