Portfolio Assessment and Contact-Hour-Based Evaluation (ChbE) in Architectural Education

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Abstract

In Architectural Education, the assessment of design courses involves the collective participation of the studio masters, the jurors, and the department board to assess the student's ability to interpret and proffer solutions from thought processes to design proposals. Unfortunately, the assessment process is heterogeneous in the National Board for Technical Education (NBTE) accredited Schools of Architectural Technology, as institutions deploy atypical assessment scoresheets with varying variables and concomitant weightings. In most cases, such non-standard assessment variables laud students' cognitive ability to the detriment of their affective and psychomotor persuasions in design development. This has structurally flawed the measurement of performance in the design ethos of Architectural Technology students. This issue necessitated the inception of this study towards defining the limits of assessment and evaluation protocols of design courses in Architectural Education and determining the variables that constitute criteria for assessment of portfolios. The study involved four (4) NBTE-accredited institutions that offer Architectural Technology. The methodology adopted structured questionnaires and interviews, observations, comparative analysis of scoresheets from such institutions, and archival retrieval of policy documents. Purposive sampling was adopted to administer structured questionnaires to 45 lecturers out of 63 lecturers serving in these institutions thus constituting 71.43% of the academic staff population. Results revealed poor evaluation of design miscellany in Architectural Education and the adoption of an incompatible assessment structure of design courses in the October 2020 NBTE curriculum for Architectural Technology. The study recommended the adoption of a standard Portfolio Assessment Sheet (PAS) and nouveau Contact-hour-based Evaluation module (ChbE) for measuring competence in design miscellany. A review of the assessment structure of design courses in the October 2020 NBTE curriculum and appraisal of the subsisting policy on Architectural Education were also considered imperative.

Keywords: Architectural Education, Contact-hour-based Evaluation (ChbE), Design Ethos, Design Miscellany, Juror, Portfolio Assessment Sheet (PAS).

Introduction

In architectural education, portfolio delivery is an important assessment route which provides an opportunity that effectively critiques a learning curve (Ghada, 2016). As most assessment tools revolve mainly around cognitive perceptive skills, portfolio delivery has

become a veritable tool to determine the learning outcomes of the student vis-à-vis design upshots; his strengths and weaknesses to specific areas of the scheme and his/her ability to convince the jury on the viability and workings of a scheme. These pulsations help the jurors assess the students' cognitive ability in spatial analysis, micro and macro environment, ability to consummate and interpret the design, communication skills, technical acuity/savvy, and visual interpretation (Jamal & Guillermo, 2006). This effectively surmises that portfolio assessment is a process that can serve varied purposes, including helping to exhibit a student's efforts, progress, and achievements in various areas of the design curricula (University of Hawai'i, 2023). In Architectural Education, portfolio assessment is an examination of student-selected samples of work experiences and documentation related to schemes being assessed, and it can address and support progress towards achieving academic goals, including student efficacy (Joan & Stephen, 2023). These outcomes are schemes students have worked on under the strict guidance of their studio masters and supervisors who schedule jury sessions for assessment purposes on the closure of the learning process (Wendelien & Leentje, 2008). In as much as these assessment processes have been institutionalized in the pedagogy of Architectural Education, these authors have over the years, noted a lacuna in the impact of portfolio assessment towards improving learning output in design miscellany. It must be stated categorically that design miscellany is the cumulative learning experiences offered by entire design courses in a program (Marcelo, Brock, & Yishay, 2015). Such design miscellany produces an output that exudes interpretative ability and the student's inferential inclinations in design (Ebelechukwu & Jonathan, 2023). This output is important to ascertain the ability and capacity of students in design. Such closure has not been effectively assessed due to the near-absence of proactive evaluatory mechanisms (Nwankwo, Diogu, & Obasi, 2014). Assessment tools are configured to scale the quality of a learning process. These processes determine, in numerical scores, the performance of students in particular architectural design indicators concomitant to the level of the diplomate; all with cognitive underpinnings. This is completely different from evaluatory criteria which measure the output and capacity of students in affective and psychomotor domains (Leslie, 2023). Most assessment route only boosts cognitive stimulation (Bitbrain Team, 2023). This underscores the need to produce individuals with high and effective output in every learning domain as assured through proactive evaluatory mechanisms. The foundation has already been laid through the assessment of portfolios. However, the entire process must be seen through understanding that proficiency in singular design courses does not translate to capacity in design miscellany (Michael & Don, 2020). A student is deemed dexterous in design if such a student exhibits capacity, not just in assessment, but also in evaluation; when an unbiased instructor can pass clinical judgment of such a student's overall ability in design (National Academy of Sciences, 2020).

Problem Statement

The current adoption of atypical appraisal methods which rely heavily on jury portfolio ratings has failed to provide a holistic evaluation of students' creative, technical and apperception competencies in design miscellany. This has necessitated the need to bring to the fore, the issue of the poor evaluatory mechanism of design miscellany in the National Board for Technical Education (NBTE)-accredited schools of Architectural Technology (Nicholas, Joy Sylvia, Francis, & Rosemary, 2022).

Aim and Objectives

The aim is to develop an integrated evaluation framework that combines Portfolio Assessment and Contac-hour-based-Evaluation (ChbE) to holistically assess the creative, technical and apperception competencies of architectural technology students. The objectives of this study include:

a. define the limits of assessment and evaluation protocols in design miscellany,
b. determine the variables that constitute criteria for the assessment of portfolios,
c. know the variables that constitute criteria for evaluation, and
d. show how an effective portfolio assessment template and nouveau Contact-hour-based Evaluation (ChbE) will appropriately measure the performance of an Architectural Technology student in design miscellany.

In (a), this paper will offer existing scenarios of assessment and evaluation in Architectural Education. Resources, lending credence to this assessment, were drawn from the recently approved NBTE curricula for Architectural Technology. In (b) and (c), efforts were made to outline the variables adopted for assessing schemes in jury sessions across NBTE-accredited schools of Architectural Education. These variables have been collated over time through participation in exit jury examination sessions of NBTE-accredited schools of Architecture as contained in jury scoresheets. There will also be expository references of evaluatory indices as floated by unique pedagogy vested in design education. In (d), this study floated, for the first time, a template that is expected to proffer the true status of students' assessment and evaluation performances in design miscellany.

Area of the Study

This study was conducted in NBTE-accredited schools of Architectural Technology domiciled in the Southeast geopolitical region of the country. The institutions include Akanu Ibiam Federal Polytechnic Unwana, Federal Polytechnic Nekede, Owerri, Federal Polytechnic Oko, Anambra State, and Abia State Polytechnic, Aba (NBTE, 2023).

