

Analysis of University Teachers' Assessment Practices of Bloom's Three Domains of Learning

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Abstract

Initially developed between 1956 and 1972, Benjamin Bloom's three domains of educational activities and behaviors (cognitive, affective, and psychomotor) have gained significant importance in the field of educational assessment. The concept that learning is not purely a cognitive function, but emotional processes and motor skills coordination are also involved has led to the notion of a holistic assessment. Versatile assessment techniques help meet diverse learning needs, foster progressive disposition, and encourage practical skills acquisition. Besides, it also aids in lifelong learning since more neural networks and pathways are generated among students. Despite the importance of holistic assessment, it is not practiced by faculty members of public sector universities. The study's objectives were 1) to find out the views of public sector university teachers about assessment using blooms domains of learning, and 2) to analyze public university teachers' assessment practices in Bloom's three learning domains. Semi-structured interviews were conducted with six university teachers (three males and three females) to achieve this purpose. The interviews were audio-recorded and transcribed, and thematic analysis was done using NVIVO software. The main findings were that university teachers consider teaching and learning more than delivering knowledge. Some of them opinion that Bloom's Taxonomy a necessary aspect of assessment. Regarding practices, it was found that they use diverse assessment strategies such as Q&A, presentations, quizzes, assignments, and projects. Though few teachers were unable to distinguish between assessment and evaluation; yet, they were aware of the importance of checking students' knowledge. Likewise, four teachers were familiar with bloom's taxonomy, while two teachers were totally unfamiliar. Concerning the affective domain's assessment, most teachers acknowledged that emotions play an essential role in learning; however, the majorly used technique to motivate students was to share with them about getting a job and the scope of the discipline. As far as the assessment of the psychomotor domain was concerned, two teachers clearly refused, whereas others said that they occasionally involve students physically in their learning. These findings suggest that teachers are aware of the three domains of learning subconsciously, but the intentional assessment of all three key learning domains is not being done. Therefore, it is recommended that HEC and university administration should pay attention to organizing workshops and training to make teachers practice formulating objectives within all three learning domains for full-fledged learning of students.

Keywords: Classroom Assessment Practices, Bloom's Taxonomy, Cognitive, Affective, and Psychomotor Domains, University Teachers, And Qualitative Study.

1. Introduction

Research shows that to improve the quality of teaching and learning, assessment practices are needed to be changed from traditional paper pencil to holistic and integrated assessment approaches (Qutoshi & Poudel, 2014; Singh, Lebar, Kepol, Rahman, & Mukhtar, 2017). One way teachers can adopt effective assessment approaches is to align assignment practices with what Bloom's suggest three domains of learning i.e. cognitive, affective and psychomotor. An assessment of all three learning domains would require an integration of various assessment practices related to knowledge, skills and attitude and these also require variety of assessment tools and techniques resultantly improve the quality of teaching and learning.

One serious flaw in the assessment, which is currently being changed, is that the estimation of learners accomplishment is measured through cognitive behaviors like information, understanding and other reasoning abilities which are typically gained after openness to some growth opportunities and content knowledge (von Davier & Halpin, 2013). Likewise, the current assessment practices ignores the evaluation of abilities, which are ordinarily connected with character attributes of learners though complete assessment should cover all three areas of instructive objectives (Nande, Aboho, & Maduwesi, 2012; Sönmez, 2017; Wu, Kao, Wu, &

Wei, 2019). Researchers have consistently highlighted the importance of the three domains of learning, which are: cognitive, affective and psychomotor (Hansen, 2008; Hoque, 2016). Cognitive domain is mostly related to mental skills and is brain-based including recollecting or recreating data, which have been learnt. Affective domain is related to emotions and feelings and also deals with beliefs, perceptions and attitude of learners. Finally, psychomotor domain is related to physical skills such as coordination and use of motor skills.

Research on holistic assessment is pivotal to collect data from various sources and provide feedback to help and guide learning. It is associated with accomplishing quality and equilibrium in the educational assessment system to help deciding and increasing learners' inspiration and learning achievement. A very much planned assessment framework allows learners to exhibit their capacities and information while demonstrating fulfilment of educational objectives and standards.

