

## **The Gap between the Academia and Industry: Perspectives of University Graduates in Ghana**

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### **Abstract**

Training students in Africa to acquire the competencies needed to fit the 21<sup>st</sup> century's job market has been a great burden on universities. It appears that universities are finding it difficult in training students to be creative, thoughtful and proficient with their areas of study. The aim of this study is to examine the perception of graduate university students on the gap between academia and industry in Ghana. A survey was conducted and questionnaires were conveniently administered to 2,200 university graduate in Ghana. Only university graduates who were engaged in permanent employment and had worked for a year or more were targeted for the study. A scale was developed and validated using Structural Equation Modelling with 5,000 bootstrap samples. The study revealed that universities did not equip students with practical skills in their area because they (graduates) were not exposed to frequent experiential training. It was found that the university system encourages memorisation of facts and focused on passing examinations. It is recommended that the Management of Ghanaian Universities should quickly put in place mechanisms in the reformation of assessment and the curriculum as a whole. University curriculum/course designers should ensure that there is consistency in all the elements of the curriculum such that programme objectives can be achieved.

**Keywords:** Assessment, Teaching, Constructive Alignment, Intended Learning Outcome, Course Objective, Learning

### **1. Introduction**

Institutions of higher education worldwide are largely engaged in the development of proficiencies among students. This eventually results in quicker economic development via a dynamic contribution to diverse careers in the entire world (Lobanova & Shunin, 2008). Teaching and assessment are key to the development of these competencies and, consequently, play a crucial role in teaching and learning. Whereas teaching emphasises the impartation of knowledge, assessment can be described as a process of information gathering which is utilised for decision making about educational policy, programmes and curricula, and students (Nitko, 2001).

Segers, Dochy, and Cascallar (2003) are of the view that educational culture has changed from knowledge-based towards competency-based even though educational goals have focused on producing knowledgeable students and future workforce. A number of reviewed reports in different countries have revealed that students are not adequately prepared for the world of work after they complete school (American College Testing, 2006; Fernandes, Flores, & Lima 2012; Flores, Simão, Barros & Pereira, 2016; Laird & Garver, 2010). Gulikers, Bastiaens and Kirschner (2006) attributed this problem to the fact that schools' standards are not aligned to the expectations of the world of work.

In recent times, universities around the world are constantly faced with challenges in training students to become lifelong learners and resourceful professionals within their own area of study (Dolmans, Loyens, Marcq & Gijbels, 2016). This challenges the realisation of the Sustainable Development Goal 4, which lays stress on ensuring quality education and long life learning. Surprisingly, most of these universities tend to encourage memorisation of facts and thus, their assessment systems often do not reward deep learning among students (e.g., Fook & Sidhu, 2014; Gijbels,

Van de Watering, Dochy & Van den Bossche, 2005; Mazur, 2015; Watkins, 2001). It is in this regard that Mazur (2015) reiterated that encouraging just memorisation of facts silently kills students' learning in the universities. To other studies, memorisation prevents teachers from equipping students with the knowledge and competencies required to function in their field of work (e.g., Alkharusi, Aldhafri, Alnabhani & Alkalbani, 2012; Fook & Sidhu, 2014; Kankam, Bordoh, Eshun, Bassaw & Koranteng, 2014; Wass, Miller & Sim, 2014). It is evident, therefore, that activities of teachers regarding teaching and learning have resulted in producing students who do not fit in the world of work. This is likely to create a gap between the academic world and the industry.

The economy of Ghana has been on an upward trajectory over the past three decades, hitherto several challenges bedevil sustainability, redistribution and growth. Although admission rates at the pre-tertiary and tertiary levels have gone up significantly, the school system still faces problems of the lack of high calibre of teachers and teaching aids (Alagidede, Baah-Boateng, & Nketiah-Amponsah, 2013). At the same time, the higher education system continues to churn out a large army of unemployable graduates. With the arrival of private tertiary institutions, the focus has drifted from technology and science education to the mass production of business/social sciences graduates, given the relatively low opportunity cost involved. There is great emphasis on 'certificates', rather than skills, and the high number of unregulated, poorly staffed and shoddy fly-by-night higher degree awarding institutions in the various capitals has become a characteristic feature of the educational system of Ghana in the last few decades (Baah-Boateng, 2013).