Significance of the Study

The significance of this study is vested in the long-standing misconception that a student's performance in design could only be adjudged from scores of a single design course. It is pertinent to disabuse the conception that students' ability in the design miscellany could

only be attributed to the assessment of drawings and reports of single design courses (Zemira & Bracha, 2017).

Theoretical Framework

The theoretical framework for integrating Portfolio Assessment and Contact-Hour-Based Evaluation (ChbE) in architectural education draws from key postulations like Experiential Learning, Constructivism, Formative and Summative Assessment, Self-Regulated Learning and Assessment for Learning and Assessment of Learning. These suppositions provide a basis for understanding how students engage in reflective, hands-on learning and how best to rate their progress. By combining the strengths of both Portfolio Assessment and ChbE, educators can ensure a holistic evaluation of architectural students, balancing creative thinking with technical precision.

Experiential Learning Theory (ELT) advances a learning process whereby knowledge is created through the change of experience (Mary, 2010). This theory is important to architectural education, where students engage in hands-on projects and design tasks that form the core of their learning experience. This postulation is amplified when administering a Portfolio Assessment as it reflects the experiential nature of architectural education. Here, students document their design process, engage in reflective practice, and demonstrate their understanding and evolution over time. Portfolios capture how students' experiment, iterate, and improve upon their ideas through practical engagement (Wakelet, 2023); (Stables, 2017). Conversely, ChbE provides structured experiential learning opportunities through direct engagements with instructors during contact hours (Anwar, Ahmed, Asma, & Hikmat, 2021). Students apply theoretical concepts in real-time, receiving feedback during studio sessions and project critiques. Roghayeh Barmaki et al (2015) submit that it helps students solidify their technical understanding through guided, hands-on activities.

Constructivism asserts that learners construct knowledge through interaction with their environment and experiences (University of Buffalo, 2024). This is particularly relevant to architectural education, where students learn by engaging with design problems, materials, and their peers. Subjecting these students to Portfolio Assessment encourages them to construct knowledge through self-directed projects, reflective thinking, and iterative design processes. They build on prior knowledge and experiences as they document their design evolution, thus offering a platform for the evolution of meaning and deeper insights into architectural design (Ebelechukwu & Jonathan, 2023). ChbE, on the other hand, supports constructivist learning by providing opportunities for collaborative learning, peer review, and guided instruction from faculty (Jessica & Lindsay, 2023). It is fitting to note that contact hours are critical in helping students build upon foundational knowledge, address gaps in comprehension, and apply complex architectural concepts in a structured environment.

Formative Assessment, as posited by Gregory J. Cizek et al (2023), refers to continuous feedback and evaluation during the learning process, while The University of California

(2024) submits that Summative Assessment is the final evaluation of a student's performance at the end of a course or project. Both are important in architecture education. Students need ongoing feedback and a final appraisal of their work. Administering Portfolio Assessment will act as a formative and summative tool (Yale University, 2024). Throughout the semester, portfolios allow students to reflect on their development, gather responses, and make iterative advancements (formative assessment). At the end of the course, the portfolio serves as a summative assessment, displaying the culmination of a student's learning process and overall progress. Relatedly, ChbE can justifiably operate as a formative assessment by providing ongoing feedback during contact hours, studio critique sessions and discussions (Stanford University, 2024). It also includes summative elements in the form of final project presentations, exams, exit jury sessions and evaluations of technical competency.

In the journal, Contemporary Educational Psychology, Sakhavat Mammadov et al (2023) submitted that Self-Regulated Learning (SRL) is a process through which students take control of their learning by setting goals, monitoring their progress, and reflecting on outcomes. SRL is essential in architectural education because architectural technology students are often tasked with open-ended, complex design problems that require independent thinking and problem-solving. Portfolio Assessment encourages self-regulation by allowing students to set their own learning goals, track progress, and reflect on the development of their designs. Students are actively engaged in evaluating their work and making decisions about how to improve their projects. On the other hand, ChbE will foster SRL through guided instruction. Students receive feedback and direction during contact hours but are expected to independently apply and refine that feedback outside of structured studio sessions (Charles, et al., 2024).

Assessment for Learning (AfL) focuses on using assessment to support and guide learning, while Assessment of Learning (AoL) measures what has been learned (Lorna, 2013). Architectural education benefits from both types of assessment. Portfolio Assessment primarily functions as AfL, when students receive continuous feedback, reflect on their work, and improve their projects throughout the course (Osman & Adnan, 2007). This process encourages iterative learning and self-improvement. ChbE incorporates both AfL and AoL. During contact hours, students receive formative feedback that helps them improve AfL (Stanford University, 2024). Final exams or project critiques serve as AoL, assessing the student's ability to meet the outcomes of courses (Sumata, Theresa, & Grace, 2024).

These theories provide a foundation for understanding how students learn and how best to evaluate their progress in both innovative and non-theoretical aspects of architectural education.

Portfolio Assessment in Architectural Education

The jury system assessment commenced in the Ecole des Beaux-Arts in Paris (School of Fine Arts) in 1648 (Natasha, 2023). In those early years, schemes were privately assessed by

project supervisors. They did so at their discretion and without external contributions. This process was later reviewed at the beginning of the 19th Century when the Ecole des Beaux-Arts decided to grant students observatory status during the sessions (Lauren, 2023). This means that more credibility must be attached to the process as fulfilment for scholarly endeavour. In all accredited polytechnics of Architectural Technology, the jury system has been formally accepted as an examination to check the originality of authorship. This is built upon the credibility and capability of students to communicate effectively and prove beyond reasonable doubt that they understand design ethos (Kandarp, 2014). Ilke (2016), asserts that the portfolio assessment targets students' metacognitive skills as the outcome depended on the quality of the portfolio presentation. Other domains of learning which are vested in psychomotor and affective persuasions were not taken into consideration. This is where we have challenges - hinging the overall learning outcome of the student on portfolio assessment and relegating evaluatory mechanisms that could open vistas into students' apperception, skill acquisition and pollyannaism (Md. Enamul, 2016).

In all NBTE-accredited schools of Architectural Technology, the entirety of design courses in a program constitutes the design miscellany. These courses are equipped with distinct contents that prepare the student to engage in anthropometry and design processes and engage in the design of varied building types up until they are fully disposed to engage in independent projects (NBTE, 2020). This is at the HND level. At the ND level, the design courses are retrofitted with contents that enable the students to develop current design concepts and theories, analyse and explain design briefs, describe general space requirements, list elements in an architectural design, describe the development of current design concepts, justify the development of the initial sketch scheme and take up design projects with minimal concomitant reportage (NBTE, 2020). Depending on the contact hours specified for each design course, the students are supervised, guided, and mentored to fully understand the scheme, interpret, resolve, and engage in expository discussions toward scholarship in design. Jurors are invited as external examiners from the industry, the institution and the academia to moderate the sessions through barrages of healthy posers and critiques meant to elicit responses intended to build the student's confidence and communication prowess. Scores are awarded based on the variables being investigated. Observations noted that these variables and their weightings differ across studied NBTE-accredited schools of Architectural Technology. Closure of jury sessions targets the summation of garnered scores which is used to assess the outcome of the student's performance in design courses (Alagbe, et al., 2017). However, such an outcome does not offer a kaleidoscopic appraisal of the student-architect's ability in design miscellany as evaluatory decisions by the studio master are not factored in.

