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The Development and Validation of an Instrument to Evaluate Student's Perceptions of the Performance of an Undergraduate Accounting Program in a Private Christian University in Ghana

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Abstract:

This article offers a description of the process of developing and validating an instrument to measure students' perceptions of the performance of an undergraduate accounting programme. The instrumentation process ranged from the generation of the initial questionnaire items, expert and content validation of the items, piloting, and the establishment of reliability for the instrument. The data presented here and the processes used in the development of the 56-item evaluation instrument provides evidence for the validity and reliability of the instrument.

Keywords: *evaluation, validation, content validity index, reliability.*

1. Introduction

Stakeholders in undergraduate education, and in this case accounting are interested in finding out whether graduates from colleges and universities have acquired the knowledge and skills set expected of them from their undergraduate education. Such demands have fueled interest in the evaluation of student learning in virtually all disciplines in higher education. There are calls for pedagogic innovations that will improve student learning. If any success can be achieved in addressing the challenge of improving the quality of products from higher education, then colleges and universities have need for reliable data. Such data can be obtained partly through an effective process of evaluation that allows for the examination of clear indicators of program quality and the effect on student learning. It is with this in mind that this instrument was developed evaluate the performance of an undergraduate accounting program in a private university in Ghana.

The instrument is based on a framework that combines the International Education Standards (IES, 2010) developed under the auspices of the International Federation of Accountants (IFC), the CIPP model developed by Stufflebeam, guidelines from evaluation literature and relevant journals, as well as literature on learning and assessment.

2. Review of the Literature

Evaluating student learning and academic programs is rapidly taking center stage as the principal gauge of higher education's effectiveness (Banta, Griffin, Flateby, & Kahn, 2009). In recent years, stakeholders in higher education—employers, elected officials, tax payers, and parents—have clearly indicated that the graduates of colleges and universities in their respective countries ought to be equipped with specific skills set that includes higher order literacies and communications skills (Chan, Brown, & Ludlow, 2014; Okebukola, 2014). This demand has led to the recognition that commitment to teaching and learning must include evaluation and documenting what and how much students are learning and also use such information to improve the educational experiences being offered.

It is worthy of note that recent reviews in accounting education literature in the United States and elsewhere since 1986, have provided research knowledge in accounting education practices. Additionally, the studies and the reviews have helped to identify gaps in the literature and practice that will ultimately encourage improved accounting education, something most educators and practitioners have clamored for over the years (Fouché, 2013; Kutluk, Donmez, Utku, & Erdogan, 2012; Mustapha, 2011, Zraa, Kavanagh, & Hartle, 2011, Awayiga, Onumah, & Tsamenyi, 2010; Jones & Abraham, 2007; Albrecht, 2002). For instance, in the last two reviews by Apostolou, Hassell, Rebele, and Watson (2010) and Apostolou, Dorminey, Hassell, and Watson (2013), attention was drawn to several areas that needed strengthening in accounting education. In the review of the literature from 2006-2009, Apostolou et al. (2010) arrived at two important conclusions. The first was to recognize the variety of technologies available to assist student learning and identify the ones most suited for improving accounting education. The second focused on the research-driven conclusion that student learning improved when classes are interactive with multiple forms of presentation. Apostolou et al. (2013) stated in one of their conclusions that "the literature consistently shows that core professional competencies (e.g., communication, analytical skill, critical thinking) are important for success in accounting" (p. 146). These researchers also pointed out that offering students opportunities to

interact with professionals, through internships, service learning, and mentoring are very important in developing students' professional skills.

