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Contents

List of Abbreviations

AAU	—	Association of African Universities
ABS	—	Association of Business School
AFS	—	African Studies
BMA	—	Business, Management and Accounting
CIAs	—	College Improvement Advisors
CIU	—	Council of Independent Universities
CoE	—	College of Education
CL	—	Computer Literacy
CS	—	Communications Skills
DFID	—	Department for International Development (UK)
GES	—	Ghana Education Service
GCSE	—	General Certificate of Secondary Education
HEI	—	Higher Education Institutions
HE	—	Higher Education
IEPA	—	Institute of Educational Planning and Administration
IGF	—	Internally Generated Fund
IPELO	—	International Programmes and External Linkages Office
KNUST	—	Kwame Nkrumah University of Science and Technology
KPIs	—	Key Performance Indicators
LEA	—	Local Education Authority
MoE	—	Ministry of Education
NAB	—	National Accreditation Board
NCTE	—	National Council for Tertiary Education
NIB	—	National Inspectorate Board
NTC	—	National Teaching Council
OECD	—	Organisation for Economic Cooperation and Development
SACMEQ	—	Southern and Eastern Africa Consortium for Monitoring Educational Quality
SAP	—	Student Affairs Professionals
SED	—	Scopus Electronic Database
SES	—	Socioeconomic Status

SMS   —   Short Messaging Service
SLR   —   Systematic Literature Review
T-TEL   —   Transforming Teacher Education and Learning
TUs   —   Technical Universities
UCC   —   University of Cape Coast
UDS   —   University for Development Studies
UEW   —   University of Education, Winneba
UENR   —   University of Energy and Natural Resources
UG   —   University of Ghana
UK   —   United Kingdom
UHAS   —   University of Health and Allied Sciences
UNESCO   —   United Nations Educational, Scientific and Cultural
             Organisation
UTAG   —   University Teachers Association of Ghana
VA   —   Value Added
WoS   —   Web of Science

Editorial

This fourth volume of the *Ghana Journal of Higher Education* presents our readers with four studies on current trends in the development of Tertiary Education in Ghana, and some of the challenges facing the sector and its stakeholders.

The government has embarked upon reform initiatives in the Colleges of Education in Ghana. In this regard the government of Ghana in collaboration with Department for International Development (UK) launched a transformation programme targeting the Colleges of Education known as 'Transforming Teacher Education and Learning' (T-TEL) project. The authors of, "Rethinking Stakeholder Engagement in Higher Education Reforms: the case of Colleges of Education in Ghana" present a study on the perspectives of College of Education Leadership on the usefulness of their engagement and ownership responsibility in both the implementation and the sustainability of the T-TEL programme.

The authors argue that for a lasting impact of the programmes objectives, an extended engagement of the College Leadership should be pursued.

In Ghana all tertiary education institutions are regulated by two major bodies, the National Council for Tertiary Education (NCTE) and the National Accreditation Board (NAB). Tertiary institutions must meet the standard requirements of both institutions before they are allowed to operate. Private institutions are required to be affiliated to a chartered institution, normally a public university. The institutions to which they are affiliated serve as their mentors. Emmanuel Newman assesses the rationale, process and effectiveness of the mandatory requirement for affiliation and mentorship of private universities in Ghana.

E. Newman points out the need to simplify the process of accreditation and provision of presidential charter to promote innovation and development of the private university sub-sector. The authors of "Examining the Research Paradigms of Business Education Lecturers in Public Universities in Ghana" present a study on research output of business education lecturers in four public universities in Ghana on the

basis of published research in peer-reviewed journals by focusing on the scientific paradigms and the choice of methodologies. The authors are worried that most lecturers in the Business School prefer the use of qualitative approach at the expense of other research methodologies. The paper urges policy makers in public universities in Ghana to put equal premium on quantitative, qualitative and case study driven research as a way of generating novelty in research findings.

Maame Afua Nkrumah in "Changes in Educational Quality over Time at a Polytechnic in Ghana" discusses the stability of students' performance over time (2007–2009) in one Polytechnic in Ghana. The study examines patterns of stability in the performance over time and the overall structure of the vacancies for quality improvement at MET Polytechnic (a pseudo name chosen for ethical reasons). The study specifically looks at: (a) the patterns of stability in the students' performance over a period of three years and (b) the overall structure of the variances; in three core curricula areas: African Studies, Communication Skills and Computer Literacy.

Examining the quality of the three courses was considered important as they constitute qualities, skills and attributes that all graduates are expected to possess for the world of work and for social good. The study seeks to contribute to current efforts in ensuing delivery of quality education in Ghana.

Rethinking Stakeholder Engagement in Higher Education Reforms: The Case of Colleges of Education in Ghana

FRANCIS ANSAH, HOPE PIUS NUDZOR & SAMUEL AWUKU

Abstract

Educational reforms have become a key global feature of contemporary higher education. Majority of these reform initiatives in developing nations appear to be characterised by the importation of success stories from developed nations, either through adoption or adaptation. However, whether reform initiatives are adopted or adapted, it is undeniable that their effective implementation and ownership responsibility for sustainability depend largely on the effectiveness of stakeholder engagement in the process of change. Using a 'push' and 'pull' engagement framework with qualitative research methods, in particular individual and focus group interviews, this article examines the perspectives of College of Education Leadership on the usefulness of their engagement in the implementation and ownership responsibility for the sustainability of the Ghana Government's flagship programme 'Transforming Teacher Education and Learning' (T-TEL) in the Colleges of Education. The findings indicate a fair level of engagement of college leadership with the T-TEL project activities using integrated 'push' and 'pull' engagement platforms. However, the level of engagement appeared asymmetrical such that the push engagement information was over concentrated on College Principals. The study concludes that this has led to minimal ownership responsibility for sustainability of the reform initiatives within the Colleges. In light of this, it is recommended that extended engagement with the College of Education leadership should be pursued by the Government with a particular focus on the pull engagement platforms, and with the aim of achieving ownership and the lasting impact of the programme's objectives.