Criteria for Portfolio Evaluation

The National Board for Technical Education, Curriculum and Course Specifications for National Diploma and Higher National Diploma in Architectural Education released in

October 2020 has theoretical and practical contents for all courses approved including all the design courses. These courses include:

a. National Diploma level: Basic Design (Arc 111), Architectural Design I (Arc 121), Architectural Design II (Arc 211), Architectural Design Project and Report (Arc 221) and

b. Higher National Diploma level: Advanced Architectural Design I (Arc 311), Advanced Architectural Design II (Arc 321), Advanced Architectural Design III (Arc 411), Advanced Architectural Design Project & Report (Arc 421).

These courses require portfolio assessment as part of their modalities for closure except Basic Design (Arc 111) which, at its level, is designed to develop a student's interest and creative ability in Architecture. Invariably, a student is supposed to participate in three (3) portfolio assessments at the ND level (NBTE, 2020) and four (4) portfolio assessments at the HND level (NBTE, 2020). It is pertinent to note, that the NBTE Curriculum and Course Specifications for ND/HND Architectural Technology has specific learning objectives, teacher's activities, and evaluation under its practical content. The contents of the 'Evaluation' are teacher-deployed and identifiable learning designations for the students. They delineate the outcomes of the specific learning objectives. They do not measure the competence of the students in design miscellany. This is the identifiable lacuna of the NBTE, October 2020 curriculum. The 'evaluation' contained in the NBTE curriculum is not in tandem with the major definition of 'Architecture Evaluation' which involves the activity of appraising architectural design decisions of an (envisioned) system to build confidence that the system can fulfil the concerns of the stakeholders (Magnus, et al., 2022). Magnus, et al, further stated that "evaluation techniques are more succinct and viable if they evaluate what is documented in an architectural description". Invariably, evaluation should be done from the portfolio (architectural description). According to Magnus et al (2022), these stakeholders are individuals, groups and organizations that are more concerned with the quality of delivery and output of diplomates than their cognitive capacity. To this end, a veritable and viable process has to evaluate students' architectural descriptions, to provide effective closure on the entire exercise of measuring competence in design miscellany. This singular purpose led to the advancement of the Contact-hour-based Evaluation (ChbE), deployable by studio masters. This evaluatory method will be based on a 5-modal system which will provide valuable information on the student's capability in:

a. *Fluency and Clarity of Communication,*
b. *Imagination, Innovation and Creativity,*
c. *Understanding the Design Process,*
d. *Details and Overall Aesthetics* and
e. *Technical Competence* (Ulrich, 2023)

As shown in Figure 1, each criterion for evaluation guides the studio masters in the appraisal process. The process commences after the jury has assessed the portfolio. Due to the sensitive and thorough nature of the exercise, the evaluation is conducted once for each student.
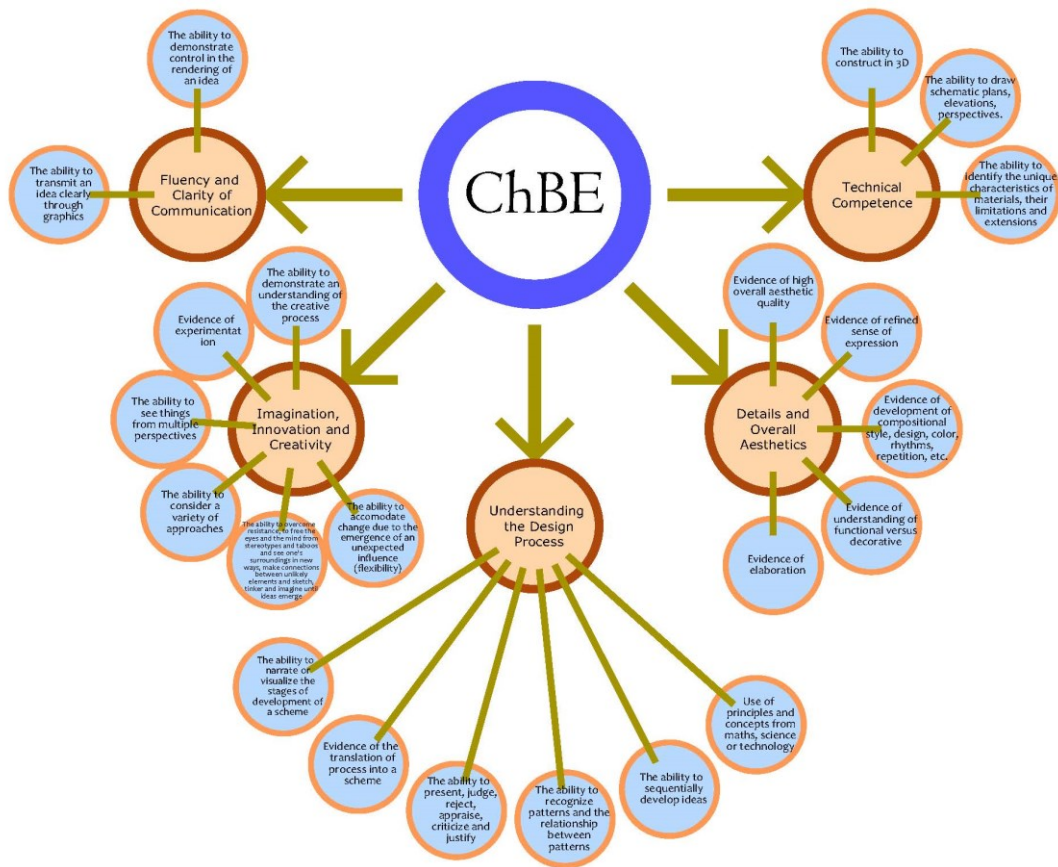
Figure 1: The 5-modal system of the ChbE to be adopted by studio masters
Source: Authors' Fieldwork

The student must have collated all his/her portfolios for the entire programme and the studio master collects and appraises them. The appraisal should be seamless and interactive since the studio master knows the students' cognitive, psychomotor and affective capabilities. The ChbE completes the exercise by appraising the entire portfolios in conjunction with the interpersonal information of the students garnered over time by the studio masters. Such information will enable them to advance reliable evaluation of the students.

