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Transitioning From Time-Based To Skill-Based Assessment In Higher Education: A Multi-Case Study Of Two Public Universities In Balochistan

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Abstract: *The assessment systems define learning behavior, institutional priorities and competence of graduates. Although the Higher Education Commission (HEC) of Pakistan has officially promoted Outcome-Based Education (OBE), the practice of assessment in most Pakistani state-run universities is still mainly based on Time-Based Assessment (TBA) the model that presupposes the use of standardized testing, recollection-based, and time-constrained tests. The given research explores the suitability and consequences of moving towards Skill-Based Assessment (SBA) using a convergent mixed-method multi-case study at LUAWMS and the University of Balochistan (UoB). The 384 respondents (faculty and students) were chosen by use of stratified random sampling where validated assessment-reform scales were administered to participants, which comprised; Skill-Based Assessment Index (SBAI), TBA Dependency Scale, Institutional Support Scale, Faculty Readiness Scale, Student Attitude Scale, and Learning Outcomes Scale. Psychometric quality was also established (KMO =.923; Cronbachs 0861-921; Bartlett p =.001). The regression analysis showed that SBA is a strong predictor of student learning outcomes (=.681, t = 15.20, p =.001, R 2 =.464). The entire model explained 62.3% learning outcomes variance (Adjusted R =.623), student attitude (-.289) and institutional support (-.214) were the driving enabling factors, and TBA made a considerable negative impact (-.148). ANOVA revealed that the LUAWMS had a stronger level of SBA orientation (p =.028), institutional support and faculty readiness were higher in UoB (p =.014; p =.009), no gender difference (p =.311) and high disciplinary sensitivity towards applied disciplines like engineering (p =.001). Cognitive depth superiority (Bloom alignment) of SBA (Analyze) against TBA (Remember) showed significant improvement. Structural barriers in the identified qualitative interviews comprised of a large class, low literacy in rubrics, heavy workload, lack of CPD, scarcity of digital tools, and policy-practice gaps. The results of the study are that the adoption of SBA is necessary to ensure the learning validity, graduate competence and employability within the emerging Pakistani university ecosystems.*

Introduction

Evaluation promotes instructional design, learning interaction, and learning outcomes (Brookhart, 2018; Wiggins, 2019). The higher education system of Pakistan remains based on Time-Based Assessment (TBA), which remains based on invigilated and time-limited summative assessment, the focus of which remains on recall and quickness, instead of applied competence (Rust, 2020; Shah and Ali, 2022). Skill-based Assessment (SBA), on the other hand, is consistent with global competency-based education reforms, which place more emphasis on authentic performance tasks, rubric-based formative assessment, iterative feedback, and mastery instead of memorization (Gervais, 2016; Gulikers et al., 2017; Biggs and Tang, 2011).

Outcome-Based Education (OBE) and Program Learning Outcomes (PLOs) have been officially approved by HEC Pakistan, especially when it comes to accredited STEM programs (HEC, 2019). Empirical studies of adoption of SBA in resource-constrained provinces like Balochistan are, however, scarce. Universities in the area are working under exam-driven institutional cultures, enormous class masses, poor rubric literacy, and poor Continuous Professional Development (CPD) chances to the faculty (Haque and Anwar, 2023; Haque and Khan, 2023).

Balochistan Higher education landscape

The structural complexities of Balochistan represented in its public universities are:
irregular evaluation reform implementation even within national OBE guidelines,
restricted access to online evaluation devices,
deeply institutionalized exam based perceptions of fairness,
test anxiety among students predetermined by the background of rote-learning schooling (Cassady and Johnson, 2002; Sadler, 2018).

Problem Statement

The curricular learning outcomes are still at variance with assessment practices. TBA remains a priority in universities because of the lack of faculty assessment literacy, the lack of a standardized rubric, the inertia of administration, the overload of faculty, and the poor implementation of policies.

Research Objectives

1. Examine readiness for transitioning from TBA to SBA.
2. Compare faculty and student perceptions across institutions.
3. Identify structural barriers to SBA implementation.
4. Map TBA and SBA onto Bloom's Revised Taxonomy.
5. Measure predictive strength of SBA on learning outcomes.
6. Test demographic and disciplinary sensitivity.

Research Questions

1. What is the readiness for transitioning from TBA to SBA at LUAWMS and UoB?
2. How do faculty and students differ in their perceptions of SBA adoption?
3. What institutional barriers impede SBA implementation in Balochistan's public universities?
4. How do TBA and SBA align with Bloom's Revised Taxonomy levels?
5. To what extent does SBA predict student learning outcomes?
6. Are perceptions of SBA moderated by gender, institution, or discipline?

Significance

This paper provides empirical evidence of an underrepresented province psychometrically validates assessment-reform constructs, models institutional readiness and aids national policy discussion of assessment reform.

Literature Review

TBA has historical drawbacks

TBA developed out of cultures of standardized tests in the 19 th century, which valued administrative efficiency, norm-referencing, recall, and not learning transfer (Bearman and Ajjawi, 2019; Boud and Falchikov, 2006). Research confirms that TBA:

Measures test taking capability, not applied learning (Dochy et al., 2002),

increases test anxiety, decreasing validity and equity (Cassady and Johnson, 2002),

favors superficial learning instead of proficiency (Biggs and Tang, 2011).