The educational quality in Ghana is of great concern regarding how the education system could encourage economic revolution of the economy. It does appear that in Ghana, the system of education and training is supply driven (Baah-Boateng, Ansu, & Amoako-Tuffour, 2012). In several cases, managers complain about the product quality churned out by the universities in the country. Though the growth in the number of private universities should be commended, there are still serious concerns to be addressed (Boateng & Ofori-Sarpong, 2002). The lapses in the teaching and learning regarding Ghanaian Universities is due to the inferior mind-set of individuals who seek certificates over skills, and the emphasis on business and management training to the neglect of science and technology. This has unlocked a gaping hole in the expertise needed by industries and the kind of university graduates produced (Alagidede, Baah-Boateng, & Nketiah-Amponsah, 2013).

From Addai's (2017) view, there is a minimum level of cooperation between academia and the industry in Africa. Addai (2017) further indicated that there has been some evidence to show that the educational system in Ghana, and in many African countries, is very theoretical with less practical knowledge. He continued by indicating that unless the disconnection between higher education and industry has been addressed, graduate unemployment will continue to be predominant within the continent. Prof. Addai recommended that universities in Africa should quickly put in place mechanisms in the reformation of assessment and the curriculum as a whole. The assertions made by scholars on the gap between the academia and the industry has been of major concern to major stakeholders in education as unemployment increases and the need for ensuring a knowledge-driven economy is becoming blurred.

In a study by Quansah and Appiah (2019), university students in Ghana were not confident enough to face the demands of a knowledge economy. In another study, Quansah and Asamoah (2019) found that university students in Ghana argued that assessment in their institutions did not help them to apply their learning to real life. Again, the students were of the view that assessment in their universities failed to examine their ability to answer practical questions even in their field of study (Quansah & Asamoah, 2019). The two studies provide some meaningful information on the fact that academia and the industry seem to be far apart. However, previous studies focused on respondents who were students. It is appropriate to get a comprehensive understanding of the situation from people who have passed through this same education system. This current study takes a different dimension by examining from the perspectives of university graduates in Ghana, the gap between academia and industry in the country. The study unravels the link between knowledge acquired in school and knowledge required in the work setting.

## **2. Biggs Theory of Constructive Alignment**

The Constructive Alignment (CA) theory is based on two fundamental concepts: constructive and alignment (Biggs, 1996). According to Biggs, the "constructive" aspect refers to the idea that students construct meaning through relevant learning activities. That is, meaning is not something imparted or transmitted from teachers to learners, but, it is something learners have to create for themselves. The "constructivist student" learns through discovery rather than merely the transfer of information from teachers to students (Biggs, 2003). Constructivist education is, therefore, more than the acquisition of new knowledge: it promotes the development of critical thinking (Joseph & Juwah, 2012). The alignment aspect, according to Biggs (1996), refers to what the teacher does, which is to set up a learning environment

that supports the learning activities appropriate for achieving the desired learning outcomes. The key is that the components in the teaching system, especially the teaching methods used and the assessment tasks, should be aligned with the learning activities assumed in the intended outcomes. The learner is in a sense 'trapped' and finds it difficult to escape without learning what he or she is intended to learn (Biggs, 2003).

The theory of constructive alignment is a framework for teaching in which what is intended for students to learn and how they should express their learning, are clearly stated before teaching takes place. Teaching is then designed to engage students in learning activities that optimise their chances of achieving those outcomes, and assessment tasks are designed to enable clear judgments as to how well those outcomes have been attained. Such a teaching framework is assumed in everyday learning. For instance, a father teaching his son how to put on a necktie concentrates on that outcome and takes the son through the motions of tying a tie until the act of tying can be carried out satisfactorily by the son. Similarly, a motorist learner learns through the act of driving itself until the specified standard is reached. In each case, the target act is at once the intended outcome, the method of teaching, and the means of assessing whether the desired criterion or standard of the outcome has been met. This approach to teaching is learner-centred in that the objective is what the learner has to achieve and how the learner may best be engaged in order to achieve it to the required standard. The teaching design is outcome-based and assessment is necessarily criterion-referenced.

