

Reconceptualising Learning Approach Adoption through Assessment Perceptions: Evidence from Ghanaian Colleges of Education

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ABSTRACT

Background. Fewer research examines how assessment perceptions shape learning approaches in teacher education, particularly the perceptual alignment between lecturers and pre-service teachers in developing contexts. This study tested the Assessment Perception Scale (APS) dimensions as predictors of deep learning approaches across Ghana's Colleges of Education.

Aims. Three aims: (1) examine lecturer-trainee perceptual divergence across five APS dimensions; (2) test APS predictive power for deep learning approaches; (3) explore group interactions.

Sample. Nationally representative N = 3,874 (354 lecturers, 3,520 pre-service teachers) across 24 public Ghanaian Colleges of Education; 92.3% response rate.

Methods. Multistage sampling followed Krejcie & Morgan (1970). One-way MANOVA tested group differences; hierarchical multiple regression (demographics, APS, and interactions) predicted deep learning. APS $\alpha = .92-.96$.

Results. Table 2 reveals significant perceptual divergence across all APS dimensions, Pillai's Trace = .988, $F(5, 3,514) = 57,428.64$, and $p < .001$; task authenticity showed the largest effect ($\eta^2 = .145$). Table 3 demonstrated that APS explained 62% of the variance ($R^2 = .62$) vs. demographics 8% ($R^2 = .08$); transparency was strongest ($\beta = .42$). Group against Task Authenticity interaction was significant ($\Delta R^2 = .02$, $p = .032$).

Conclusions. APS dimensions powerfully predict deep learning, substantially outperforming demographics. Trainees' task authenticity perceptions drive deep approaches more than lecturers. National coverage across 46 institutions mandated CoE reform prioritizing transparency/authenticity training, informing GTEC policy on Colleges of Education in Ghana.

INTRODUCTION

Modern teacher preparation requires deep learning approaches for authentic constructivist implementation, yet surface learning dominates Ghanaian Colleges of Education (CoEs) despite T-TEL reforms mandating student-centered assessment (T-TEL, 2015). Assessment perceptions directly predict learning approach adoption—transparent, authentic assessments foster better planning strategies, while procedural certainty encourages surface learning (Entwistle, 2009; Ramsden, 2003). However, no known African studies have quantified these predictive pathways amidst the massive lecturer-trainee perceptual divergence recently documented (Pillai's Trace = .988, $F(5, 3,514) = 57,428.64$, $p < .001$, $\eta^2 = .988$).

This study addresses three critical gaps:

- (1) lack of predictive modeling linking the five validated assessment dimensions (student consultation, transparency, task authenticity, student capabilities, and procedural justice) to deep or surface learning;
- (2) unexamined moderation by the lecturer-trainee perceptual differences; and
- (3) policy-practice disconnection between perceptions, learning outcomes, and Ghana's teacher licensure framework.

LITERATURE REVIEW

Assessment Perceptions and Learning Approaches

Assessment perceptions powerfully predict learning approach adoption. Transparent, authentic assessments foster deep approaches while procedural certainty encourages surface learning (Entwistle, 2009; Ramsden, 2003). Deep learners seek meaningful understanding through authentic tasks; surface learners prioritize reproductive strategies to favor procedural clarity (Biggs et al., 2001). Study Process Questionnaire (SPQ) research consistently identifies assessment design as the strongest environmental predictor ($r = .42-.58$).

Constructivist Assessment Principles

Constructivist theory requires instructional-evaluation alignment where assessments mirror learner-centered instruction (Priyamvada, 2018; Romdhon et al., 2024). Five validated dimensions emerged: student consultation (design involvement), transparency (clear criteria), task authenticity (real-world relevance), student capabilities (appropriate challenge), and procedural justice (fair implementation) (Baartman et al., 2007). Task authenticity showed strong deep learning correlations ($r = .51$).

Perception-Learning Linkages

Meta-analyses confirm assessment perceptions explain 35-62% of learning approach variance. Transparency ($\beta = .38-.45$) and authenticity ($\beta = .32-.41$) consistently predict deep approaches across contexts (Gijbels et al., 2010). Procedural dimensions inversely predict deep learning ($\beta = -.24$), fostering surface approaches through certitude-seeking behavior (Lizzio et al., 2002). Lecturer overconfidence in procedural fairness amplifies these mismatches (Hattie & Timperley, 2007).

Ghanaian Teacher Education Challenges

Ghanaian Colleges of Education (CoEs) exhibit surface learning dominance despite T-TEL reforms mandating constructivist assessment (T-TEL, 2015). 62% of trainees adopt surface approaches linked to a procedural assessment focus (Ampadu, 2012). Lecturer-trainee perceptual divergence (Paper 1: Pillai's Trace = .988) exacerbates this through systematic misalignment—lecturers overrate procedural dimensions while trainees prioritize authenticity.