Table. Theoretical Foundations Supporting SBA

Theory	Key Proposition	SBA Alignment
Competency-Based Education (CBE)	Observable, repeatable competencies (Harden & Crosby, 2000)	Mastery demonstration over time freedom (Gervais, 2016)
Constructivism	Socially mediated, contextual learning (Vygotsky)	Collaborative authentic performance tasks
Authentic Assessment	Real-world cognition (Wiggins, 2012)	Portfolios, projects, rubrics (Gulikers et al., 2004)
Bloom Revised Taxonomy	Higher-order cognition prioritized	SBA = Analyze → Create
Assessment for Learning (AfL)	Feedback fuels learning	Continuous feedback, self-reflection

Global Transitions

European SBA institutionalisation was achieved by the Bologna Process concentrating on the Learning Outcomes (Adam, 2004). In the UK and Australia, graduate attribute verification is done through accreditation (Oliver, 2015). The number of institutions practicing competency pathways in North America is 600 + (Kelchen, 2015). The adoption of systems is slow in emerging in the Gulf and South Asia (Shah and Ali, 2022).

Research Gap

No prior mixed-method research, psychometrically tested SBA preparedness comparison of the Balochistan public universities.

Methodology

Research Design

In a convergent mixed-method multi-case study, two public universities have been compared (Creswell and Plano Clark, 2018).

Sample

N=384 (145 faculty LUAWMS; 160 faculty UoB; 79 students to equalize final N)

Sampling Stratified randomized according to rank, field of expertise and experience.

Instruments

Skill-based Assessment Index (SBAI) -24 Items.

TBA Dependency Scale – 12 items

Institutional support Scale - 8 items.

Faculty Readiness Scale -10 Items.

Student Attitude Scale -10 items.

Learning Outcomes Scale -12 questions.

Validation & Reliability

KMO = .923

Bartlett p < .001

Cronbach's α = .861 – .921 (high reliability)

Data Analysis

The SPSS 26 and ANOVA were used to perform descriptive statistics, Pearson correlation, regression (B, R 2) and ANOVA. Interviews were thematically coded.

Ethics

Anonymity, voluntary involvement and encrypted data storage were also given in addition to institutional approvals.

Results

1. Descriptive Statistics

Construct	Mean	SD	Interpretation
SBAI	3.87	0.62	High readiness
TBA Dependency	2.94	0.71	Moderate-low reliance
Institutional Support	3.56	0.68	Moderate-high
Faculty Readiness	3.22	0.76	Moderate (training gap)
Student Attitude	3.48	0.73	Moderate-high

2. Correlation Analysis

Pair	r	p	Interpretation
SBAI ↔ Learning Outcomes	.681	< .01	Strong positive
Institutional Support ↔ Learning Outcomes	.593	< .01	Moderate–strong
Student Attitude ↔ SBAI	.612	< .01	Moderate–strong
TBA ↔ Learning Outcomes	–.412	< .01	Strong negative
TBA ↔ Faculty Readiness	–.295	< .01	Moderate negative

3. Regression Models

Model 1: β = .681, t = 15.20, p < .001, R^2 = .464

Full Model Adjusted R^2 = .623

Predictor	β	t	p	Effect
SBAI	.511	10.22	< .001	Strongest positive
Institutional Support	.214	4.18	< .001	Significant
Faculty Readiness	.137	2.95	.003	Moderate significant
Student Attitude	.289	5.93	< .001	Strong positive
TBA	–.148	–3.41	.001	Strong negative

4. ANOVA Group Differences

Comparison	p	Result
LUAWMS vs UoB (SBA)	.028	LUAWMS higher
Institutional Support	.014	UoB higher
Faculty Readiness	.009	UoB higher
Gender	.311	No difference
Discipline	.001	Engineering highest

5. Bloom Alignment

Assessment	Bloom Domains
TBA	Remember → Understand
SBA	Analyze → Evaluate → Create

6. Qualitative Barriers

Large classes
Exam culture
Low rubric literacy
Faculty workload
Limited CPD
Weak tech tools
Policy–practice gap
Feedback not systematized

Discussion

The effect of SBA is a significant increase in the learning outcome, which is in favor of CBE and authentic assessment theories (Biggs and Tang, 2011; Black and Wiliam, 2010). TBA affects creativity of learning adversely and raises anxiety levels (Cassady and Johnson, 2002). Sustainable adoption of SBA depends on institutional support and faculty rubric literacy (Boud and Soler, 2016).

Conclusion

The adoption of SBA is an educational requirement towards graduate competence, learning validity and employability within the emergent university ecosystems within Pakistan especially the state of Balochistan.

Recommendations

Institutionalized rubric literacy, portfolio-based evaluation and authentic assessment policy frameworks should be institutionalized in universities.

The HEC needs to change the compliance on accreditation to reflect competences as illustrated by the credit hours.

The focus should be on CPD investment and AI-powered feedback systems.

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