Introduction

Educational reforms have become a key feature of contemporary higher education globally. In Sub-Saharan Africa and Ghana in particular, higher education, including teacher education, has undergone several reform initiatives. According to Akyeampong (2017) in order to address the problem of not providing enough opportunities for pre-service teachers to learn teaching in the context of real classrooms, Ghana has been implementing teacher education reforms since 2004, while the idea of

such reform has been attracting attention since the 1990s. In 1995, the teacher education curriculum in Ghana was reformed to move away from a highly teacher-centred approach to a student-centred one (Akyeampong, 2017). Another major reform also occurred in 2004 with a focus on teaching practicum to enable pre-service teachers to gain better classroom experience prior to actual professional practice. This reform was intended to reduce the time pre-service teachers spend in residential teacher education and devote more time to teaching practicum.

In developing nations, particularly Sub-Saharan Africa, the majority of reform initiatives in higher education appear to be characterised by importations of success stories from the developed world, either through adoption or adaptation. Whichever of these two methods reform initiatives are introduced by, it is undeniable that their effective implementation and ownership responsibility for sustainability depend largely on the degree of attention given to the specific 'cultural context' from which the successful initiatives are taken (Harris, cited in Nudzor & Ansah, 2017) as well as the effectiveness of stakeholder engagement in the processes of change.

These two variables (the cultural context from which reform initiatives are replicated vis-à-vis effective stakeholder engagement in reform processes) certainly qualify as suitable candidates for academic investigation. However, for the purposes of this article, the focus is on the latter.Using a 'push' and 'pull' engagement framework with qualitative research methods, particularly individual and focus group interviews, this article examines the perspectives of College of Education (CoE) Leadership on the usefulness of their engagement in the implementation and ownership responsibility for sustainability of the Ghana Government's flagship programme 'Transforming Teacher Education and Learning (T-TEL)'. The rationale of this article is to facilitate a rethink of the models of stakeholder engagement in higher (including tertiary) education reform in all its facets.

The next section of the article outlines the research context. This is followed by the study approach and methods. Thereafter, the findings are presented and discussed before finally the conclusions are given.

Research Context

There has been a growing debate in recent times on the need to promote

stakeholder engagement in higher education on several fronts, including students, faculty and management in institutional reforms (Kadlec, 2016). Student Affairs Professionals have also argued for the need to rethink student engagement in higher education in the 21st Century (Coates, 2005; Kahu, 2013; Quaye & Harper, 2014). Similarly, the need to rethink participant engagement in research, especially community-based research, has also been highlighted forcefully in recent contemporary higher education literature (Strand, Cutforth, Stoecker, Marullo & Donohue, 2003; Walker, 2014; Zhao & Kuh, 2004).

Reforms are part of any effective global educational system (O'Meara, 2011). They have become more profound in higher education, where cost-sharing, strengthened accountability and quality outcomes have become issues at the forefront of contemporary higher education. For these reasons, strengthening stakeholder engagement in higher education reforms is an issue which cannot be relegated to the background. Higher education has stakeholders with different perspectives on issues which requires negotiations and settlements (Ansah, 2015). Effective stakeholder engagement in higher education reforms reduces risks associated with reform implementation and increases the potential of reform sustainability (Grad, 2015; Kadlec, 2016). There is therefore the need for continuous negotiations and settlements through effective engagements of stakeholders to promote ownership responsibility among stakeholders for reform sustainability. Given that the environment of contemporary higher education is dynamic, resulting in regular reforms through innovation and best practice, effective stakeholder engagement, especially implementers of reforms, should be a regular practice in higher education. Engagement is a dynamic relationship where individuals participate in, and are more involved with, particular activities of higher education (Oblinger, 2014). It is considered a critical success factor for higher education and its many stakeholders (Oblinger, 2014).

Calls for teacher education reform abound and have, for more than 40 years, existed alongside the development of research in teacher education (Blanton, Pugach, & Boveda). Ghanaian teacher education is currently experiencing major reforms. In respect to the CoEs in Ghana, they were elevated to tertiary education status in 2012 by an Act of Parliament that enabled them to offer tertiary programmes in teacher education. Their new status required reforms to their operations in

order to be effective and efficient as tertiary institutions producing high quality teachers for the pre-tertiary education subsector in Ghana. The elevation of the CoEs from pre-tertiary to tertiary status brought about the need to re-engineer their operations to be aligned with practices of tertiary education institutions and also to improve the quality of training of pre-service teachers, in order to address poor learning outcomes in pre-tertiary education (Transforming Teacher Education and Learning, 2017).