3. Conceptual Framework

The development of the items on this evaluation instrument was guided by a combination of three major frameworks (models). The first is Stufflebeam's four-stage model of evaluation (Context, Input, Process, and Product—CIPP) which proposes a straightforward, systematic, and practical approach to evaluation by employing a popular model used for the evaluation of educational and other social programs. The second is the Dimensions of Learning Model (DOL) by Marzano, Pickering, and McTighe (1993) which defines successful student learning in terms of five identified dimensions. The third is the International Education Standards (IES) of the International Federation of Accountants (IFAC). Figure 1 is a diagrammatic representation of the conceptual framework. The use of these frameworks in higher education provides clear-cut criteria, measures, plans, and procedures for evaluating programs.

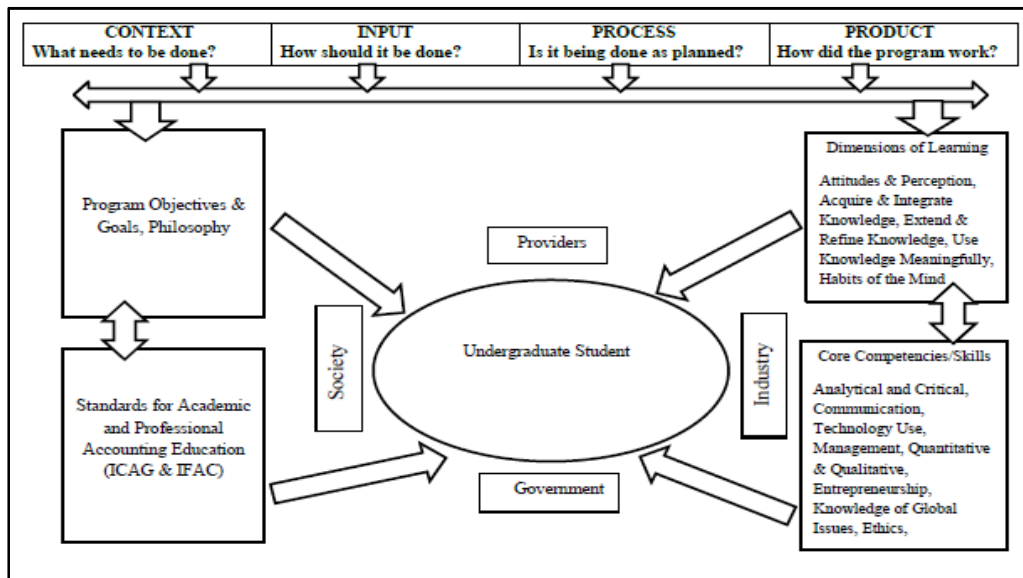


Figure 1: Conceptual framework for evaluating Bachelor of Business Administration in accounting programs.

4. Instrument Development

4.1. Development of Questionnaire/Instrument for Piloting

The creation of this new measure required an extensive process of development and psychometric testing (Burton & Mazerolle, 2011; Polit and Beck, 2006; Rubio, Berg-Weger, Tebb, Lee, and Rauch, 2003; Wynd, Schimdt, Shaeffer, 2003; DeVellis, 2003). Lynn (1986) has described the process of instrument development as one made up of two important stages. The developmental stage, which is the first stage, identifies the domain of content through a comprehensive process of literature review that leads to the generation of the instrument items. Additionally, this stage also involves the construction of the instrument as well as its instructions and scoring mechanisms. The second stage, judgment/quantification stage, involves the selection of a panel of content experts to evaluate the instrument and rate items according to their relevance to the domain of interest. Lynn (1986) further suggests the use of a Likert-type rating scale for the evaluation. The content validity index (CVI) is then computed as a quantitative measure of content validity.

Netemeyer, Bearden, and Sharma (2003) have outlined the instrument development process as involving four step process:

- i. Defining constructs and determining domain content.
- ii. Generating items for the survey and judging the appropriateness of the items.
- iii. Designing and conducting studies to test the scale.
- iv. Finalizing the scale based on data collected in the third step.

These steps were followed in the development of the instrument for piloting in this study.

4.2. Item Generation

A review of the literature from the various sources mentioned earlier resulted in the initial generation of seventy four items (74) for the student instrument. These questionnaire items were framed within the CIPP evaluation model. The items were thus grouped as context, input, process and product items for each of the four questionnaires.