While most of the previous studies have studied the perceptions of university teachers either generally (Bonner, 2016; Karp & Woods, 2008) or in one of the three domains of learning (Habók & Nagy, 2016; Nasri, Roslan, Sekuan, Bakar, & Puteh, 2010), in the current study perceptions of university teachers are explored about all three domains of learning simultaneously. The findings will guide decisions on the needs to conduct training for university teachers about assessment in all three domains of learning and strategies to utilize variety of assessment tools and techniques. For curriculum developers, to incorporate different learning objectives and provide guidance to perform holistic assessment for teachers. For teacher education departments, to involve future and in-service teachers about modern, integrated and holistic assessment practices.

1.1. Research Questions

RQ1: How do university teachers do assessment of undergraduate students' learning?

RQ2: How university teachers assess cognitive, affective and psychomotor domains of learning?

2. Literature Review

There is education everywhere. As we go about our daily lives, we can grow our mental faculties, our attitudes, and our physical capabilities. As a result, learning is a process rather than an event. Generally speaking, learning can be divided into three categories: cognitive, emotional, and psychomotor (Hoque, 2016). There are various learning levels within each area that increase in complexity from more fundamental, surface-level learning to deeper, more in-depth learning. It's interesting to notice that whereas the affective and cognitive taxonomies were fully specified in 1964 and 1956, respectively, the psychomotor domain was not fully explained till 1970s. The three learning domains and all educators should be aware of them and make use of them create lessons. These are cognitive domains (conceptual), affective (feeling/emotion), and motor (physical/kinesthetic). A taxonomy is connected to each domain. Finding the learning domains portrayed as cognitive, emotional, and psychomotor can be one method to look at knowledge in curriculum. Domains are subject areas of study that have a common trait that helps students become more productive members of society (Nessipbayeva, 2012). The affective domain is linked to feelings, attitudes, and values, the cognitive domain to mental processes, and the psychomotor domain to bodily actions (Bloom, 1956). Unfortunately, this has not been the case, as Pekrun (2014) notes that curriculum developers have changed their perspectives on affective learning and have given it less priority than it merits to support the development of cognitive skills.

2.1. Assessment of Cognitive Domain

The cognitive domain's learning procedures involve a hierarchy of abilities that involve processing information, creating understanding, using knowledge, resolving issues, and performing research. Cognitive complexity has six tiers: knowledge, understanding, application, analysis, synthesis, and evaluation. Bloom's taxonomy did not adequately address how the learner moves from one level to the next since it concentrated on articulating levels of attainments rather than process skills. According to Bloom's Taxonomy of Learning (2001), the cognitive domain includes skill clusters that arrange a comprehensive, succinct, and complimentary description of the learning abilities most important for each process.

2.2. Assessment of Affective Domain

Every stage of learning and evolution revolves around the interaction between the affective domain and learning. Here, two things should be taken into account: 1) threshold of evaluation, where the willingness to respond is the basis for psychomotor responses without which no evaluation of the learning process can take place and 2) threshold of consciousness, where awareness of the stimulus triggers the learning process, occurs at the point of consciousness. It serves as a link between the stimulus and the cognitive and psychomotor facets of a person's personality, which can be thought of as the whole of their values and beliefs and the degree to which they are manifested. Research raises the question of whether humans are even capable of functioning without thinking or feeling. The complexity of the objectives, associated behaviours, and evaluation materials varies, but at higher levels of complexity, this objective is combined with another, such as the capacity to apply the principles (psychomotor connotations). It appears very clear, that every individual answers as a "complete creature" or "entire being" the point at which they in all actuality do answer. By and large, teachers appear to want to accomplish the more elevated levels of emotional objectives in students, remembering fulfillment for reaction and fostering a system of values.