Methods
The procedure that guided the collation of data in this study comprised archival recoupment, deployment of structured questionnaires, interviews and observations. Interview sessions were expanded to include external examiners who had a minimum of ten (10) years post-registration affiliation with the Nigerian Institute of Architects and the Architects Registration Council of Nigeria. Data on observations were collated during attendance of the jury and critique sessions of exit students in the aforementioned study

area. Structured questionnaires were administered to 45 lecturers through purposive sampling from a population of 63 lecturers. The structured questionnaires also helped gather input on their understanding of Portfolio assessment and ChbE, including their views, on integrating these methods for a more balanced and holistic evaluation. The 5-sectioned questionnaires elicited information on the following cohorts:

i.   Demography,
ii.   General Understanding of Portfolio Assessment towards determining variables that should constitute criteria for assessment of portfolios,
iii. General Understanding of Contact-hour-based Evaluation (ChbE) and its performance indices,
iv.   Integration of Portfolio Assessment and ChbE, and
v.   Proposed Templates for Portfolio Assessment and ChbE.

Efforts were made to factor in the most senior members of each department and institution who duly registered with relevant professional bodies.

Interviews were intended to elicit detailed, qualitative data that will provide a deeper understanding of the current practices, challenges, and opportunities for improving assessment in architectural education through the integration of Portfolio Assessment and ChbE. Cohorts included:

i.   Understanding and Usage of Portfolio Assessment
ii.   Understanding and Usage of Contact-Hour-Based Evaluation (ChbE)
iii. Perceptions on the Integration of Portfolio Assessment and ChbE
iv.   Suggestions for Effective Integration

Observations focused on:

i.   Classroom/Studio Environment,
ii.   Portfolio Presentation and Evaluation,
iii. Student-Instructor Interactions,
iv.   Student Engagement and Participation,
v.   Assessment Criteria and Rubrics,
vi.   Time Management and Student Workload, and
vii. Challenges and Opportunities.

All observations were targeted at providing a detailed understanding of how Portfolio Assessment and ChbE were practically implemented and how they impact students' learning experiences. Insights gathered helped inform recommendations for a more integrated and balanced assessment framework in architectural education.

Results and Discussion

A. Structured Questionnaires:

Information elicited from structured questionnaires includes:

1.   Limits of assessment and evaluation protocols in Architectural Education:

These have been fully discussed in the preceding sections.

2.   Determine the variables that constitute criteria for assessment of portfolios:

To determine the variables that constitute criteria for assessing portfolios, structured questionnaires were administered to 45 lecturers in all the participating institutions. Purposive sampling (Ray, 2012) was adopted to select the respondents, which included the most senior members of the participating institution. In the questionnaire, 20 portfolio indices were listed for possible adoption. Of the 20, only 9 items scored above the 50th percentile. This was considered the average benchmark for adoption (Curt, 2023). Figure 2 shows the Portfolio Indices Adoption Distribution chart specifying variables that should be reflected on jury scoresheets of departments of Architectural Technology during jury sessions. Concomitant score weights are determined at the purview of the curriculum review board of the NBTE.
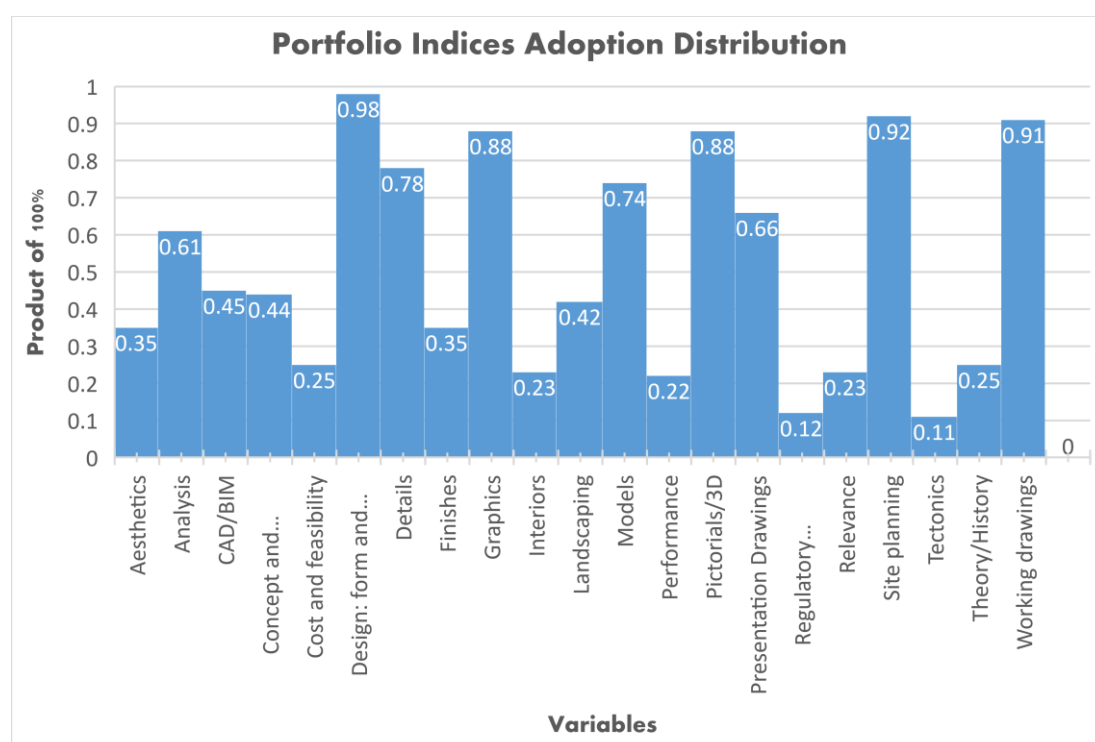

Figure 2: Portfolio Indices Adoption Distribution.
Source: Authors' workstation

3. The ChbE and its indices: Data collated:

The following indices guided studies into ChbE and the level of affirmation or rejection by respondents. Structured questionnaires were tested for face and content validity by professionals in academia and industry. These resource persons did not constitute the respondents. The questionnaire had the following items (a-f) with an option of affirmation (Yes) or rejection (No). Affirmation must be ≥ 50%.

a. Mounting ChbE exercises for affective and psychomotor measurement in design miscellany at both ND and HND programmes of study:

This index elicited responses that showed marked affirmation of ChBE exercises for exit students at the Higher National Diploma level with an affirmation of 65.5% as shown in Figure 3. The same figure shows responses in favour of the exercise at the ND level which stood at 39.25%.
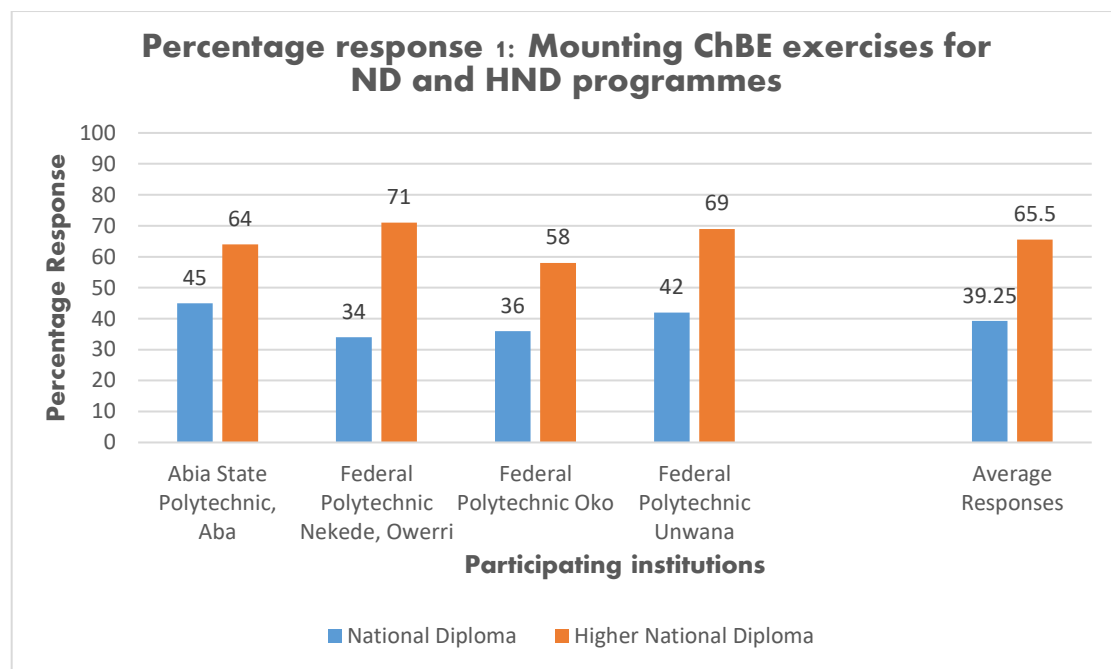

Figure 3: Percentage response 1: Mounting ChBE exercises for ND and HND programmes. *Source: Fieldwork and authors' workstation*

b. Exercise will be conducted by studio masters who must be duly registered with NIA/ARCON:

Figure 4 shows responses towards the status of the personnel that should conduct/engage the students in ChbE exercises. The percentage distribution of responses stands at 49.75% for rejection and 50.25% for affirmation of the index.
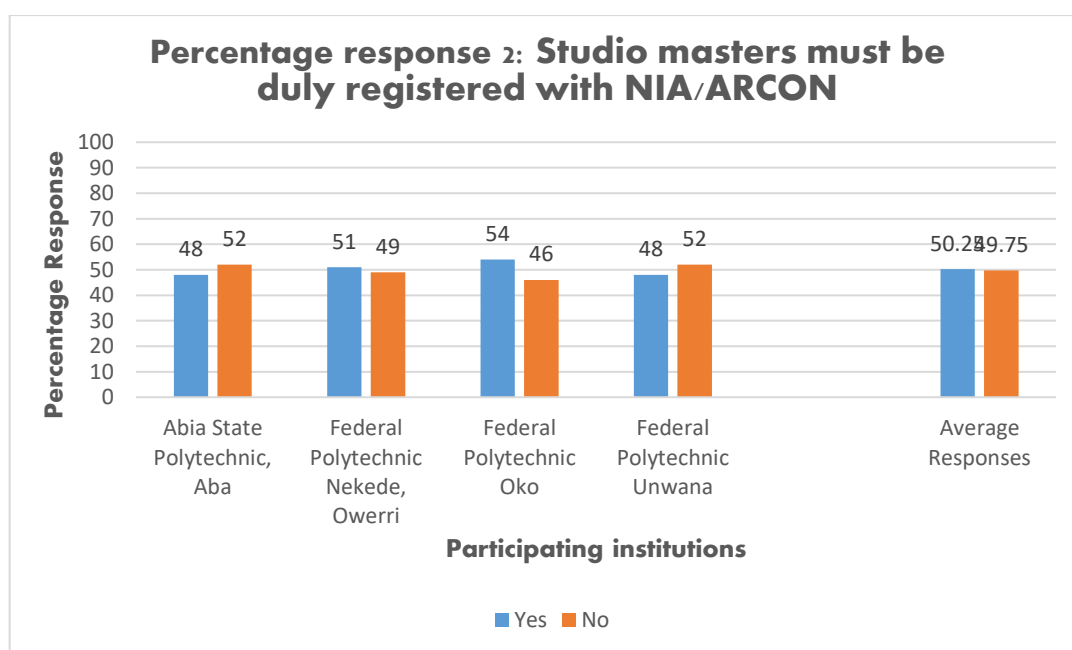
Figure 4: Percentage response 2: Studio masters must be registered with NIA/ARCON. *Source: Fieldwork and authors' workstation*

c. Results from standard portfolio assessments + ChbE(s) should form valid measurements of competence for HND diplomates wishing to proceed to professional examinations:

Data collated for this response is shown in Figure 5. The percentage distribution of responses stands at 38.25% for rejection and 61.75% for affirmation of the index.
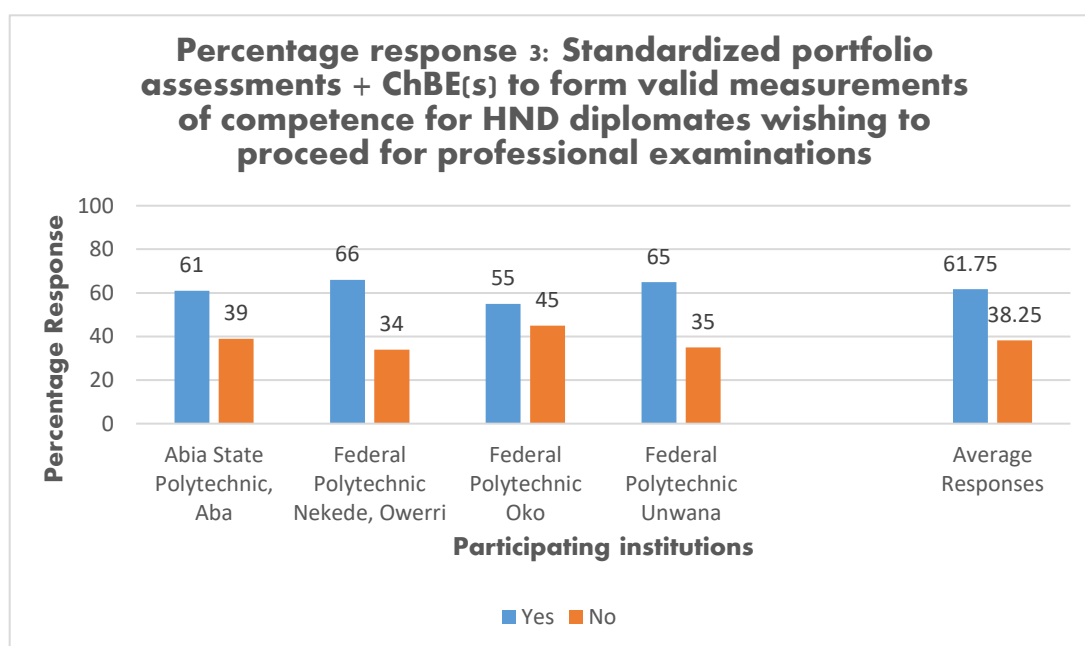