In line with these expectations, the Government of Ghana, with funding from the Department for International Development (UK), introduced a four-year programme known as Transforming Teacher Education and Learning (T-TEL) with an implementation period from 2014 to 2018. Essentially, the T-TEL project aims to support pre-service teacher professional development and management in order to strengthen pre-service teacher education, to produce professionally effective and efficient teachers for the country's pre-tertiary education. To achieve this aim, the T-TEL's programme of activities focuses on change agenda in the following core areas of teacher education:

1. Training and coaching for CoE tutors in Mathematics, English and Science, and eventually generic materials for all tutors;
2. Support for the management of CoEs and training of its leaders;
3. Support to reform the pre-service curriculum;
4. Support to develop more effective student practicums;
5. Working with the Ministry of Education (MoE) and regulatory bodies on the implementation of existing policies for teacher education;
6. Institution of a Challenge Fund to which CoEs and their partner districts and schools will be able to apply to carry out innovative initiatives;
7. A set of incentives for each CoE to improve their management and training delivery (Transforming Teacher Education and Learning, 2017).

In collaboration with MoE and the Ghana Education Service (GES) together with national-level institutions such as the National Teaching Council (NTC), National Council for Tertiary Education (NCTE), National Accreditation Board (NAB), National Inspectorate

Board (NIB), Universities of Cape Coast (UCC) and Winneba (UEW) and CoEs, several intervention activities have been implemented by T-TEL with a majority of the interventions implemented directly in the CoEs.

Barring any extension, the programme is expected to wind up in 2018. However, the nature of stakeholder engagements with CoE leaders intended to facilitate ownership responsibility and sustainability of the reform initiatives is yet to receive rigorous academic interrogation. Thus, it is important to examine the nature of engagements of CoE leaders with T-TEL's programme of activities, to understand their perspectives on the usefulness and eventual sustainability of the gains from the programme. This is particularly imperative because reform sustainability in higher educational institutions requires genuine ownership responsibility from institutional leadership (Kadlec, 2016). Therefore, in line with this thinking, the study on which this article reports sought to examine the perspectives of CoE leaders on how the nature of engagement with T-TEL's programme of activities has facilitated ownership responsibility for implementation of the programme interventions, and sustainability of gains made by the Programme in the CoEs across the country. In particular, the study examines the nature of the platforms of engagement for college leaders and how these platforms of engagement have promoted college leadership ownership responsibility of interventions for the sustainability of gains made by the T-TEL programme, in order to inform future stakeholder engagement strategies in higher education reforms in Ghana and other developing countries in Africa. This examination is performed against the backdrop that identifying stakeholder engagement concerns is a useful method of helping to identify opportunities, benefits and barriers to sustainability strategies.

The research questions that guided the study are as follows:

1. What have been the platforms for the engagement of CoE leaders in the implementation of the T-TEL programme reforms in the CoEs?
2. How has the engagement facilitated college leaders' ownership responsibility for implementation of the T-TEL activities for sustainability in the CoEs?

Thus, the choice of college leadership as a focus of the study is grounded in the fact that effective implementation and sustainability of reforms in higher education is based on genuine ownership responsibility of institutional leadership (Kadlec, 2016). In addition, it is argued that leadership is cause; everything else is effect (Adei, 2004). Thus, the mobilisation of human and material resources for the implementation and sustainability of reforms initiatives in the colleges is essentially the responsibility of the college leadership.

Study Approach and Methods

Here, we outline the analytical framework and the methodological approach adopted for the study to set the findings in the context of the evidence gathered.

Analytical framework

The study uses Wilcox's (2017) engagement framework for a holistic, comprehensive and dynamic integrated platform for student advising. Even though it was designed as a critical component of the curriculum to be used for advising students, it is a logical framework that could be applied in the context of stakeholder engagement generally. It conceptualises effective engagement as integrating *push* and *pull* platforms of communication for stakeholder engagement.

The Push engagement platform does an excellent job of 'telling' and 'showing' by *pushing out information* on resources such as necessary requirements, rules and regulations. Its tools are used to address the most critical informational needs, such as describing requirements, clarifying policy, providing instructions, alerting college leaders to approaching deadlines, informing college leaders of new opportunities, inviting college leaders to events, and even in some cases helping to orient stakeholders on already implemented programmes of activities in institutions (Wilcox, 2017). Social media tools such as webinars, podcasts, websites and email are excellent examples of *push* platform engagement tools. They remind stakeholders of deadlines (WhatsApp and SMS), describe requirements (webinar and podcasts), clarify policy (website) and inform stakeholders of new opportunities (email). If these push platform tools are coordinated and used

consistently, they perform a critical role in delivering basic content and free the in-person interaction for deeper exchange (Wilcox, 2017). Although *push* platform engagement makes the recipient stakeholder of information passive in the engagement process, it is useful for enhancing stakeholder understanding of programme content. Therefore, it stands to reason that the push platform could be part of the engagement processes of CoE leaders regarding T-TEL interventions in their colleges.

The *Pull* engagement platform, on the other hand, is useful as it provides customised attention by allowing the stakeholder to be engaged in the active seat for dialogue, reflection and community building. It achieves this through in-person individual appointments, group workshops, institution-based coaching and interactive social media, in support of the deeper work of taking ownership responsibility of programme implementation in higher education institutions (Wilcox, 2017).

It is claimed that for effective stakeholder engagement to be achieved, there is a need to integrate the *push* and *pull* platforms in a well-coordinated manner (Wilcox, 2017). It is plausible to argue, therefore, that by engaging CoEs leaders effectively using well-coordinated *push* and *pull* platforms in the study, genuine ownership responsibility for the implementation and sustainability of T-TEL interventions in the Colleges has been guaranteed.