4.3. Content Validation

The establishment of validity is a necessary component of instrument development that needs to be considered. It is vital if researchers are to report with confidence the results obtained from the survey. Polit and Beck (2006) in a discussion of the content validation process of an instrument assert that:

There is also agreement in the methodologic literature that content validity is largely a matter of judgment, involving two distinct phases: a priori efforts by the scale developer to enhance content validity through careful conceptualization and domain analysis prior to item generation, and a posteriori efforts to evaluate the relevance of the scale's content through expert assessment (citing Beck & Gable, 2001; Lynn, 1986; Mastaglia, Toye, & Kristjanson, 2003).

Lynn (1986), explains that the judgement-quantification stage, the second in the item development process, takes place when a panel of independent experts, evaluates the instrument and rates the items on the basis of relevance according to the content domain. Lynn (1986) further suggests that no more than 10 panel members may be used for the validation process. Other researchers have suggested that the opinions of a panel of 2 to 20 experts will be acceptable for the content validation process (Grant & Davis, 1997; Gable & Wolf, 1993; Walz, Strickland, & Lenz, 1991, cited in Rubio et al. 2003). For the development of the current instrument a panel of seven experts were chosen: four in the field of accounting and business education, one each in distance and nursing education, and the other in educational administration. All seven experts provided valuable feedback over a two-month period.

Content validity response forms were sent to each of the seven reviewers that explained the purpose of the study and requested them to do the following:

- i. Rate the level of pertinence (relevance) of each item on a scale of 1 – 4, with 4 being the most pertinent and to comment on the item or to suggest revisions.
- ii. Indicate the level of clarity for each item, also on a four-point scale, with 4 being the clearest and to provide comments where necessary
- iii. Evaluate the comprehensiveness of the entire measure and also indicate items that should be deleted, retained, or included.

Sharp (2010) stresses the necessity of utilizing a quantitative measure, the content validity index (CVI), in measuring content validity. Throwing further light on the computation of the CVI, Sharp (2010) says:

The CVI is calculated by tallying the results of the expert reviewers. The degree to which the expert panelists agree on the relevance determines whether the items are relevant or irrelevant. A Likert-type scale is used to determine relevance. Items that are irrelevant are scored with a 1, items that are somewhat relevant are scored with a 2, items that are quite relevant are scored with a 3, and items that are highly relevant are scored with a 4. Only items scored 3 and 4 are considered relevant and thus are used to calculate the actual CVI. (p. 2)

The computed index gives an indication of the proportion of experts who consider the item valid (Rubio et al., 2003). Wynd, Schmidt & Shaefer (2003) conclude from the literature that “an average agreement of 70% (0.70) is “necessary” for agreement, 80% (0.80) for “adequate” agreement, and 90% (0.90) for “good” agreement. (Hartmann, 1977; citing House, House, & Campbell, 1981, p. 514).

The CVI for the scale after the expert review was (0.93). (see Table 1 On the basis of the CVI and comments from the expert reviewers as well as the removal of some repeated items (because they sought to answer different research questions), the final items were readied for piloting