As part of the objectives of undergraduate programmes in most universities in Ghana, it is anticipated that the learners should be able to develop self-confidence, innovate habits of honest scholarship and adopt a constructive and development-oriented approach to problem-solving. It is the objective of the universities to also prepare learners with specialised skills and knowledge needed for the pursuit of careers in different sectors of the economy. Therefore, it is expected that students who have gone through an undergraduate programme in any university in Africa, irrespective of his/her Cumulative Grade Point Average (CGPA), should be able to demonstrate these abilities, skills and competencies. But does this really happen? Are these objectives realised at the end of a programme or a course? This study provides some meaningful information to these statements.

In answering these critical questions, Biggs theory of CA is useful for reminding curriculum/course designers in universities in Africa the essence for consistency in all the elements of the curriculum (Biggs 1999; Biggs & Tang 2011). The purpose of the programme/course, learning outcomes, teaching methodology and especially, the assessment procedures (criteria and approaches) must be in alignment to make sure that the anticipated learning is attained.

**3. Theoretical Framework**

Based on the theory of CA, the authors developed a framework (see Figure 1) which provides a pictorial explanation of the CA theory in relation to the current study as well as the research problem of the study.

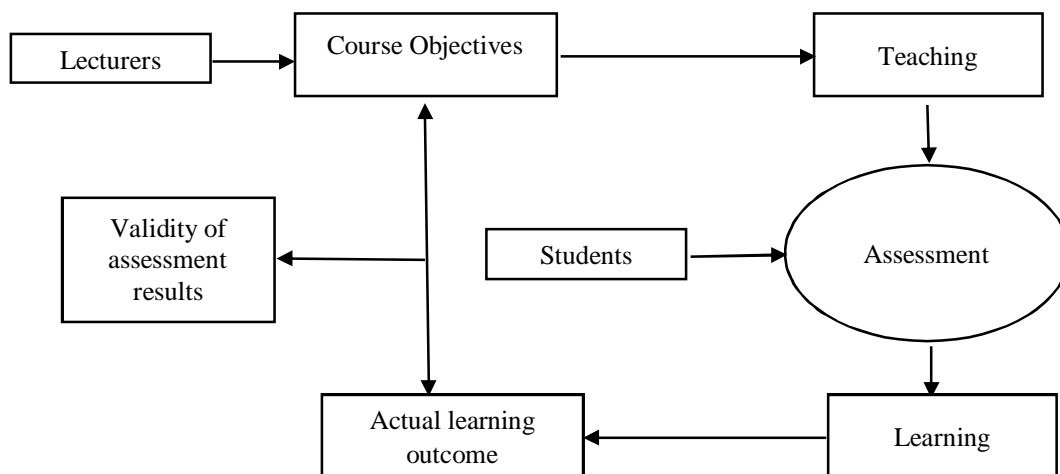


Figure 1: Framework from Analysis of Biggs Theory of CA

In the various universities in Ghana, for example, lecturers who teach courses under various colleges and programmes have course or programme objectives which provide guidance to teaching and learning activities. For course objectives, the course outline provides the expectations of learners at the completion of the course. Lecturers in Ghanaian Universities mostly teach using the lecture method. After teaching, the lecturers are required to assess students to find out whether students have had mastery over what was taught. This means that lecturers' responsibility is never complete without assessment. Therefore, lecturers after teaching are required to find out how well students have grasped the concepts taught. This process is illustrated in the framework (Figure 1).

In line with the developed framework and Biggs theory of CA, students generally approach a course by looking at how the course is assessed (Biggs, 2003). In most universities, for example, students after enrolling on/registering for a course first and foremost search for past question just to know the nature of assessment mostly given in that particular course. In some cases, students interact with past students who have already taken the course. Our observations and interactions with students in some of these universities revealed that students mostly learn in order to get a good score or a pass in a course. Most students, therefore, learn to suit the present assessment in their respective courses. This leads to students going through courses and programmes without any meaningful learning even though they have passed these courses and in some cases getting good grades. In such cases, there is going to be a gap between what students have attained at the end of the course and the course objective. This questions the validity of the assessment scores obtained by the students. This is because, it is assumed that any student who takes a course should be able to attain some level of abilities, skills and competencies stipulated in the course objectives.