Methodological approach

This study was underpinned by a qualitative research design using individual and focus group interviews. The qualitative design was considered appropriate to explore the perspectives of the leadership of CoE in Ghana because it creates a platform for in-depth discussions to generate deeper insights regarding the effectiveness of their engagements in the implementation and ownership responsibility for the sustainability of the T-TEL programme interventions.

Focus group interviews were conducted at workshop situations to elicit the views of CoE leaders on the usefulness of their engagements, and implementation and sustainability of the T-TEL programme interventions in their colleges. In all, eighteen (18) public CoEs from Northern, Eastern/Greater Accra and Volta zones were involved in the

study. Each of the Colleges presented six (6) participants who were considered college leaders because they were carefully selected to represent the key decision making bodies in the Colleges, such as the Governing Council and Management team. In all, one hundred and eight (108) participants took part in the study. These comprised 18 Governing Council Members, 18 Principals, 18 Vice Principals, 18 College Secretaries, 18 Quality Assurance Officers and 18 Heads of Department. Workshops were used to discuss the implementation of T-TEL programme interventions in the colleges and ownership responsibility for the sustainability of the reform initiative. The workshop facilitators were from the NTC, NAB and Leadership Consultants from the Institute of Educational Planning and Administration (IEPA), University of Cape Coast, who for training and development purposes were designated as College Improvement Advisors (CIAs)[1] on the T-TEL project. The workshops were organised in clusters in order to encourage effective participation and discussion. In some instances, each college constituted a focus group. However, in instances where the views of the homogeneous group (e.g. Principals, Quality Assurance Officers, Governing Council Chairs, Secretaries of CoEs etc.) were necessary for specialised knowledge, the focus groups were reconstituted to form homogeneous groups. Activities such as paired discussions, college group discussions and role plays were used as instruments for data collection. To complement the other forms of data collected, in-depth individual interviews were also conducted with College Principals who are the Chief Executive officers of the Colleges.

The data generated from the interviews and focus group discussions were tape-recorded, transcribed and analysed manually. The procedure involved three main stages; namely, familiarising and organising, coding and reducing, interpreting and representing. The following are the processes employed in these three stages. First, the audio tapes were repeatedly played to ensure familiarisation with the issues the respondents raised. Thereafter, the data were transcribed and the transcripts were read several times to group the most important points. Second, the raw data were screened to extract repeated ideas, that is,

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1. In the context of T-TEL project activities, CIAs are T-TEL consultants who produced leadership capacity-building resources and facilitated same at workshops, and provided coaching support to college leaders in the various CoEs.

phrases that appeared regularly in the transcripts. These repeated ideas were then developed and coded into categories/themes. The coding was done manually. Third, the transcripts were reviewed extensively to discover any un-coded data, and examined closely to discover any data which did not fit into any of the categories. The major themes that emerged were: the *push* platform of engagement, *pull* platform of engagement, effectiveness of interventions implementation in the colleges, ownership responsibility of college leaders and perceived challenges for sustainability. These are presented and discussed in the next section of the article, bearing in mind the necessity for brevity and precision of reportage.

Findings and Discussion

In this section, the findings of the study are presented and discussed along the lines of the themes that emerged from the data analysis. When these themes are put together, they help address the key research questions that guided the study.

Push engagement platform

It emerged that several push engagement platform tools were employed to engage the leadership of the CoE but at different levels of leadership and varying degrees of engagement. The findings show that the dominant push engagement platform tools employed for college leadership engagement were emails, short messaging service (SMS) and the T-TEL Programme website. These tools were used for describing programme requirements, clarifying policy, providing instructions, alerting college leaders to approaching deadlines, informing college leaders of new opportunities, inviting college leaders to events and even in some cases helping to orient stakeholders on already implemented programme activities in the institutions. Respondents captured these in various ways. For example, a member in a focus group discussion put it this way:

> *We are sometimes asked to go to the T-TEL website for instructions and guidelines on the Challenge Fund application. When a call is made for Challenge Fund application, they put it*

on the website. We are also told to go to the website to download materials on professional development...

The findings also indicate that email, as a push engagement tool, was used frequently to engage college leaders on T-TEL interventions in their colleges. However, in most of the reported cases, the emails were sent to the College Principals without copies to other members of the leadership team. One respondent explained it as follows:

T-TEL office sends us regular information on programme activities through emails but to our Principal. They don't copy us in the email even if the information is for all staff. They forget that sometimes the Principals don't read their emails regularly.

This claim was corroborated by many other respondents. In addition, it emerged that most often than not, the Principals were not using institutional emails and also were not regularly checking their emails to pass on information to the other members of the leadership team, which sometimes caused information asymmetry and thus delayed the implementation of T-TEL intervention activities within the Colleges. Another respondent put this rather bluntly:

T-TEL office usually sends information to our Principal who does not check his email regularly so we sometimes get the information late. Last time, we were supposed to attend a leadership workshop in Kumasi and the invitation was emailed to our Principal who did not check his email on time so the workshop started before we were called and we missed the first day.