Survey items	EXPERTS							Item CVI (I-CVI)
	1	2	3	4	5	6	7	
The courses offered in the program meet the requirements of the International Federation of Accountants (IFAC).	X	O	X	X	-	O	-	0.6
The courses offered in the program meet the requirements of the Institute of Chartered Accountants-Ghana.	X	O	X	X	-	O	-	0.6
The objectives of the program are aligned with the mission of the university.	X	X	X	X	-	X	-	1.0
A set of written objectives for each course in the program are provided to students.	X	X	X	X	-	X	-	1.0
The objectives of each course in the program are clearly stated.	X	X	X	X	-	X	-	1.0
The courses offered in the program are in line with the goals and objectives of the program as stated in the bulletin.	X	X	X	X	-	X	-	1.0
The courses offered in the program meet the requirements of the International Federation of Accountants (IFAC).	X	X	X	X	-	O	-	0.8
The courses in the Program adequately use up-to-date technologies in the field.	X	X	X	X	-	X	-	1.0
There is sufficient exposure of students to accounting software currently in use in Ghana (e.g. Microsoft office, etc.).	X	X	X	X	-	X	-	1.0
There is sufficient exposure of students to current accounting standards (i.e. International Education Standards (IES) of the International Federation of Accountants (IFAC) and the standards of the Institute of Chartered Accountants-Ghana (ICAG).	X	X	X	X	-	O	-	0.8
The work experience component of the Program provides students with sufficient exposure to the world of work.	X	X	X	X	-	X	-	1.0
Ethical issues are clearly taught as a course in the Program.	X	X	X	X	-	X	-	1.0
Ethical issues are identified and highlighted in the other courses of the program.	X	X	X	X	-	X	-	1.0
The program encourages the development of a culture of continuous and lifelong learning.	X	X	X	X	-	X	-	1.0
The general education components of the program relevant to the academic growth of students.	X	X	X	X	-	X	-	1.0
The general education components of the program relevant to the spiritual growth of students.	X	X	X	X	-	X	-	1.0
There is internet access to library resources and materials from other parts of campus.	X	X	X	X	-	X	-	1.0
Relevant courses books are available at the library.	X	X	X	X	-	X	-	1.0
The relevant course books at the library are current.	X	X	X	X	-	X	-	1.0
Current professional journals are available at the library.	X	X	X	X	-	X	-	1.0