Take a course like "Critical Thinking and Practical Reasoning" at the University of Ghana and the University of Cape Coast, the objective is to:

"impart students with the functional capability to think well and to expand their analytical abilities and predispositions. Adding to familiarising students with basic approaches of building strong arguments, the course is aimed at assisting learners to understand the critical values involved in the practice of logical decision making" (Ansah, Aboka, Abraham, Inusah & Grant, 2017, p. 3).

If in a course like "Critical Thinking" students are taught and assessed in a way which does not unearth their ability to reason and argue logically, then there would definitely be incongruence between actual learning outcome and course objective. This implies that students who would go through the course and have passed would not have the functional ability to reason well and would not be in a position to make reasoned decisions. This leads to a gap between course objectives and actual learning outcome which would suggest that the assessment within the course did not provide adequate avenue for deep learning to take place. This reduces the validity of the assessment results obtained by the students leading to a gap between academia and industry.

#### **4. Methodology**

A survey was conducted within Ghana using the descriptive design (non-experimental design). This was appropriate because of the large population involved in the study and no manipulation of variables was done. The population consisted of people who have graduated from any public university in Ghana. Over 40,000 students had graduated from the public universities in Ghana. However, only graduates who were engaged in permanent employment and had worked for one year or more were targeted for the study. Originally, 2,200 sample size was estimated but the final sample size remained 1,907 which indicates a response rate of 86.68% and this is acceptable and enough to provide meaningful information to achieve the aim of the study. Specifically, the sample consisted of 1,220 males and 687 female university graduates. This was not surprising because more male students than females graduate from public universities in Ghana. Again, a non-probability sampling technique was used. Specifically, the convenience sampling technique was used due to the nature of the study.

The data was gathered from graduate students at various workplaces including financial institutions, educational institutions, media houses, Electricity Company of Ghana (ECG), Ghana Water Company (GWC), Ghana Revenue Authority (GRA) and other public and private offices in Greater Accra, Western Region, Central Region, and Ashanti Region. A self-designed questionnaire was used for the data collection. Apart from the demographic variables like age and gender, a scale was developed and validated before it was finally used. The scale was measured on a 5-point Likert scale from strongly disagree-1, disagree-2, undecided-3, agree-4 and strongly agree-5. The validation was done using Structural Equation Modelling (i.e., confirmatory factor analysis). Bootstrapping with 5,000 bootstrap samples were used and it was observed that all the items significantly loaded on the latent variable (see Figure 2). The internal

consistency of the items was also established using the composite reliability. A reliability coefficient of .755 was attained. The detailed results are shown in Table 1.

Figure 2: Confirmatory Factor Analysis (CFA)