2.3. Assessment of Psychomotor Domain

The physical is part of the psychomotor domain. usage of the motor-skill regions, movement, and coordination. Practice is necessary for these skills to develop, and it's measured in terms of distance, accuracy, and speed, procedures, or execution of techniques. Psychomotor The goals are those that relate to discrete physical activities, reflexes, and interpretive motions. Traditionally, these goals have been focused on with the information being physically encoded, with activities involving motion or where both gross and fine For expressing or interpreting, muscles are used for expressing and interpreting concepts or knowledge.

Since movement and suitable competence may be demonstrated through action, movement is the secret to life and applies to all facets of it. The cognitive, emotional, and psychomotor domains are coordinated when someone moves with purpose (when something is being done for a reason and when they are feeling something). Furthermore, because movement is a necessary component of all life and is interwoven into it, it is challenging to identify behaviours that are specific to the psychomotor domain because visible behaviour is altered by the affective self. As a result, we behave in accordance with our feelings or beliefs. Once more, we must think about the difference between non-vicarious (learning by doing) and vicarious (learning by witnessing) learning and how it affects the psychomotor domain.

3. Methodology

The current study was conducted by using a qualitative research design to explore the perceptions and practices of teachers about assessment of three Bloom's learning domains. The

population consisted of 45 total university teachers and by adopting convenient sampling technique, six teachers gave consent to be participant of the study. To collect data, six semi-structured interviews were conducted from three male and three female teachers of a university by personally visiting them, out of which two teachers were assistant professors and four were lectures. The open-ended, adaptable, and expandable nature of the interview questions was intentional. In order to boost validity, specific interview questions were created that asked the same things but in a different way. This study's methodology included developing questions and techniques, data collection through interviews, coding analysis, grouping codes into themes, and interpretation.

All research ethics were followed carefully while conducting this study which include taking written consent from participants to be the part of study, sharing the benefits and harms of the study with them, audio recording interviews with the consent of interviewees and sharing final translated and transcribed interviews with participants for verification.

4. Findings and Discussion

4.1. Concept of teaching and learning

Lifetime process	3
Engage, inspire, and guide students	4
Knowledge delivering	2

Assessment is linked with the teachers' concept of teaching and learning (Azis, 2012). Therefore, first, teachers were asked what they think about teaching and learning. As it can be seen in the table that most of the teachers consider that teaching and learning involves engaging, inspiring and guiding students. Followed by this, three teachers consider it a lifetime process and few teachers consider is as a process of knowledge delivering. These responses show that teachers did not have traditional concept of teaching and learning, they consider it a lifelong and never ending process.

4.2. Ensuring students learning

Feedback	2
Project and quiz	3
Question and discussion	2

In response to the answer about how teachers ensure that students have learned after their teaching, three teachers responded that by assessing their projects and by taking quiz from students. Two teachers said that they give and take feedback to students and two other teachers said that they assess students' learning by questioning and discussing with students.

4.3. Meaning of assessment.

Examination, assignment, MCQs, test, and Q and A	3
Knowledge checking	3
Improvement	1
Skills	1

Another important question asked from teachers to analyze their conceptions about classroom assessment was meaning of assessment. It can be seen that most of the teachers consider assessment as examination, MCQs, tests, Q&A and knowledge checking process. However, this is totally contrary to what they consider the process of teaching and learning and what they do to ensure students' learning. While, one teacher said that assessment of skills should be done. According to her: "Our culture and our examination system is design this way that we are assessing their knowledge, so according to me student assessment should not be based on knowledge but based on skills". The teacher has acknowledged the importance of assessing other domain of learning; however, found to be reluctant by the system. Surprisingly, only one teacher responded that assessment means improvement which should have been responded by everyone but unfortunately only one had reported that.

4.4.Importance of Assessment

To ensure learning	5
To motivate and give feedback	2

Five interviewees said assessment was important for ensuring learning, whereas two participants thought it was important for motivating and providing feedback to assess students. Again, this is also in contradiction with the perception of importance and meaning of assessment.

