

# Assessment of Engineering Students Learning

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**Abstract:** In this paper, the starting assumption is that there is more leverage to improve teaching through changing aspects of assessment than there is in changing anything else and, at the same time, the teachers know less about how students respond to assessment than about anything else. As this project progresses, teachers' insights and evidence of effective changes to courses will lead to these 'conditions' being developed further. Students tend to gain higher marks from coursework assignments than they do from examinations. Success in the classroom there needs to be a breakdown of the standards in a way that will show the teacher the big ideas for the unit. This will allow the teacher to better prepare for what the students need to be able to accomplish at the end of the unit rather.

**Keywords:** Assessment, Learning, Engineering, Build.

## I. INTRODUCTION

Build high quality of curriculum teacher should give students a value knowledge that should link it with standard the first step, I learn from this topic is analyses the topic what be known and skills. Then teacher would analyse this information by using KUD that must to connect with standard or common core in the level. After that teacher have to create big question this question lead student to the key of this unit and this must be opining question to help students think about this lesson with open answer which help students engage and using high level of thinking about this lesson, identify teacher objectives or essential question that this lesson seek to address is another step to design lesson plan and this objective have to link with KUD and what students will achieve in the end of the lesson [1].

When teaching in higher education hits the headlines it is nearly always about assessment: about examples of supposedly falling standards, about plagiarism, about unreliable marking or rogue external examiners, about errors in exam papers, and so on. The recent approach of the Quality Assurance Agency (QAA) to improve quality in higher education has been to focus on learning outcomes and their assessment, on the specification of standards and on the role of external examiners to assure these standards. Where institutional learning and teaching strategies focus on assessment they are nearly always about aligning learning outcomes with assessment and about specifying assessment criteria. All of this focus, of the media, of quality assurance and of institutions, is on assessment as measurement. This article is not about measurement at all — it is about learning. The most reliable, rigorous and cheater of assessment systems are often accompanied by dull and lifeless learning that has short lasting outcomes — indeed they often directly lead to such learning. We are not arguing for unreliable assessment but we are arguing that we should design assessment, first, to support worthwhile learning, and worry about reliability later [3].

Using assessment is important for every lesson. However, it is more important with DI lesson plan teacher should use three type of assessment to collect information about students.

When their students from the lesson goals and how teacher would modify instruction to reach students need for learning in this lesson.

First assessment that teacher would use is pre assessment, and I think it is important tool to collect data for student prior knowledge and it could help teacher to know the roadmap for each child.

Pre assessment should design to express the knowledge, understanding and skills that include in the lesson, teachers would design what she/he consider is important for this lesson. I learn that many type from pre assessments that teacher can get benefits from it. Using list of survey what student know about the topic, using KWL and using concept map. What teacher find, it helpful for lesson he / she should use it before stating lesson, this information gives teacher insight knowledge about students from the topic, then she / he decide from where start [2].

Students tend to gain higher marks from coursework assignments than they do from examinations (Eds: see James & Fleming, this issue, for a discussion on this topic). Chansarkar & Raut-Roy (1987) studied the effects of combinations of various forms of coursework with examinations. They found that all combinations of coursework of varying types with examinations produced better average mark rates than did examinations alone — up to 12% higher average marks. Gibbs & Lucas (1997) reported an analysis of marks on 1,712 modules at Oxford Polytechnic. Modules with 100% coursework had an average mark 3.5% higher than modules with 100% examinations, and there were three times as many failed students on modules where there were only examinations. There was a significant positive correlation between the proportion of coursework on a module and average marks ( $r = +0.36, p < .0001$ ). Bridges et al. (2002) studied the differences in coursework and exam marks in six subjects at four universities. They found coursework marks to be higher by one third of a degree classification in English and History (similar to the Oxford Polytechnic finding) and higher by two thirds of a degree classification in Biology, Business Studies, Computer Studies and Law

## II. THE DOMINANT INFLUENCE OF ASSESSMENT

In the early 1970's researchers on both sides of the Atlantic (Snyder, 1971; Miller and Parlett, 1974), were engaged in studies of student learning at prestigious universities. What they found was that, unexpectedly, what influenced students most was not the teaching but the assessment. Students described all aspects of their study - what they attended to, how much work they did and how they went about their studying - to be completely dominated by the way they perceived the demands of the assessment system. Derek Rowntree stated that "if we wish to discover the truth about an educational system, we must first look to its assessment procedures". (Rowntree, 1987, p1). The Snyder and Miller and Parlett studies went further and highlighted the way students respond to these assessment procedures. More recently qualitative studies have emphasised the importance of understanding the way students respond to innovations in assessment (Sambell and McDowell, 1998) [4].

The second type from assessment in DI learning is formative assessment. It is important tool along out students are taking this lesson, teacher should collect information regarding where student from the learning teacher also should use many kinds from formative assessment to adjust student learning.

Daily observation with writing note in students file is effective strategy for formative assessment, using task individual or task with the group would give teacher a comprehensive idea about students' progress.