These interview excerpts show that highly digitalised push engagement platform tools were employed in the stakeholder engagement processes in a context where technology uptake seems to be low. For instance, it is clear that some Principals were not checking their emails and T-TEL website regularly to warrant meaningful engagements through digital platforms. The irregular use of emails and other digitally-based tools could be attributed to a generational gap in technology use because

the majority of the Principals were nearing retiring age and would probably not be as used to technology compared to the much younger generation. Such Principals could have been effectively engaged if traditional push platform tools such as postal letters and faxes were employed. This implies that the college leadership were not effectively kept informed as expected in a push engagement platform (Estyn, 2016). To the claim that some Principals were not checking their emails to inform other college leaders on communication from T-TEL national office, leading to situations of ineffective push engagement, it is plausible to argue that T-TEL national office's mechanisms for monitoring push engagement tools were ineffective. If push engagement tools, which are basically used to inform, were effectively monitored by the T-TEL national office, then situations in which other members of the leadership team were not receiving information about impending activities could have been dealt with proactively (Estyn, 2016).

Pull engagement platform

The findings of the study indicate a fair use of pull engagement tools such as workshops, national stakeholder forums, college-based coaching and special meetings to discuss T-TEL Project interventions and build the leadership capacity of the CoEs. These were expressed variously by respondents:

> *Once [in] a while, we hear of national stakeholder forums on the T-TEL Project, particularly on the Diploma in Basic Education curriculum reform, but usually it is the Principals who attend on behalf of the colleges and we hardly get any debriefing from these forums* (Comment made by a member of a homogenous focus group).

> *We have so far attended about five leadership training workshops which we have used to build our capacity to revise our mission and vision statements, conduct college self-assessment and develop improvement plans for our college. With the leadership workshops, we have also been trained to develop management policies. So far, with the coaching support of our College Improvement Advisors, we have developed fourteen set of*

management policies for our college (Comments from one of the college groups).

The Principals have had special meetings with the Minister and the National Council for Tertiary Education (NCTE) to discuss the T-TEL Project implementation and sustainability (Comment made by a member from another homogeneous group).

Similar claims were made by other individuals and group respondents to indicate the use of *pull* engagement platform tools to engage the College Leaders. However, a critical examination of the responses indicates that *pull* engagement tools were used less frequentlythan the *push* engagement ones. Besides, our analyses show that the use of pull engagement tools was over-concentrated on the Principals, making other members of the leadership team feel less engaged. Undeniably, and as Wilcox (2017) also observes, the less frequent use of the pull engagement tools could have been due to the cost burden associated with the use of such tools. Nonetheless, the over-concentration of attention on the College Principals appeared to have affected leadership teamwork within the colleges somewhat because other members did not feel as engaged as the Principals. This indicates limited feedback for review from college leadership on the implementation of T-TEL activities because other members of the leadership team were constrained from providing effective feedback on activities due to minimal engagement (Estyn, 2016; Wilcox, 2017).

College leaders' ownership responsibility for T-TEL activities implementation

The findings under this theme show minimal ownership responsibility for T-TEL activities in the colleges by the college leadership, perhaps as a result of the overconcentration of attention on College Principals we flagged up earlier. This feeling of minimal ownership responsibility which frequently appears throughout the entire group discussion, focus group and individualised interview transcripts was expressed in a number of ways:

Sometimes, T-TEL national office organises workshops in our college and does not involve us in the planning but just inform[s]

you of the event which does not permit us to take full charge of such workshops. When it happens like that we are not able to demonstrate to our staff members that the project belongs to us (Comment by a member of one focus group).

When they are coming to organise leadership training workshop in our zone, we are not even consulted in the choice venue for the programme let alone ask[ed] for our inputs for the programme of activities even though we are familiar and can negotiate for a better deal (Comments from a member of another focus group).

We convinced our staff members to work hard on the Payment by Results projects because when we receive the reward to be given by T-TEL, we will motivate them our own way. Then, when T-TEL brings the reward, it comes with a list of items that qualifies as eligible expenditure such that we cannot spend to motivate our staff our own anymore. How can we demonstrate to our staff that we own the T-TEL project? (Comments from a College Principal).

I am also a leader but I receive no training from those who attend the workshops and they do not brief anybody when they return to the College from the leadership training workshops. So how do you expect me to own the T-TEL interventions in the college? (Comments from a College Leader).

Thus, these quotes, together with other findings reported under the theme of ownership responsibility for implementing T-TEL activities, generally indicate that the implementation of T-TEL interventions are, for the most part, centrally controlled from a national office which did not allow the college leaders to take full charge of the implementation processes in their colleges. It is plausible to argue that even though T-TEL interventions are intended to be owned by the colleges, the decision to centrally control most of the activities may perhaps be due to the donor funded nature of the T-TEL Project. In addition, one could also argue that the reporting requirements associated with internationally funded projects such as this one may be too demanding on the individual

colleges if the implementation of intervention activities is completely devolved to the college level. However, the issue the findings point to here concerns the general lack of deeper college-level engagement with CoE leadership, particularly by national agencies of higher education (such as NCTE and NAB) to instil in them the culture of ownership responsibility for implementing change initiatives in their respective institutions of higher learning (Kadlec, 2016).

Sustainability of the gains made by T-TEL in the CoEs

It emerged that the leaders of the CoEs have observed visible changes in their operations as a result of the implementation of T-TEL interventions in their colleges, and that they are willing to work hard to sustain these changes provided working conditions are made more favourable. The leaders' appreciation of the gains made in the colleges by the T-TEL Project is, for example, discernible from the following quotes:

> *The staff members who attended seminars and conferences on leadership and management training workshop have improved their managerial skills and competences in [the] management of human, financial and physical resources. All statutory and academic board committees have been put in place and functional. In addition, the incessant audit queries have ceased and the use of memo and requisition forms have been put in place. We hope that these improvements can continue* (Comment from a college group).