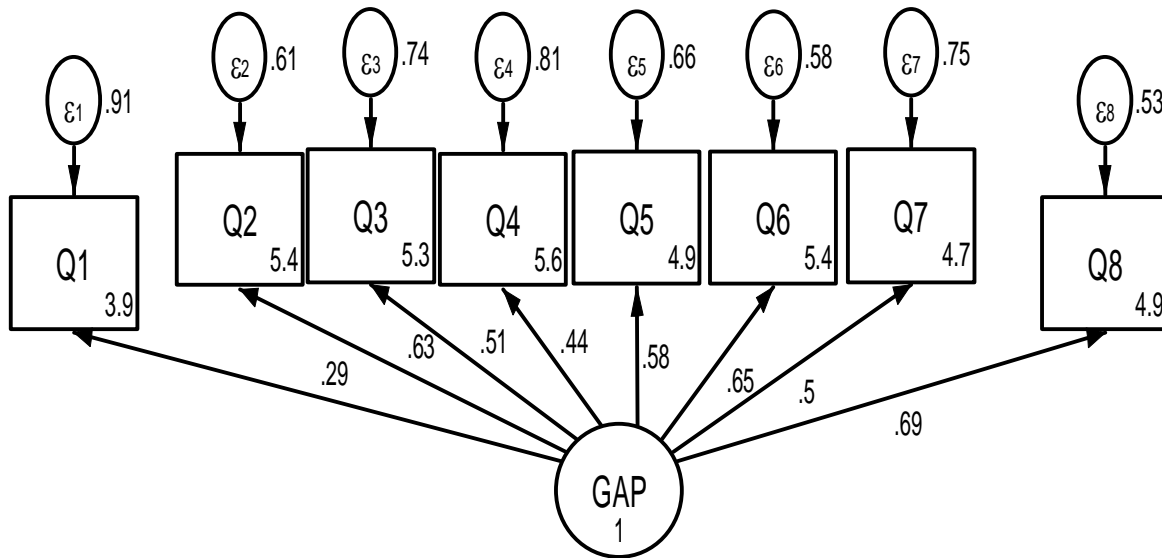


Table 1: Validation of Items

Measure	Loading	Bootstrap SE	p-value	95% Conf. interval	
				LL	UL
Q1	.2945213	.0311233	.000	.2335207	.355522
cons	3.856192	.0770336	.000	3.705208	4.007175
Q2	.6277333	.022957	.000	.5827384	.6727281
cons	5.408552	.1634508	.000	5.088194	5.72891
Q3	.5098586	.0277043	.000	.4555593	.564158
cons	5.285644	.1437011	.000	5.003995	5.567293
Q4	.4359989	.0280221	.000	.3810765	.4909212
cons	5.601573	.2332907	.000	5.144332	6.058815
Q5	.5820684	.0241233	.000	.5347875	.6293493
cons	4.90232	.1358476	.000	4.636063	5.168576
Q6	.6503212	.0277438	.000	.5959444	.7046979
cons	5.35229	.1430183	.000	5.071979	5.632601
Q7	.4962739	.0237343	.000	.4497556	.5427923
cons	4.705975	.122253	.000	4.466364	4.945587
Q8	.6884338	.0274609	.000	.6346114	.7422562
cons	4.886381	.1420685	.000	4.607932	5.164831

Composite Reliability=.755

The results from the confirmatory factor analysis revealed that all the loadings were acceptable using a cut-off of .25 (Pallant, 2011). The composite reliability estimate was also acceptable. The overall model fit was acceptable. The chi-square value was non-significant, Adjusted Goodness of Fit value was .64, Root Mean Square Error of Approximation was .02 and Comparative Fit Index was .99. Average Variance Extracted (AVE) value was .30. Although this was not acceptable, the scale was still used. This was because none of the analysis used the composite of the scale.



## 5. Results

For the purposes of interpretation, a mean score greater than 3 depicts the respondents' agreement to the statement whereas a mean score less than 3 shows respondents' disagreement with the statement. The results are presented in Table 2.

**Table 2: Graduate Students Perspectives on the Gap between Academia and Industry**

Q.	Statements	Mean	SD
1.	There are differences in what I learnt in school and what I do at work	3.82	.99
2.	Back in school, I was just interested in passing with a good grade	4.44	.82
3.	Classroom teaching did not match with the real world of work	4.12	.78
4.	The university did not equip me with practical skills in my area	4.37	.78
5.	During school days, lecturers emphasised passing examinations	4.12	.84
6.	Course contents were not linked to the acquisition of practical skills	4.17	.78
7.	Assessment tasks were limited to my ability to recall facts	4.25	.90
8.	I was not frequently exposed to experiential training in school	4.28	.88

Results, as shown in Table 2, revealed that graduate students believed that there are differences in what they learnt in school and what they do at work ( $M=3.82$ ,  $SD=.99$ ). It was found that back in school, they were just interested in passing with a good grade ( $M=4.44$ ,  $SD=.82$ ). According to the respondents, classroom teaching did not match with the real world of work ( $M=4.12$ ,  $SD=.78$ ) and thus, the university education did not equip them with practical skills in their areas ( $M=4.37$ ,  $SD=.78$ ). It was again found that lecturers emphasised passing examinations ( $M=4.12$ ,  $SD=.84$ ) and course contents were not linked to the acquisition of practical skills ( $M=4.17$ ,  $SD=.78$ ). Assessment tasks were limited to their ability to recall facts ( $M=4.25$ ,  $SD=.90$ ). For many of the respondents, they were not frequently exposed to experiential training in school ( $M=4.28$ ,  $SD=.88$ ).