Figure 5: Standardized portfolio assessments + ChBE(s) to form valid measurements of competence for HND diplomates. *Source: Fieldwork and authors' workstation*

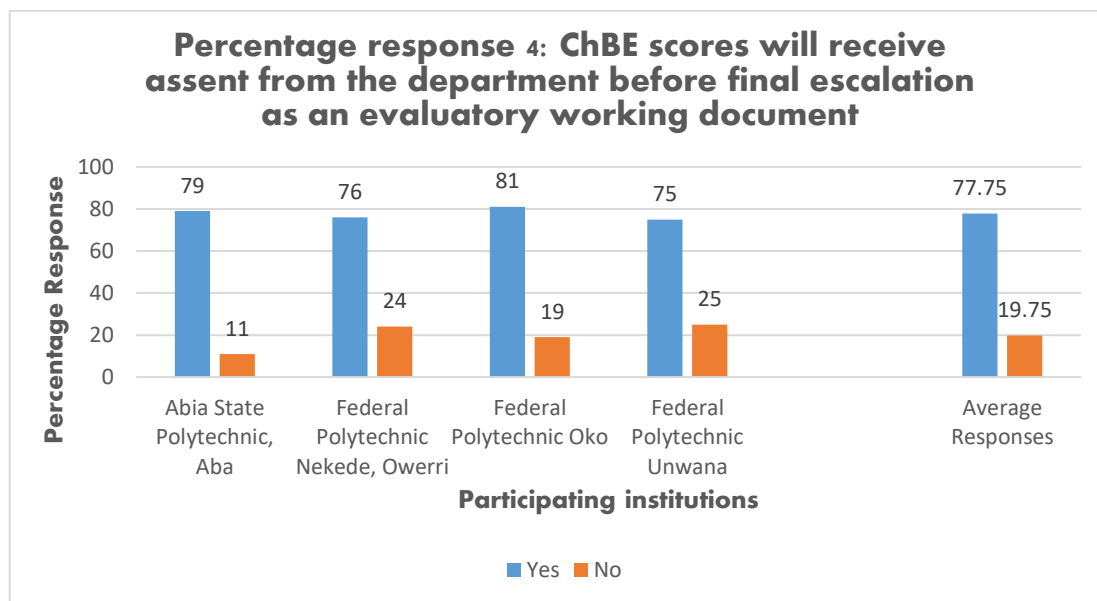d. ChbE scores will receive approval from the department before final escalation as an evaluatory working document:

Figure 6: ChBE scores will receive assent from the department before final escalation as an evaluatory working document. *Source: Fieldwork and authors' workstation*

In Figure 6, results showed the extent of affirmation for ChBE scores to pass through approval and authentication by the departmental board before it can be used as an evaluatory working document at appropriate levels. Percentage distribution of responses stands at 19.75% for rejection and 77.75% for affirmation of the index.
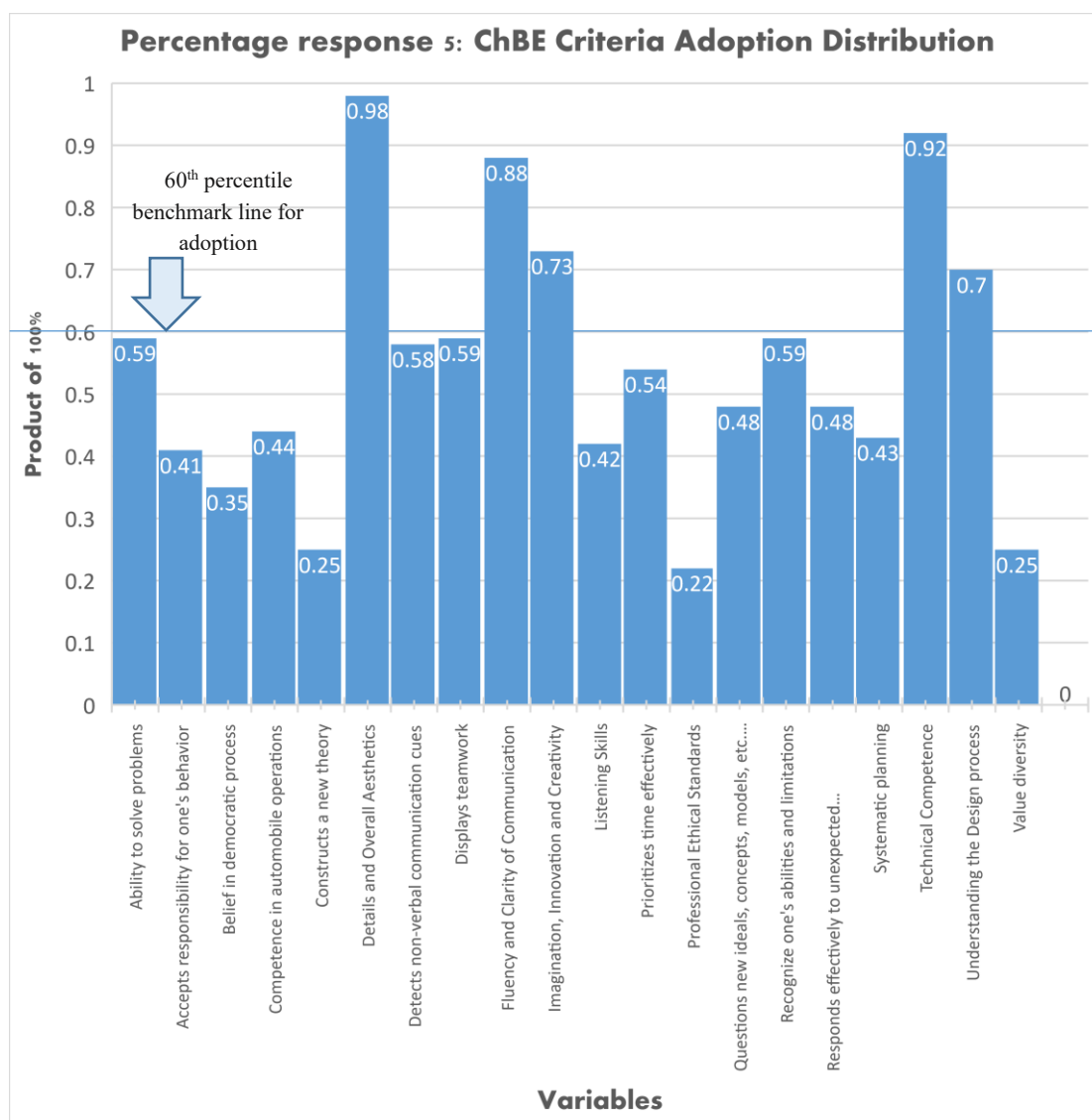
Figure 7: ChBE Criteria Adoption Distribution. *Source: Fieldwork and Authors' workstation*

