



WEB BASED LEARNING ASSESSMENT SYSTEM

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CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter provides a comprehensive review of the development and implementation of learning assessment systems. It support an exploration of existing work in the field, theoretical concepts that support these systems, and a summary of the key points discussed. This review aims to establish a foundation for understanding how learning assessment systems have evolved, their current state, and the theoretical frameworks that support their design and functionality.

2.1 Reviewed Related Work

Learning assessment systems have undergone significant transformations with the advent of technology, moving from traditional paper-based methods to dynamic, interactive digital platforms. These systems are now integral to the educational process, aiding in the evaluation of student performance and informing instructional strategies. The following sections delve into the related works that have shaped the current landscape of learning assessment systems, highlighting key developments and innovations

2.1.0 Student Assessment System at Secondary Level

This article discusses assessment in the context of student learning outcomes. It covers terms related to assessment in secondary school.

Student assessment is the pivotal piece around which school improvement take place. Assessment of student learning is undergoing profound change. For the parents and students, improving the quality of education invariably means raising the levels of academic performance usually measured in the test scores in various subjects of school curriculum. Good assessment system must rest on strong educational foundations. These foundations include organizing schools to meet the learning needs of all their students, understanding how students learn, establishing high standards for student learning, and providing equitable and adequate opportunity to learn. Assessment systems report on and certify student learning and provide information for school improvement and accountability. Information for accountability and improvement comes from regular, continuing work and assessment of students in

schools and from large-scale assessments. Assessment systems are regularly reviewed and improved to ensure to be beneficial to all students.

After many years in the comfort of general public trust, education has come under scrutiny. Educating children eventually produces more educated adults, and many economists have suggested that this type of investment raises incomes in developing countries more than in others. This opinion is backed by Nobel prize-winning research (Schultz, 1989). Investment in human capital has caused economic growth in East Asia (McMahon, 1998). A year of education is associated with a 3 to 14% increase in wages and productivity in Sub-Saharan Africa (Simon, 2000). In Taiwan, it is found that rising education rates positively correlated with growth since 1960 (Lin, 2003). In such a situation of priority given to education, simply investing in the system and letting it develop in its own way and produce the results as a natural output will not be the spirit of management. There must be some type of controlling mechanism incorporated in the system itself for ensuring the quality and efficiency of the system to ascertain the envisioned goals of the nation as well as the society.

2.1.1 When an Assessment System Works to Improve Learning: the Case of Sobral

Students in the Brazilian municipality of Sobral have made remarkable progress in foundational learning, surpassing national trends. Systematic learning assessments and the accountability they foster are central to this success. Let's take a closer look at Sobral's education reform. In 2005, student learning outcomes in Sobral lagged behind the national average. Yet, through the right policy reforms and targeted interventions, Sobral not only reversed this trend but also significantly accelerated learning, even after adjusting for learning losses due to the COVID-19 pandemic.

A cornerstone of success has been the implementation of multiple learning assessment activities to understand what students know and can do, and the effective use of assessment results in improving learning outcomes. In Sobral, learning assessments are used to monitor students literacy and numeracy skills, adjust instruction, and provide supplementary learning resources and remedial education for students in need. Learning assessment results are also utilized to set learning targets for schools, ensure accountability for continuous improvement, and tailor in-service training for school leadership. Furthermore, assessment results are used to provide financial incentives to high-performing teachers and schools, allocate additional financial support for schools

not reaching specific targets, and hold officials from the municipal department of education accountable for poor performance.

Sobral places significant emphasis on learning assessments for continuous improvement and accountability, utilizing the results to make informed decisions and promote activities aligned with the broader goals of the education system. In this sense, these assessment activities help Sobral set clear learning targets for the local education system, guide the development and revision of teaching and learning materials, inform the professional development needs of teachers, and support remedial education and extracurricular activities for students who need additional assistance. (Diego Luna-Bazaldua & Louisee Cruz, April 02, 2024)

2.2 Conceptual Framework

The conceptual framework for learning assessment systems is grounded in several theoretical concepts that inform their design, implementation, and effectiveness. This section discusses key theories and models that are relevant to understanding how these systems operate and achieve their educational goals.

2.2.1 Constructivist Learning Theory

Constructivist learning theory is an educational theory that suggests that learners construct their own understanding through experiences and social interactions. Constructivist learning theory is based on the idea that learners use their cognitive abilities to process information and internally relate new information with existing information. When faced with new information, learners view it through the lens of their current understanding, beliefs, and cultural background, which all influence their interpretation of the new information. (Saul Mcleod, PhD, 2023)

This theory support many modern assessment systems that emphasize interactive and experiential learning activities. By incorporating elements such as simulations, problem-based learning, and real-world scenarios, these systems encourage students to actively engage with the material, thus encourage deeper understanding and retention of knowledge.

2.2.2 Bloom's Taxonomy

Bloom's taxonomy is a hierarchical model that classifies educational learning objectives into six levels of complexity and specificity. The model was developed by

Benjamin Bloom in 1956 and helps educators create learning goals and assessments.

The taxonomy includes six levels:

- Knowledge: Remembering information
- Comprehension: Explaining the meaning of information
- Application: Using abstractions in concrete situations
- Analysis: Breaking down a whole into component parts
- Synthesis: Putting parts together to form a new and integrated whole
- Evaluation: The highest and most advanced level of Bloom's taxonomy

This framework is widely used in the creation of assessment tools to ensure they measure a range of cognitive skills, from basic knowledge recall to higher-order thinking skills. Effective learning assessment systems incorporate tasks and questions that span all levels of Bloom's Taxonomy, thereby providing a comprehensive evaluation of student learning.

2.2.3 Self-Regulated Learning

Self-regulated learning refers to one's ability to understand and control one's learning environment. Selfregulation abilities include goal setting, selfmonitoring, self-instruction, and self-reinforcement (Harris & Graham, 1999, Crippen, & Hartley, 2006).

Self-regulated learning emphasizes the importance of metacognitive skills, motivation, and behavior in the learning process. Learning assessment systems that incorporate Self-regulated learning principles provide tools and features that help students plan their learning, track their progress, and reflect on their performance. This can include goal-setting modules, progress dashboards, and reflective journals.

2.3 Chapter Summary

This chapter reviewed the literature on learning assessment systems, covering their evolution, current state, and theoretical foundations. The Reviewed Related Work section highlighted the shift from traditional methods to interactive digital platforms, emphasizing the importance of strong educational foundations and accountability in improving educational outcomes. Notable examples include the transformation of student assessment systems at the secondary level and the successful education reform

in Sobral, Brazil, which used systematic learning assessments to enhance student performance.

The Conceptual Framework section discussed key theoretical concepts that support learning assessment systems. These include Constructivist Learning Theory, which emphasizes active and experiential learning; Bloom's Taxonomy, which helps create assessments that measure a range of cognitive skills; and Self-Regulated Learning, which focuses on metacognitive skills, motivation, and behavior in the learning process.

this chapter established a foundation for understanding the design and effectiveness of learning assessment systems, setting the stage for further research and practical application in educational assessment.