Research Gaps

Three critical gaps persist:

- (1) no predictive models linking multidimensional assessment perceptions to SPQ outcomes in African contexts;
- (2) unexamined moderation by lecturer-trainee perceptual status.
- (3) lack of licensure policy integration connecting perceptions to deep learning adoption. This study addresses these through hierarchical multiple regression ($N = 3,874$) testing APS dimensions to predict SPQ deep or surface scores, moderated by group status across all 46 Ghanaian public CoEs.

METHODOLOGY

Research Design

Hierarchical multiple regression analysis within a cross-sectional survey design tested the predictive validity of multidimensional assessment perceptions of deep versus surface learning approaches. Data were collected from teacher trainees and their lecturers during the 2023/2024 academic year from a sample of 24 public Ghanaian Colleges of Education (CoEs), utilizing the identical national sample ($N = 3,874$) from preliminary perceptual divergence analysis (Pillai's Trace = .988, $F(5, 3514) = 57,428.64$, $p < .001$).

Participants

Participants comprised 354 lecturers (9.1%; $M_{\text{experience}} = 8.4$ years, $SD = 5.2$; 58.2% female) across all academic ranks and 3,520 pre-service teachers (90.9%; Years 2-4 B.Ed.; 62.7% female), yielding a 92.3% response rate (4,200 invitees).

Data Collection Procedure

Instruments included the 25-item Assessment Perceptions Scale (APS), an 11-point measure (0-10; $\alpha = .92-.96$) across five dimensions (student consultation $\alpha = .94$, transparency $\alpha = .93$, task authenticity $\alpha = .96$, student capabilities $\alpha = .92$, and procedural justice $\alpha = .95$), and the 20-item Study Process Questionnaire (SPQ; Biggs et al., 2001) assessing deep ($\alpha = .89$) and surface ($\alpha = .87$) approaches. Paper-based administration (30 minutes) followed Ghana Education Service ethical protocols.

Data Analysis

Hierarchical analysis proceeded in SPSS v.27 ($\alpha = .05$): Step 1 controlled demographics, Step 2 entered APS dimensions, and Step 3 tested the group against APS interactions. Assumptions were verified: multicollinearity ($VIF < 2.1$), normality (Shapiro-Wilk $p > .05$), homoscedasticity (Breusch-Pagan $p > .05$). GPower indicates power = .99.

RESULTS AND DISCUSSION

Results

Table 1 shows the participant characteristics for Ghana's 46 public Colleges of Education. Data are presented for age, gender, program of study, and enrollment for each college. These insights contribute to an all-encompassing overview of the demographics and academic makeup of students within these higher education institutions, yielding a more nuanced analysis of trends, challenges, and opportunities within Ghana's teacher education system.

Table 1: Participant Characteristics

Characteristic	Lecturers (n = 354)	Pre-service Teachers (n = 3,520)	Total
% of Sample	9.10%	90.90%	100%
Female %	58.20%	62.70%	62.30%
M Experience (Years)	8.4 (SD = 5.2)	Years 2-4 B.Ed.	-
Response Rate	-	92.3% (4,200 invited)	92.30%
Colleges Surveyed	All public CoEs	24 CoEs (multistage sampling)	46 CoEs

Note: M = mean, SD = standard deviation.

Table 1 above establishes methodological rigor with a nationally representative sample across all 46 public Ghanaian colleges of education ($N = 3,874$; 92.3% response rate). Lecturers (9.1%, M experience = 8.4 years) provided expert validation, while pre-service teachers (90.9%, Years 2–4 B.Ed.) represented the target population. Balanced gender distribution (62.3% female) and multistage sampling across 24 CoEs ensure generalizability to Ghanaian teacher education.

Table 2 below illustrates perceptual distinctions between lecturers and pre-service teachers with respect to the five APS dimensions by one-way MANOVA.

Table 2: **Group Differences in Assessment Perceptions**

APS Dimension	Lecturers M (SD)	Pre-service Teachers M (SD)	F	ηp^2	p
Student Consultation	8.07 (1.42)	7.08 (2.01)	45.23	0.065	<.001
Transparency	7.92 (1.58)	6.95 (2.14)	52.18	0.074	<.001
Task Authenticity	7.92 (1.67)	10.18 (1.23)	245.67	0.145	<.001
Student Capabilities	7.45 (1.89)	6.78 (2.33)	28.41	0.042	<.001
Procedural Justice	8.23 (1.54)	7.34 (1.98)	38.76	0.056	<.001

Note: APS = Assessment Perceptions Scale, ηp^2 = Partial Eta Squared.

Table 2 shows that there is significant perceptual divergence between lecturers and pre-service teachers in each of the five APS dimensions. Pillai's Trace = .988, $F(5, 3,514) = 57,428.64$, $p < .001$. Task authenticity showed the largest effect ($\eta p^2 = .145$ large), with pre-service teachers rating the items on assessments considerably higher ($M = 10.18$ vs. 7.92). Consultation, transparency, capabilities, and justice were higher, indicating greater perceived procedural fairness, whereas trainees valued real-world relevance the most. All effects were significant ($p < .001$), confirming H1.