e.   Adoption of ChbE indices:

Concerning the objective stated in (d), 20 evaluatory indices were floated. Only 5 items met the approval of the respondents. The benchmark for approval was slightly above average at the 60th percentile as one of the requirements for content validity (Curt, 2023). Data extracted from Figure 7 informed the 5-modal system of the ChbE.

4.   Proposed Templates for Portfolio Assessment and ChbE:

An effective portfolio assessment template is shown in Table 1. Variables that scored ≥

Table 1: Proposed Portfolio Assessment Sheet (PAS) for jury sessions

PORTFOLIO ASSESSMENT SHEET: NATIONAL DIPLOMA/HIGHER NATIONAL DIPLOMA IN ARCHITECTURAL TECHNOLOGY													
S/n	Name	Registration No.	Supervision	Analysis	Design: Form and Function	Details	Graphics	Models	3-dimensional drawings/pictorials	Presentation drawings	Site planning	Working drawings	Total
			20%										100%
1.													
2.			Weightings will be decided by participants of the Curriculum Review Board for National Diploma and Higher National Diploma programmes										
3.													

Source: Fieldwork and Authors' workstation

50% were adopted for a cumulative weighing of 80%. Individual weightings will be specified by the NBTE Curriculum Review Board. It is expected that the weightings of the HND programme will be slightly different from the weightings of the ND programme.

The template for the ChbE is derived from the 5-modal system of the ChbE. At the National Diploma level, three (3) projects from its (3) design courses will be subjected to ChbE. They include ARC 121, ARC 211 and ARC 221. Table 2 shows the template structure of ChbE for National Diplomates. At the Higher National Diploma, level, four (4) projects from its four (4) design courses will be subjected to ChBE. They include ARC 311, ARC 321, ARC 411 and ARC 421.

Table 2: ChbE template for National Diplomates

ChBE: NATIONAL DIPLOMA IN ARCHITECTURAL TECHNOLOGY																			
s/n	Name	Reg. No.	Fluency and Clarity of Communicatn			Imagination, Innovation and Creativity			Understanding the Design Process			Details and overall Aesthetics			Technical Competence			Average	Remarks
			Scheme 1 (ARC 121)	Scheme 2 (ARC 211)	Scheme 3 (ARC 221)	Scheme 1 (ARC 121)	Scheme 2 (ARC 211)	Scheme 3 (ARC 221)	Scheme 1 (ARC 121)	Scheme 2 (ARC 211)	Scheme 3 (ARC 221)	Scheme 1 (ARC 121)	Scheme 2 (ARC 211)	Scheme 3 (ARC 221)	Scheme 1 (ARC 121)	Scheme 2 (ARC 211)	Scheme 3 (ARC 221)		
1.																			
2.																			

Remarks:

1. Strongly advised to consider change of course and/or escalation of strong psychomotor skills
2. Needs counselling in grey areas, ascertaining the status of other academic records and consequent re-evaluation for possible improvement.
3. Counselling to use areas of strength as a source of improving identifiable areas of challenge during SIWES
4. Positive reinforcement measures will be adopted to sustain progress in contribution to SIWES.
5. Maintain excellence in contribution to SIWES, career progression and future professionalism.

RATING SCALE:

1 Low | 2 Fair | 3 Good | 4 Very Good | 5 Exceptional

Studio Master: _____

Name|Signature|Date

Source: Fieldwork and Authors' workstation

Table 3 shows the template structure of ChBE for Higher National Diplomates. In both instances, the reviewer/studio master rates the student's performance at the end of each academic semester's design course and authenticates the sheet for approval by the departmental board. The template is expected to be populated by the number of students in the department.

Table 3: ChBE template for Higher National Diplomates

ChBE: HIGHER NATIONAL DIPLOMA IN ARCHITECTURAL TECHNOLOGY																							
S/n	Name	Reg. No.	Fluency and Clarity of Communication				Imagination, Innovation and Creativity				Understanding the Design Process				Details and overall Aesthetics				Technical Competence				Average	Remarks
			Scheme 1 (ARC)	Scheme 2 (ARC)	Scheme 3 (ARC)	Scheme 4 (ARC)	Scheme 1 (ARC)	Scheme 2 (ARC)	Scheme 3 (ARC)	Scheme 4 (ARC)	Scheme 1 (ARC)	Scheme 2 (ARC)	Scheme 3 (ARC)	Scheme 4 (ARC)	Scheme 1 (ARC)	Scheme 2 (ARC)	Scheme 3 (ARC)	Scheme 4 (ARC)	Scheme 1 (ARC)	Scheme 2 (ARC)	Scheme 3 (ARC)	Scheme 4 (ARC)		
1.																								
2.																								

Remarks:

1. Strongly advised to consider change of course and/or escalation of strong psychomotor skills.
2. Needs counselling in grey areas, ascertaining the status of other academic records and consequent re-evaluation for possible improvement.
3. Counselling should be adopted to use areas of strength to improve identifiable areas of challenge towards building delivery.
4. Positive reinforcement to sustain progress towards service delivery and licensure.
5. Maintain excellence in referred competitions, career progression, and licensure.

RATING SCALE:

1 Low | 2 Fair | 3 Good | 4 Very Good | 5 Exceptional

Studio Master: _____

Name|Signature|Date

Source: *Authors' Fieldwork*

B. Interviews:

In addition to note-taking, the discussion sessions were tape-recorded, reproduced in print and verified.