4.5.Tools and methods of Assessment

MCQs, Test, Assignment, Questions and Answers	5
Rubrics	1

The above table shows the frequency of interviewees responses about tools and methods of assessment they use in class. Majority of the teachers said that they use MCQs, tests, assignments, and Q&A which are mostly under the domain of summative assessment. This is also reflected by one of the teachers' responses;

"I usually put question answer session in my end of the class then I assess how they are responding to me through their answers I assess how much they can learn or gain knowledge of my lecture and after end of the chapter I take quiz and I assess through quiz how much they learn".

Only one teacher said rubrics for assessing students' learning.

4.6.Blooms taxonomy

Familiar	3
Not familiar	3

The teachers were also asked whether they know about Bloom’s taxonomy. The two teachers who belonged to medical sciences field were totally unaware about it and one teacher of computer science also did not know about it. The other one had recently got training on assessment, one had PhD from UK and other was of education field. From this it can be seen that people from social science fields are more aware about Bloom’s taxonomy while others are not.

4.7.Role of motivation and attitude

Perform even difficult tasks	4
Give best results	2

To know about perceptions and practices of affective domain, the teachers were asked about the role of motivation, willingness and interest of students in the education. Many had agreed that it helps them perform even difficult tasks when they are motivated and interested in doing anything. Apart from this, they also mentioned that when students are motivated then they give best results and their achievement also increases.

4.8.Examples to Motivate Students

Not any	2
Activities	1
Scope of job opportunities	2
Simple tasks	1

However, when they were asked to share an example which they use to motivate students or assess students’ motivation and emotions. Two teachers clearly refused that they don’t know any, two teachers share that they give examples for getting job after completing degree. Their responses are below:

One example is that I usually give them example of getting a job like if you don’t learn then you won’t be able to get a good job in future. That also creates automatically good motivation for study. (K)

-----the scope of this particular thing how much you can earn because that’s a factor as everyone studying here is for money and we want to earn to support home in the future. When they know that how much scope it has and how much earning opportunities are there then they will be motivated from this thing. (M)

The remaining two teachers mentioned that they use interesting activities to keep students motivated.

4.9.Psychomotor Activities

Not any	4
Lab experiments	2

Surprisingly, only two teachers mentioned that they involve students in psychomotor activities in terms of lab experiments. One teacher was of biotechnology and other was of computer science, they do so because it is the requirement of their subject, their responses are below:

As per my field we are scientists I engage students in different lab experiments. I always ask them to go and see and get some plants and examine their leaves what so ever what they differ how they differ how they resemble this is your technology. (R)

Our filed is divided in two sectors “Hardware and Software” so we talk about software it is completely based on machine. So they have to do everything with machines so we can say it’s any psychical model but it’s a physical software, so it is kind of that approach. I do involve them; every semester have to make a project to earn their 25% graded of lab task, so they are involved in future they gone to learn hardware projects, they will make these Drones and all these automatic vehicles, robots or many other home -automation system. They will be making something physical. If not a model than a prototype. (M)

Two teachers clearly refused to involve students in any psychomot activities while remaining two said that they sometimes involve students by engaging them to go into field collect data and report findings. These findings give an implication to again social science subjects to involve students in practical work.

5. Conclusion and Recommendations

The primary purpose of the current study was to explore the assessment practices of university teachers in Blom’s three learning domains. The purpose was achieved using qualitative approach and semi-structured interviews were conducted from six teachers. The findings showed that :50% teachers were not aware about bloom’s taxonomy: only cognitive skills are assessed by faculty teachers and the affective and psychomotor domains’ assessment remain the most neglected areas. The study has contributed significantly in understanding the assessment practices of university teachers; however, the data was collected by taking interviews only. To under the assessment practices in better way, future research should be conducted by using classroom observation technique.

Based on these findings it is recommended that:

- a) a session may be arranged to aware the teachers that how they conduct assessment accordingly,
- b) teachers may be encouraged to utilize holistic assessment approaches,
- c) marks may be be dedicated in all courses for assessment of affective and psychomotor skills.
- d) HEC may arrange training on holistic assessment for faculty teachers.

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