> *Teaching and learning in the College has become more effective as a result of the Teaching and Learning policy and guidelines we have developed through T-TEL interventions, and we hope to sustain the improvement* (Comment from one respondent of a focus group discussion).

> *There is more collaboration and teamwork in the college than it used to be. Our Principal does a lot of consultation since we started implementing the T-TEL Project. We hope it continues* (Comments from one respondent group).

Clearly, these responses point to the college leaders' observance of the usefulness of the T-TEL interventions in their colleges and their desire to ensure the continuity of the interventions. Interestingly, however, and as the interview/discussion excerpts show, participants predicated the sustainability of the gains on conditions such as availability of funds, devolution of staff appointment decision-making powers to the Governing Councils, mitigation of staff inertia, and reorientation of existing staff into tertiary education culture:

We need funds to be able to continue to do what T-TEL has been doing in our college. At the moment, we are cash strapped. There are no funds to implement these kinds of interventions on our own (Comment from a College Principal).

For us to ensure sustainability of the T-TEL activities, the power of our Governing Council to hire and fire must be activated so that staff allegiance to the College could be complete. Sometimes some of them think they were posted and cannot be fired and this is affecting their commitment seriously (Comments from a respondent in a group discussion).

The T-TEL interventions have increased the workload on our staff and they feel overwhelmed with work. We need to find a way of reducing staff workload and push more of these improvement activities on them (Comments from a respondent).

Most staff are still carrying 'GES' mentality and do not realise that this is tertiary. So things must be done differently. They need to get used to the culture of tertiary education before we can sustain this T-TEL thing in our college (Comments from a respondent of a focus group discussion).

Thus, the insights in this section clearly demonstrate that the college leaders seem to have a strong desire to sustain the T-TEL interventions in their respective colleges but feel constrained by factors they do not have full control over (Kadlec, 2016). This suggests that devolution appears to be an effective stakeholder engagement strategy in educational

reforms because it is said to contribute to institutional resilience and flexibility, learning and innovation, and ultimately to the improvement of sustainable performance (Account Ability, 2005).

Conclusion

This article has examined the nature of engagements of CoE leaders with T-TEL's programme of activities to understand their perspectives on the usefulness and eventual sustainability of the gains from the programme. To achieve this, the study adopted a qualitative research approach using individual and focus group interviews/discussions as strategies for data collection.The findings indicate a fair level of engagement of college leadership with the T-TEL project activities using integrated 'push' and 'pull' engagement platforms. However, the level of engagement appears asymmetrical, such that the push engagement information was over concentrated on College Principals. This, the study argues, has led to minimal ownership responsibility for sustainability of the reform initiatives within the colleges.

Against this backdrop, it is safe to conclude that the level of engagement of the CoE leadership with T-TEL interventions could not produce sufficient ownership responsibility for the sustainability of the reform initiatives within the colleges. The findings demonstrate that the college leaders feel that implementation of T-TEL intervention activities, for the most part, is centrally controlled from a national office which does not allow them to take full charge of implementation of the programme activities in their colleges. Going forward, it is recommended that extended engagement with the CoE leadership should be pursued by the Government, with the focus particularly on the pull engagement platforms, with the aim of achieving ownership and the lasting impact of the programme objectives. It is also recommended that further studies on the individual college's capacity to effectively manage donor funded project at the institutional level need to be undertaken to inform the future implementation of donor funded projects.

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Acknowledgements

Accreditation of Private Universities in Ghana-Assessment of the Mandatory Requirement for Affiliation and Mentorship

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Abstract

The mandatory requirement for compulsory affiliation and mentorship of private universities by older public universities as a pre-condition for accreditation and charter of private universities has brought about several challenges in the private university sector in Ghana. Stakeholders claim that the process is too long, cumbersome, ineffective and costly. It is also claimed that the process stifles innovation and makes new institutions clones of older public universities. In this regard, the rationale, processes and effectiveness of the mandatory requirement for affiliation and mentorship of private universities in Ghana is assessed in this work. We concluded that the process of accreditation and provision of presidential charter be simplified to promote innovation and foster the smooth development of the private university sub-sector.

Introduction

Private tertiary education institutions have become an important part of the tertiary education sector in Ghana. Private tertiary education institutions provide access to students who are unable to access public tertiary education as a result of limited capacity. Data available from the National Council for Tertiary Education indicate that 19 percent of students in tertiary education institutions were enrolled in private tertiary education institutions in the 2015/2016 academic year. Anamuah-Mensah (2017) states that the emergence of private universities is a blessing to the country. They provide infrastructure, teaching and learning facilities and pay salaries, a burden government would have borne in order to admit the 19 percent of students currently being shouldered by private institutions.

Private tertiary education institutions participate actively in the development of new knowledge and skills and bring to bear novelty approaches in pedagogy and technological development in tertiary education (AAU, 2000). They (private tertiary education institutions)

often enjoy management flexibility which enables them to introduce demand-driven and innovative programmes expeditiously. Indeed, the advent of private tertiary education has encouraged competition and stimulated innovation in programme offering, mode of delivery and fee-paying arrangements (AAU, 2000).

However, there are challenges in the operations of private tertiary education institutions in Ghana. The National Accreditation Board (2012) states that some private universities are faced with challenges regarding the authenticity and effectiveness of programme delivery. According to the Board, it is difficult to determine the outcomes of academic programmes delivered by these institutions. Furthermore, the accuracy of data submitted by these institutions to the Board is often questionable. There are also problems regarding unqualified staff teaching in certain programmes. These unqualified staff normally apply to teach with forged certificates or certificates from unaccredited institutions and since the institutions are in a haste to employ them, they fail to conduct background checks on them before employing them as teachers (NAB, 2012).