Table 4: Results from Interview Sessions

S/N	THEMES	STRENGTHS		CHALLENGES	
1.	Understanding and Usage of Portfolio Assessment	a.	Respondents appreciated how portfolios capture the evolution of a student's thought process, creativity, and problem-solving skills over time.	a.	Several lecturers raised concerns about the subjectivity involved in evaluating portfolios, noting that creativity is difficult to quantify, and assessment criteria can vary between reviewers.
		b.	Departments emphasized that portfolios mimic real-world architectural practices, where designers present their work to clients, making it a valuable skill for students.	b.	instructors reported that portfolio development and evaluation were time-intensive, often requiring significant hours outside of regular coursework and studio time.
				c.	Lack of a standardized rubric for assessing portfolios across different schools of Architectural Technology.
2.	Understanding and Usage of Contact-Hour-Based Evaluation (ChbE)	a.	Lecturers appreciated the need for real-time feedback during contact hours. This will allow students to monitor their design development and progress in the entire programme.	a.	Departmental members expressed concern about the additional workload that an integrated approach might entail especially for studio masters as they are expected to monitor the students' design progress from inception till the conclusion of the programme.
		b.	Lecturers highlighted that ChbE is ideal for providing employable graduates who are equipped with the necessary technical skills, design ethos, drafting, construction detailing, and structural understanding and communication.	b.	Only lecturers and instructors with sufficient exposure to a student's learning curve and development in architectural technology can deploy the ChbE.
3.	Perceptions on the Integration of Portfolio Assessment and ChbE	a.	Lecturers felt that combining the two methods would encourage students to reflect more on their learning and design development, rather than focusing solely on the final product or technical accuracy.	a.	Some respondents raised concerns about how to standardize such an integrated evaluation system across schools of architectural technology given their peculiarities
		b.	Administrators suggested that the integration of these assessment methods would better prepare students for the demands of professional practice, where creativity and	b.	Several respondents discussed the difficulty of balancing the subjective nature of portfolio evaluation with the objective metrics of ChbE, noting that clear rubrics would be necessary to ensure fairness.

			technical competency are equally important.		
		c.	Lecturers believed that an integrated approach would allow for a more comprehensive assessment of students' skills, accounting for both the process (creativity and design thinking) and the outcome (technical proficiency).		

Source: *Authors' Fieldwork*

C. Observations:

Table 5: Data on observations were collated during attendance of the jury and critique sessions of exit students in the aforementioned study area.

S/N	FOCUS AREAS	PURPOSE	OBSERVATIONS	
1.	Classroom/Studio Environment	How instructors interact with students during hands-on projects and critique sessions.	a.	Assessment of students' technical skills during contact hours is majorly based on practical site experience which many of the students may not have.
			b.	Instructors' mode feedbacks are mostly group-based rather than individualized.
			c.	Management of design critiques was cognitive-centered rather than diversified.
			d.	Noticeable gaps in feedback from students.
2.	Portfolio Presentation and Evaluation	Assess how Portfolio Assessment is used to evaluate students' creative process, design evolution, and reflective thinking.	a.	Portfolio presentation focuses more on process rather than outcomes.
			b.	Assessment of portfolios is carried out on a decentralized system that is peculiar to different institutions.
			c.	Design and site planning are variables that are mostly valued in portfolio assessments
			d.	Exit students receive more constructive feedback from external examiners during exit juries than students during scheduled semester juries organised by internal staff.
3.	Student-Instructor Interactions	Examine the role of feedback in both assessment methods.	a.	From a Likert scale of never|sometimes|often|always|; students sometimes ask for guidance during contact hours.
			b.	Instructors provide feedback on directive mode.
			c.	Many students respond to feedback by adaptation rather than being encouraged to reflect upon better solutions.
4.	Assessment Criteria and Rubrics	Examine the assessment criteria used for each method and how they align with learning objectives.	a.	There are currently no ChbE schedules in all schools visited.
			c.	Such a criterion identified in 4(b) does not encourage holistic development.

5.	Challenges and Opportunities	Identify areas for improvement and opportunities for integrating both methods.	a.	Portfolio assessment indices vary across institutions.
			b.	ChbE is not yet applicable across institutions.
			c.	Review of portfolio assessment of design courses should be escalated as an important aspect in the NBTE curriculum for architectural technology design courses.
			d.	Adoption of an effective 5-modal ChbE system
			e.	Marked observable frustration with the current assessment method as concerning the quality of assessment and overall performance in design miscellany.

Source: Authors' Fieldwork

Conclusion

We can conclude that this study has identified the challenges inherent in the subsisting methods of assessing portfolios in our schools of architectural technology. Apart from the varying assessment indices adopted by assessors during jury sessions in different institutions, a lot of focus is given to variables like design and site planning by way of weighting. This has placed a lot of emphasis on cognitive capacity above measurable competence in design ethos. While this study has fronted germane assessment indices and templates for a viable ChbE and Portfolio Assessment, it must be noted that this study came with concomitant limitations bordering on the diversity of respondents. The study zeroed in majorly on resource persons – lecturers, administrators, external examiners, professionals with the NIA and ARCON, technologists and instructors. It is expected that further research be undertaken to factor in the impact on students at all levels of the Architectural Technology programme. There is also the need to delve more into studies towards making the ChbE more quantifiable. This will make for a more homogeneous design miscellany that can rate a student's competence in design.

This study has also identified the unsavoury belief that cognitive ability in design is all that is needed to measure a student's skills in design miscellany. This belief and its practice have continuously affected the quality of Architectural Education and its diplomates. This informed the resolve to float salient strategies which are expected to be escalated to appropriate authorities for implementation as they will shore up the capacity of Architectural Technology students in particular and the manpower/skill-set base of the nation in general.

Recommendations

1. The underlying issue of inconsistent assessment templates being adopted by NBTE-accredited schools of Architectural Technology informed a recommendation that a unified Portfolio Assessment Sheet (PAS), be deployed and cited in the curriculum for all NBTE-accredited schools of Architectural Technology. This will

resolve the penchant for arbitrary adoption of weightings to assess variables by institutions.

2. Within the timeframe of this study, Architectural Education does not have any policy on Contact-hour-based Evaluation (ChbE). As a nouveau module, it is recommended that it is made more computable and subjected to more longitudinal research towards authenticating its efficiency in identifying strong areas of non-cognitive skill sets. This will improve the capacity and learning needed to make students more relevant and productive in designated areas of economic and technological activities (Toriola-Coker, Omokungbe, Obisanya, Ayodele-Oja, & Amolegbe, 2022).

3. The policy on Architectural Education needs to be revisited to delineate and proffer designations on design courses, design miscellany and evaluation of non-cognitive traits.

4. Design courses show the level of the student's understanding of all the courses in Architectural Technology. The assessment of design courses should be through the integration of portfolio assessment and ChbE modules. This is not the case with the subsisting October 2020 NBTE curriculum which specified 'written examinations' as one of the requirements for assessment of design courses. This calls for immediate review.

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