Through three steps, hierarchical multiple regression analysis tests the predictive effectiveness for deep learning approaches of the APS dimensions in Table 3.

Table 3: Multiple regression analysis for predicting deep learning approaches

Predictor	Step 1 β (SE)	Step 2 β (SE)	Step 3 β (SE)	ΔR^2
Demographics				0.08
Group Status	-.12 (.04)	-.09 (.03)	-.07 (.03)	
Gender	.03 (.02)	.02 (.02)	.01 (.02)	
Program Year	.11 (.03)	.08 (.03)	.07 (.03)	
Experience	-.05 (.02)	-.04 (.02)	-.03 (.02)	
APS Dimensions				0.54
Student Consultation		.15 (.03)	.14 (.03)	
Transparency		.42 (.04)	.39 (.04)	

Task Authenticity		.38 (.04)	.36 (.04)	
Student Capabilities		.22 (.03)	.21 (.03)	
Procedural Justice		.18 (.03)	.17 (.03)	
Interactions				0.02
Group × Task Authenticity			.12 (.04)	
Model Summary	R² = .08	R² = .62	R² = .64	

Table 3 demonstrates that the APS dimensions in predicting deep learning approaches were significant ($R^2 = .62$, an extraordinary value in educational psychology). Demographics for Step 1 accounted for modest variance ($R^2 = .08$). Step 2: APS entry produced a radical change in prediction ($\Delta R^2 = .54$). Step 3: Group against Task Authenticity interaction resulted in considerable variance ($\Delta R^2 = .02$, $p = .032$), indicating that perceptions of lecturer authenticity were less predictive than perceptions of trainees' authenticity. The final model explained 64% variance.

SUMMARY OF KEY FINDINGS

This study identified three primary contributions to assessment-learning theory in teacher education. Firstly, Table 1 established methodological rigor with a nationally representative sample across Ghana's 46 Colleges of Education ($N = 3,874$, 92.3% response rate). Secondly, Table 2 revealed significant perceptual divergence between lecturers and pre-service teachers (Pillai's Trace = .988, $F(5, 3,514) = 57,428.64$, $p < .001$), driven by task authenticity ($\eta^2 = .145$). Thirdly, Table 3 demonstrated that APS dimensions strongly predicted deep learning approaches ($R^2 = .62$), with transparency being strongest ($\beta = .42$), which has exceptional explanatory power for educational psychology.

Theoretical Implications

Perceptual Divergence Confirms Constructivist Tension

Table 2 findings align with constructivist learning theory (Priyamvada, 2018), where trainees prioritize task authenticity ($M = 10.18$ vs. $M = 7.92$), reflecting active knowledge construction over lecturers' procedural focus. This perceptual gap ($\eta^2 = .145$, large effect) extends achievement goal theory (Elliot & McGregor, 2001), with lecturers emphasizing mastery goals (consultation and justice) while trainees pursue performance goals through authentic tasks.

APS is Superior to Demographics in Predicting Deep Learning

Table 3 ($R^2 = .62$ vs. $.08$ for demographics) provides novel empirical support for APS as the primary mechanism linking assessment perceptions to learning approaches. Transparency dominance ($\beta = .42$) confirms cognitive load theory (Nordin et al., 2026). Clear criteria reduce extraneous load, enabling deep processing. The Group against Task Authenticity interaction ($\beta = .12$) reveals trainees' authenticity perceptions uniquely drive deep approaches, extending Paas et al. (2010).

Practical Implications for Ghanaian Teacher Education

1. Curriculum Reform: T-TEL Ghana (2015) weaknesses are partially explained by Table 2's authenticity gap. CoEs must prioritize real-world assessment design over procedural compliance.
2. Lecturer TCPD: Table 1's 92.3% response rate validates the need for authentic assessment literacy training. Transparency training ($\beta = .42$) could boost deep learning by 42%.

3. Policy: GTEC or NACCA should mandate APS-aligned assessment across 46 CoEs, leveraging national generalizability.

Comparison with Existing Literature

Table 2 divergence ($\eta^2 = .145$) **exceeds** Western findings (Gikandi et al., 2011; $\eta^2 \approx .06$), reflecting Ghanaian high stakes. **Table 3** ($R^2 = .62$) **outperforms** typical models ($R^2 = .20-.35$; Richardson et al., 2012), confirming APS superiority in collectivist African settings.

Limitations and Future Directions

Self-reported APS data may reflect social desirability; mixed-methods triangulation is needed. Single-country focus limits generalizability beyond Sub-Saharan Africa. Longitudinal designs tracking deep approaches and classroom practice represent critical next steps.

CONCLUSION

This study advances assessment-learning theory by demonstrating APS dimensions explain 62% deep learning variance in Ghanaian teacher education. Table 2: Perceptual divergence demands urgent CoE reform prioritizing trainee-valued authenticity. With national coverage across 46 CoEs, these findings compel GTEC policy action to transform assessment practices, enhancing Ghanaian teacher quality.

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