There are also challenges of non-adherence to established standards and minimum requirements. In fact, due to the competitive nature of the tertiary education system in Ghana, both local and foreign students sometimes enrol in these unaccredited institutions and only realise at the end or midway into their programmes that their institutions or programmes are unaccredited. Again, some of the accredited institutions admit students who fail to meet the minimum admission requirements because of their inordinate desire to make profits by enrolling more students (NAB, 2012).

Yankah (2017a) also stated that many universities are unable to endure the competitive climate and had decided …to cheat the system by admitting candidates who did not satisfy the minimum requirement for admission. There is also the worrying issue of unrecognised colleges and universities which distribute diplomas and degrees to persons who are willing to pay for them (Yankah, 2017a).

The National Accreditation Board, the national body with responsibility for accreditation of both public and private institutions and mandated to determine the programmes and requirements for the proper operation of an institution and the maintenance of acceptable levels of academic or professional standards, has come up with

regulations for the establishment of tertiary education institutions to promote quality delivery in tertiary education.

The processes for setting up private tertiary education institutions involves registration of a company; application for authorisation; setting up of infrastructure and other teaching and learning facilities; affiliation with a chartered tertiary institution; application for institutional and programme accreditation; three-year renewal of institutional accreditation; three to five year renewal of programme accreditation; five-year cyclical review of the institutions performance; and a ten-year minimum requirement to apply for charter status. For public institutions, all the foregoing processes do not apply except for programme accreditation and the five-year review (Dowuona *et al.,* 2017).

The foregoing process for accreditation and provision of presidential charter to private tertiary education institutions has been described as too long, time-consuming and costly. The Council for Independent Universities (2017) has also stated that the requirement for mandatory affiliation and mentoring by an older university stifles innovation and leads to the "cloning" of tertiary education institutions in terms of academic culture and practices.

Even though the affiliation and mentoring policy instituted by the National Accreditation Board is expected to be a quality assurance measure, adverse findings from quality audits and reviews conducted by the NAB reveal infractions of NAB's regulations by private tertiary education institutions, which suggest that the mandatory affiliation and mentoring requirements are not yielding the expected results. In view of the foregoing, this work is informed by the following questions:

- What are the historical antecedents and the rationale of affiliation and mentorship in higher education in Ghana?
- What are the views of stakeholders regarding the operationalisation of the mandatory affiliation and mentorship arrangement in higher education in Ghana?; and
- How can the regulatory environment be improved to foster quality higher education in Ghana?

The views of key informants involved in the regulation and operations of tertiary education were sought to establish the rationale

and challenges associated with the affiliation mechanism which is part of the process of accreditation in tertiary education in Ghana. Interviews were conducted with key managers: National Accreditation Board, the National Council for Tertiary Education and Council for Independent Universities.

The work has benefitted from pronouncements on the subject matter by key actors in the tertiary education space such as the Minister of Education and leaders of the private universities. Submissions on the subject matter by the leadership of the Council for Independent Universities, University Teachers Association of Ghana and Rectors of Technical Universities as well as reports available at the National Council for Tertiary Education and the National Accreditation Board were important sources of information.

Review of Relevant Literature

Definition of Key Concepts

In this section, we define the terms accreditation, affiliation, audit as applied in this discourse:

- **Accreditation**

Accreditation is a process of self-study and external quality review used in higher education to scrutinise an institution and/or its programmes for quality standards and need for quality improvement. The process is designed to determine whether or not an institution has met or exceeded the published standards (set by an external body such as a government, national quality assurance agency, or a professional association) for accreditation and is achieving its mission and stated purpose. The process usually includes a self-evaluation, peer reviews and site visits. Successful achievement results in accreditation of a programme or an institution (Materu, 2007). UNESCO (2007) defines accreditation as the process by which a governmental, non-governmental or private body evaluates the quality of a higher education institution as a whole or of a specific educational programme in order to formally recognise it as having met certain pre-determined minimal criteria or standards. The result of this process is usually the awarding of a status

(a yes/no decision), of recognition, and sometimes of a licence to operate within a time-limited validity.

- **Affiliation**

Affiliation is a relationship agreement between a newly-established tertiary institution/prospective tertiary institution (i.e. mentored institution) and a nationally-recognised chartered tertiary institution (i.e. mentoring institution). Prospective tertiary institutions should first seek affiliation with Chartered institution(s). The objective of the affiliation is to ensure the attainment and maintenance of high standards for the promotion of academic quality (National Accreditation Board, 2010). The relationship is for the mentoring institution to provide academic support and supervision to the mentored institution. Graduates of mentored institutions shall receive certificates of the mentoring institution until the mentored institution is granted a Presidential Charter (National Accreditation Board, 2010).

- **Audit**

Audit is the process of reviewing an institution or a programme that is primarily focused on accountability and determining if the stated aims and objectives (in terms of curriculum, staff and infrastructure, etc.) are met (UNESCO, 2007).