The important of formative assessment is monitor student development during learning time, teachers also could modify instruction to meet students' needs according the data that collect as formative assessment, the variety of using formative assessment is very important for DI classroom because teacher have different type from readiness, interest and learning style , thus, teacher have to reach the indicator for correct data about students learning with regarding task differ the third kinds from assessment in differentiation classroom is summative assessment, this assessment uses as final step to adjust students learning and if their students reach to lesson goals or not figure 1.

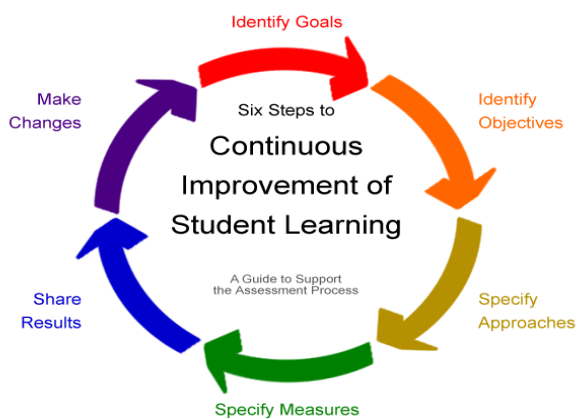


Figure 1: Dominant Influence

## III. BUILD HIGH QUALITY OF CURRICULUM

To build high quality of curriculum teachers have to regard students above the level grade and this could happen when teacher build clear plan with different activities to meet their students learning.

Teacher also, have to divide students to group work readiness , interest and learning style according the data which collected before about students need in differentiation classroom , students who are in tier 1 are large population in the classroom and that required more effort for their students. So, teachers have to design the lesson plan, activity, task, instructions with their student's level. However, teachers have to look for tier 2 and 3 in the lesson, activity and task. Giving time for their students to under stander concept and skills modify instruction to meet their need with clear idea about what the specific needs to reach lesson goals.

The current classroom climate generally revolves around meeting the state standards and pushing forward with the teaching rather than focusing on the students individual needs in addition to the standards. In the article Differentiated Instruction and Educational Standards: Is Détente Possible? They discuss that complication. As noted in the article our high school students are performing much lower than international high school students. Many factors may be the reason for this lack in test scores however, a push for following the standards while not focusing on the individual child may be one of them. There is a way for a teacher to be effective while meeting the needs of the individual students as well as following the standards for the curriculum. Students need to use constructive methods to learn the information, too often are students pushed through the topics without a constructive or effective way of understanding what they are learning [5].

In order for there to be success in the classroom there needs to be a breakdown of the standards in a way that will show the teacher the big ideas for the unit. This will allow the teacher to better prepare for what the students need to be able to accomplish at the end of the unit rather. Another way to show the students understanding of these standards is to not rely solely on the test. Student A might have great recall ability whereas Student B needs a different way to express what he or she knows. Looking at the curriculum design from Wiggins and McTighe, it shows a great break down of how the teacher can plan for the curriculum, it shows exactly how the standards should be broken down, what the teacher needs to know before planning for the unit. This will create an effective instructional plan for the teacher where both the teacher and the students receive the best from the curriculum. This would work quite well in the classroom. It allows the teacher to send time getting to know the curriculum and having an end goal for the curriculum. There are clear big ideas and the teacher knows what is expected of the students. This allows would allow for different ways of assessment which many students do need in order to show what they really know. A student may understand the concept but when faced with a generic assessment or written response they will not show all they know and may

lose excitement for the curriculum. Pre-assessments are great tools for the teachers to use to help identify what students need so they can plan accordingly for the lessons. Pre-assessments also offer another benefit. Pre-assessments allow students to identify their areas in need of improvement as well as where they want to be or need to be to be successful at that topic. In the article "Just How I Need," The author discussed using these assessments for helping create goals and projects to set each student up for success. The beginning of the target shows an example of students who took a math pre-assessment, the students then identified what their strengths were and their weakness. This allows the students to see and identify where they are strong now or previously and what areas they will need work on and where they will most likely be tomorrow [6].

#### **IV. STUDENTS' CONCEPTION OF KNOWLEDGE**

Perry's 'scheme of intellectual and ethical development' describes how students develop over time, and through academic experience, their understanding of what knowledge itself is (Perry, 1970). He describes students as starting off thinking that there are an enormous number of right answers and that their job is to learn these and give them back to the teacher correctly. Perry describes this learning process with the memorable phrase 'quantitative accretion of discrete rightness'. He describes students as moving through a number of stages of increased understanding of the nature of knowledge involving, for example, extreme relativism, in which all answers are seen as equally right. A student who does not draw a conclusion to an essay may be leaving it up to the reader to decide, given that all conclusions are seen as equally valid. Feedback that simply read 'No conclusion' might not help such a student to progress! Teachers 'feedback is often (though not always) generated from a more sophisticated epistemological stance than that of the student and this offers plenty of scope for misunderstanding of feedback or blank incomprehension. One of the main points in the article discusses the teacher needs a clear idea of what is expected of the student during their differentiated instruction. If the teacher is unclear then it will not be successful. If the teacher is clear with the expectations and outcome then the student will be able to best represent themselves. Setting objectives from the start is where you will see success in the classroom, as mentioned in the article this is an area where teachers constantly fall behind on which then leads to failure in the differentiated teaching.