There is online access to journals and books at the library.	X	X	X	X	-	X	-	1.0
Teaching materials are available in sufficient quantities for instruction in the various courses (e.g. textbooks, supplies, photocopy materials, etc.).	X	X	X	X	-	X	-	1.0
The quality of the teaching materials is of a high standard.	X	X	X	X	-	X	-	1.0
The teaching materials are up-to-date.	X	X	X	X	-	X	-	1.0
The classrooms facilitate instruction (i.e. not overcrowded, comfortable seating, etc.)	X	X	X	X	-	X	-	1.0
The teaching and learning facilities have technologies comparable to what students will find in the workplace.	X	X	X	X	-	X	-	1.0
The library reading area is adequate.	X	X	X	X	-	X	-	1.0
The library operating hours are appropriate.	X	X	X	X	-	X	-	1.0
The library resources can be accessed on-line.	X	X	X	X	-	X	-	1.0
There are relevant course books at the library.	X	X	X	X	-	X	-	1.0
There are relevant books at the reference section of the library.	X	X	X	X	-	X	-	1.0
The library has up-to-date journals in students' course area.	X	X	X	X	-	X	-	1.0
The computers in the library are adequate for research work by lecturers.	X	X	X	X	-	X	-	1.0
The computer laboratory has up-to-date computers.	X	X	X	X	-	X	-	1.0
The computers are readily available for student use.	X	X	X	X	-	X	-	1.0
There are resources and opportunities for professional development for lecturers.	X	X	X	X	-	X	-	1.0
Lecturers are encouraged to pursue professional development.	X	X	X	X	-	X	-	1.0
The Program office staff are pleasant to lecturers.	X	X	X	X	-	O	-	0.8
The Program office staff are pleasant to students.	X	X	X	X	-	X	-	1.0
The Program staff are helpful to lecturers	X	X	X	X	-	X	-	1.0
The Program staff are helpful to students	X	X	X	X	-	X	-	1.0
The Program administrative staff demonstrate concern for the academic well-being of lecturers.	X	X	X	X	-	X	-	1.0
The Program administrative staff demonstrate concern for the academic well-being of students.	X	X	X	X	-	X	-	1.0
The Program administrative staff demonstrate concern for the personal well-being of lecturers.	X	X	X	X	-	X	-	1.0
The Program administrative staff demonstrate concern for the personal well-being of students.	X	X	X	X	-	X	-	1.0
The courses offered in the program meet the requirements of the International Federation of Accountants (IFAC).	X	X	X	X	-	O	-	0.8
The Program promotes the development of communication skills (in students) through presentations.	X	X	X	X	-	X	-	1.0
The Program promotes the development of communication skills (in students) through improved writing skills.	X	X	X	X	-	X	-	1.0
The courses in the Program use up-to-date technologies in the field.	X	X	X	X	-	X	-	1.0
There is sufficient exposure of my students to accounting software currently in use in Ghana.	X	X	X	X	-	X	-	1.0
There is sufficient exposure of students to current accounting standards (i.e. International Education Standards (IES) of the International Federation of Accountants (IFAC) and the standards of the Institute of Chartered Accountants-Ghana (ICAG).	X	X	X	X	-	O	-	0.8
The work experience component of the Program provides students with sufficient exposure to the world of work.	X	X	X	X	-	X	-	1.0
The courses in the Program motivate the students to do their best.	X	X	X	X	-	X	-	1.0
Ethical issues are clearly taught as a course in the Program.	X	X	X	X	-	X	-	1.0
Ethical issues are identified and highlighted in the other courses of the program.	X	X	X	X	-	X	-	1.0
The program encourages the development of a culture of continuous and lifelong learning.	X	X	X	X	-	X	-	1.0
The general education components of the program relevant to the academic growth of students.	X	X	X	X	-	X	-	1.0
The general education components of the program relevant to the spiritual growth of students.	X	X	X	X	-	O	-	0.8
Lecturers have adequate knowledge of the subject - matter they teach.	X	X	X	X	-	X	-	1.0
The amount of instruction given in the various course is adequate to enable students' progress through the curriculum.	X	X	X	X	-	X	-	1.0
Lecturers have adequate on-the-field professional experience.	X	X	X	X	-	X	-	1.0
Lecturers promote the development of critical thinking skills in their teaching.	X	X	X	X	-	X	-	1.0
Lecturers facilitate cooperative learning in the classroom.	X	X	X	X	-	X	-	1.0
Lecturers use a variety of teaching methods to facilitate student learning.	X	X	X	X	-	X	-	1.0
Lecturers are abreast with current trends in the field.	X	X	X	X	-	X	-	1.0
The course instruction is in line with the objectives of the various courses.	X	X	X	X	-	X	-	1.0
Lecturers are willing to offer extra help to facilitate the learning of their students.	X	X	X	X	-	X	-	1.0
Lecturers encourage the free expression of opinions in class.	X	X	X	X	-	X	-	1.0
Lecturers employ information technology in their teaching.	X	X	X	X	-	X	-	1.0
Lecturers employ information technology in their communication with students.	X	X	X	X	-	X	-	1.0
Lecturers teaching is continually evaluated by students.	X	X	X	X	-	X	-	1.0
The results of student evaluation of lecturers is used to improve student learning.	X	X	X	X	-	X	-	1.0
The grading / assessment standards are clearly communicated by lecturers to their students at the beginning of their courses.	X	X	X	X	-	X	-	1.0
Where appropriate assignments to students are graded according to well defined rubrics.	X	X	X	X	-	X	-	1.0
Lecturers always discuss assessment procedures with students.	X	X	X	X	-	X	-	1.0
Lecturers use a wide variety of classroom assessment techniques in assessing their students.	X	X	X	X	-	X	-	1.0
Lecturers give immediate feedback to their students following assignments.	X	X	X	X	-	X	-	1.0
Lecturers use assessments to help their students learn better.	X	X	X	X	-	X	-	1.0
The assignments given by lecturers reflect the material covered during instruction.	X	X	X	X	-	X	-	1.0
Students' progress in their courses is continuously monitored.	X	X	X	X	-	X	-	1.0
Assignments given to students are fairly graded.	X	X	O	X	-	X	-	0.8
Students are satisfied with the program's assessment / grading methods.	X	X	X	X	-	X	-	1.0
The Program curriculum is planned to meet the needs of potential employers.	X	X	X	X	-	X	-	1.0