## 6. Discussion

The findings from the study revealed an interesting but sad trend of results. The graduate students perceived the university education system as one which promotes rote learning and just passing of examinations. It is expected that assessment activities in universities should seek to gather valid and reliable information about the student which is expected to be consistent with planned objectives of courses or programmes in these universities (Biggs, 2003). This is not the case in Ghana as reported by the graduate students. If students perceive that university education is only about memorisation such that opportunity is not given to students to apply what has been learnt, students would then memorise facts when learning and forget what has been learnt after the test. In cases like this, students who are good in memorising facts are those who would get a higher mark. This will lead to misalignment between course objectives and actual learning outcome because the students who have gone through such courses and have passed, would not be able to demonstrate the activities outlined in the course objectives. This alignment between actual learning outcome and course objective results in validity issues with regards to assessment scores. This is seen in a study by Quansah (2017) who found that university students in Ghana, at both undergraduate and postgraduate level, misused Cronbach Alpha reliability estimate in their research even though these students have taken and passed courses in both statistics and research methods. This reveals that if teaching and assessment are not properly done at the university level, students would pass through the system without learning taking place.

It appears that most of the issues raised by the respondents are bothered on the content of courses and assessment. This is evident as the graduate students expressed concerns over the discrepancies between what was taught in school and what they do at work. Thus, the respondents believed that there is a gap in what they learnt in school and what they do at work. This was coupled with little practical training in the universities as reported by the respondents. The findings are consistent with several reports in Ghana (Kamkam et al., 2014) and around the globe (American College Testing, 2006; Fernandes et al., 2012; Flores et al., 2016; Laird & Garver, 2010). Just as revealed in this study, Gulikers et al. (2006) attributed this problem to the fact that school standards are not aligned to the expectations of the world of work. Even though little is known on curriculum alignment in universities in Africa, from the global perspective, Biggs (2003) expressed concerns on how constructive alignment is lacking in some tertiary education courses and programmes. The findings of this study, generally, revealed that there is misalignment between course/programme objectives, teaching and assessment. Majority of course content requires that students develop a comprehensive knowledge in their discipline and be creative in solving problems within their field. In practical terms, however, most of these courses/programmes are delivered via large lectures and assess factual components of the curriculum. Both the delivery

and assessment procedures employed, in most cases, misalign with the course. There is, therefore, the absence of constructive alignment in teaching and learning (Biggs, 2003).

### **7. Conclusions and Recommendations**

Students who have gone through the various educational systems in Ghana are expected to have mastery and competencies in their respective area of study. It is surprising that what happens is otherwise. It cannot be denied that teaching and assessment plays a crucial part in bridging the gap between academia and industry in Africa. This is because courses or programme objectives are crafted based on the curriculum, and assessment, in turn, is designed based on courses or programme objectives. A look at the details of some curriculum of programmes in Ghana shows a practical methodology for teaching and learning. This is also seen in most of the courses and programme objectives. However, students go through such programmes and end up learning nothing. It can be concluded that poor implementation of teaching and assessment procedures is the cause of the disjoint between academia and industry. From the findings of the study, it is recommended that the management of various universities in Ghana should organise workshops and seminars for lecturers on practical teaching and assessment. Lecturers are therefore advised to put in place appropriate teaching and assessment strategies to ensure that students acquire the necessary skills. Universities should also collaborate with experts in specific industries when mounting programmes and courses and also seek advice with regards to course content. It is recommended that the Management of Ghanaian Universities should quickly put in place mechanisms in the reformation of assessment and the curriculum as a whole. University curriculum/course designers should ensure that there is consistency in all the elements of the curriculum such that programme objectives can be achieved.

### **8. Limitations**

The nature of the design that was used resulted in issues of validity and reliability. Survey designs captured brief moments in time just like taking a photograph of on-going activity. This suggests that the perception of university graduates might change over time. Again, the findings of this study were solely based on the perception of some conveniently sampled university graduates in Ghana. Hence, caution should be taken when reporting and interpreting the findings of this study.

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