In the classroom allowing students to use their own assessments will drastically help them improve their work. If a student has an idea of what they need to know and what their goal is then they will ultimately be more successful. Using these pre-assessments and allowing the students to use the information to guide them in their work give students ownership of what they produce.

Using Data to Differentiate Instruction, follows Ms. Martez's 6th graders in math. Ms. Martez uses a variety of ways to use differentiation in her instruction. This method truly allows for her to assess the students at various levels

as well as give students multiple outlets to show what they know and to explore the concept to help them better understand the topic. Grouping the students into "clear as glass," "buggy," or "muddy" groups allows for the teachers to create stations or activities truly meet the needs of those students. For the "clear as glass" students she is giving them an addition challenge, which I think is so important, in differentiation sometimes the high achieving students don't always get to explore and challenge themselves as much as they may need.

In this classroom the teacher uses three different methods to help differentiation the instruction. She gets a sense of what her students know in the pre-assessment which is here she can begin her first grouping. Then she challenges them throughout the instruction which helps her understand which students are starting to master certain concepts or which students are still a little fuzzy. Finally she uses the standards test as a tool for students to identify where they are strong and what they need to work on. Allowing the students to go back in their math books and look through the past three units, highlighting their strengths and weaknesses will allow the students to best assess what they need to work on, it also motivates them and shows them where they have mastered it.

The way in which this teacher differentiates in her instruction is a great method to use in the classroom. It shows the various tools you can use to help students identify their areas of strength and weaknesses as well as shows the teacher how to group and what to work on. It also gives the teacher a chance to set up stations and groups based on those student's needs. I think this would be a great tool when planning for differentiation.

When teachers are learning new curriculum and planning for the new lessons it is often done without the knowledge of what the students already know. The curriculum calls for certain big ideas or concepts to be covered and mastered during the curriculum. However, if the students have already mastered that concept or idea before beginning the curriculum the teacher can then plan for a smaller focus on that subject rather than spending unnecessary time on that topic. The article Turning on the Lights What Pre-Assessments Can Do, discusses just that. Pre-assessments are amazing tools for teachers to use to understand what the students are already comfortable with and what they may need more time understanding. This will again save the teacher a great deal of time in their planning and avoid wasting time [7].

The key to pre-assessments is making sure it is created in a way in which all students can show what they know rather than how they can answer test questions. This is a tool to help the students and the teachers. It allows the students to refer back to their prior knowledge, preparing them to begin a new unit on the topic, as well as preparing the teacher for what needs to be covered more in depth and what can be touched upon lightly. It will also give the teacher indication as to what grouping to start with. It will not be where all of the groupings for this unit will be created from, as mentioned in this article, however, it will be a great place to start to make sure the students are grouped according to knowledge, experience, etc. If done

correctly, pre-assessments can help create a much more successive and effective instruction period figure 2.

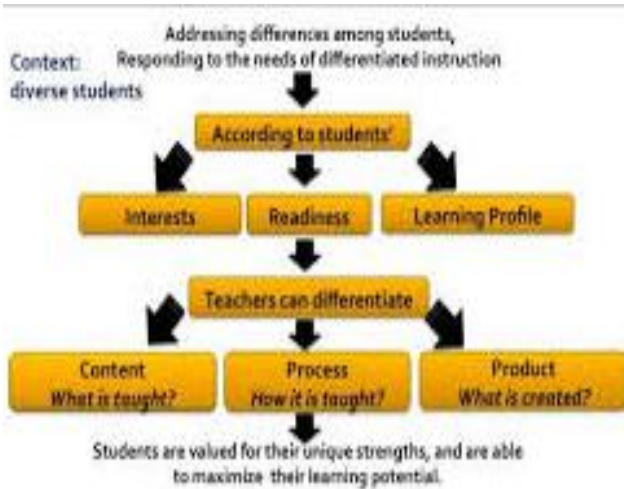


Figure 2: Differentiate Instruction

### V. CONCLUSION

These ‘conditions under which assessment support learning’ are in the process of being tested out in practice in the context of a large scale project starting with a study of assessment in science courses at two universities. Teachers of courses with a wide range of assessment practices are collecting evidence from their students about, for example, how they distribute their effort in relation to assessment demands, and how they respond to feedback. Pre-assessments in the classroom are truly a great way to focus the students, let them begin thinking about the topic rather than just jumping right into it. In a classroom I would use this especially with a larger topic, again to avoid wasting time on a concept that the students have already mastered. This could also lead students into wondering about the topic and possibly identifying connections they did not even know they had before. Use of pre-assessments in the classroom can greatly help show what the students know as well as help the students find ways to connect what happens in the outside world to the text. All this information give me insight knowledge to build high quality curriculum such as, watching video, using information from discussion board and modify my lesson plan .

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