The School/Department follows up on students to find out their performance in the field.	X	X	X	X	-	X	-	1.0
Students learn as much as expected in the program.	X	X	X	X	-	X	-	1.0
The program prepares students to respond to the needs of local industry/business.	X	X	X	X	-	X	-	1.0
The internship experiences provide students with expertise in specialized skills.	X	X	X	X	-	X	-	1.0
The program provides students with the basis for continuing training after graduation.	X	X	X	X	-	X	-	1.0
The program adequately prepares students with skills for communicating with others in their field.	X	X	X	X	-	X	-	1.0
The program adequately prepares students to work in cooperation with others in their line of work.	X	X	X	X	-	X	-	1.0
Students' personal relationship with God grows as a result of going through the Program.	X	X	X	O	-	O	-	0.6
Students are better equipped to serve their community as a result of the Program.	X	X	X	X	-	X	-	1.0
Students are better equipped to serve their Church / faith community as a result of the Program.	O	X	X	O	-	X	-	0.6
S-CVI								0.95
S-CVI/UA (all items 1 scored divided by total number of items = 82/93)								0.88

Table 1: Ratings Scale by Seven Experts: Items Rated 3 or 4 on a 4-Point Pertinence (Relevance) Scale

Item Content Validity Index (I-CVI): Item-level content validity index.

Scale Content Validity Index/Universal Agreement (S-CVI/UA): Scale-level content validity index, universal agreement calculation method.

Note: X denotes pertinence. 0 denotes none pertinence

4.4. Piloting of Instrument

The content validated 59-item instrument was piloted among 102 student respondents pursuing an undergraduate programme in the same private University where the study was done to determine student perceptions of the performance of the BBA in accounting programme.

4.5. Reliability of the Instruments

A reliability test was done on the four factors or subscales of the instrument after piloting. The table of reliability coefficients shows that the figures were well within the 0.70 to 0.95 preferred alpha value (Nunnally & Bernstein, 1994; Bland & Altman, 1997; DeVillis, 2003 cited in Tavakol & Dennick, 2011). (see Table 2)

Subscales / Factors	Number of Items	Cronbach's Alpha
Context	11 (q1- q11)	.883
Input	14 (q12 – q25)	.842
Process	23 (q26 – q48)	.934
Product	8 (q49 – q56)	.929

Table 2: Reliability coefficient for 4 subscales/factors

4.6. Factor Analysis

The factorability of the fifty six questions describing the perceptions of the performance of an academic program was initially determined. The Kaiser-Meyer-Olkin measure for sampling adequacy for the factors were: Context (.84), Input (.84), Process (.86), and Product (.87), above the recommended value of 0.5 (Kaiser, 1974, Field, 2005). The Bartlett's test for sphericity for all four factors were highly significant at $p < .05$ (see Table 3).

Dimensions	KMO	Approx Chi Square	Bartlett's Test of Sphericity (df)	Sig
Context	.845	486.664	55	.000
Input	.838	505.668	91	.000
Process	.858	1182.925	253	.000
Product	.871	450.941	36	.000

Table 3: Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity

5. Conclusion

The data presented here and the processes used in the development of the 56-item evaluation instrument provides evidence for the validity and reliability of the instrument. The instrument can be used to measure student perceptions of the performance of an academic programme in academic settings similar to the one where this instrument was developed and tested. However, caution must be exercised when generalizing perceived performance in other disciplines and in other settings. Additional research could be conducted using the scale in other subject areas and at multiple institutions to confirm the reliability of the instrument across all sampled populations.

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