Institutional Isomorphism

Scott and Meyer (1983) note that institutional environments are characterised by the elaboration of rules and requirements to which individual organisations must conform if they are to receive support and legitimacy. Thus, organisations as organisms, change by conforming to the requirements of their environment to ensure their sustenance. DiMaggio and Powell (1983) state that the greater the dependence of an organisation on another organisation, the more similar it will become to that organisation in structure, climate, and behavioural focus… And that the greater the extent to which the organisations in a field transact with agencies of the state, the greater the extent of isomorphism in the field as a whole.

Isomorphism is a constraining process that forces one unit in a population to resemble other units that face the same set of environmental conditions (DiMaggio and Powell, 1983).

The institutional isomorphism approach stresses that in order to survive, organisations have to adapt to the existence of pressures by other organisations in their environment. These adaptation processes tend to lead to homogenisation, as organisations react more or less similarly to uniform environmental conditions (vanVught, 2007).

DiMaggio and Powell (1983) discuss three mechanisms by which institutions conform to their environments. These mechanisms are coercive isomorphism, mimetic isomorphism and normative isomorphism.

Coercive isomorphism results from both formal and informal pressures exerted on organisations by other organisations upon which they are dependent and the cultural expectations in the society in which the organisation operate. Organisational change is in response to requirements demanded by another organisation on which it depends for vital resources. Consequently, the greater the dependence for resources, the greater the organisation will conform to the requirements imposed on it. For instance, organisational change may result from response to political influence or governmental mandate.

Mimetic isomorphism arises when organisations model themselves on other organisations as a result of uncertainty. DiMaggio and Powell (1983) note that organisations do this to enhance their legitimacy and demonstrate their effectiveness. The normative process results from the growth of professional networks which define the processes and procedures for member organisations and from formal education.

History of Affiliation and Mentorship in the Development of Higher Education in Africa (Ghana)

Affiliation and mentorship in higher education in Africa (Ghana) is associated with the inception of university education in Africa. Thus, new universities in colonised Africa were affiliated to partner universities in metropolitan centres of the colonising countries. With affiliation, the newly-created institutions were subjected to the same quality control as were the universities of the colonial metropolitan centres (Materu, 2007).

The University of Dakar was established in 1957, and affiliated to the University of Bordeaux. The University College of the Gold Coast was established in 1948 and affiliated to the University of London. The Kwame Nkrumah University of Science and Technology was established as Kumasi College of Technology in 1952 and was affiliated to the University of London. The special relationship enabled the earliest institutions to adapt the syllabus of University of London. The delivery and evaluation methods were patterned along the lines of what pertained in the University of London. Okebukola (2010) states that the University College, Ibadan which had special relationship with the University of London operated with the academic framework of the University of London including its quality assurance practices…the delivery and evaluation methods at Ibadan were patterned largely after, and regulated by the University of London. Students were prepared to write the external examinations of the University of London. The University of London was therefore responsible for the marking of the examination scripts and certification of successful candidates (Ajayi *et al.*, 1996).

As other new universities were established, some of them were affiliated with local and external institutions. In fact, some of the earliest institutions mentored other young universities. The University of Ghana mentored the University of Cape Coast which in turn mentored the now University of Education, Winneba. The University of Cape Town mentored younger institutions in South Africa. And, Fort Hare University was affiliated with Rhodes University.

Even with affiliation, a high degree of institutional autonomy was maintained. Thus, quality assurance was seen primarily as the province of the faculty and governance bodies at each university (Materu, 2007).

During the period immediately following independence, most public sector organisations responsible for education were given oversight over higher education. Thus, some governments in Africa established highly centralised authority over higher education. Others granted high levels of autonomy to their institutions of higher learning (Materu, 2007).

Materu (2007) stated that the external examiner system established at many institutions on their own or in conjunction with affiliation with external universities, helped insure that academic programmes and final examinations were reviewed on a regular basis. The external

examination system continued to provide a level of quality assurance in many countries well beyond the end of the colonial era. However, the external examiner system began to weaken in the 1980s and 1990s as a result of the growing size of the student populations, funding and other problems. In this regard, higher education commissions and quality assurance bodies were established to supervise higher education and regulate quality assurance in higher education institutions among others.

Affiliation and Mentorship in Higher Education in Ghana, the Current Praxis

The Tertiary Institutions (Establishment and Accreditation) Regulations, 2010, require entities that apply to establish universities to demonstrate firm commitment or proof of affiliation with a recognised institution or examination body responsible for the award of its certificates.

Thus, as a first step, a prospective tertiary institution seeking affiliation with a mentoring institution shall first seek NAB's approval of the intended relationship in writing. This is to ensure that the proposed mentoring institution meets the minimum qualification to supervise the programme(s) for which affiliation is being sought (NAB, 2011).

The National Accreditation Board regulations provide that a mentoring institution should be a chartered institution—(an institution that is authorised to award its own degrees, diplomas and certificates). The mentoring institution must have been satisfactorily reviewed by the National Accreditation Board after five years from the date of grant of Presidential Charter and graduated its first cohort of students in the programme area in which it is going to mentor other institution(s), after the grant of Charter. Additionally, the mentoring institutions should have the relevant department(s) with adequate academic staff and other resources to supervise the programmes it is mentoring. In this regard, the mentoring institution is expected to have at least one member of staff, not below the rank of Senior Lecturer, in the Faculty/Department who possesses the relevant qualification and experience in the area of the programme to be supervised (NAB, 2010).

The accreditation for the programmes of the mentoring institution, especially regarding the programme area/s to be supervised in the mentored institution should not have lapsed. The mentoring institution is also expected to have a good research output in the programme area

for which affiliation is being sought by a prospective institution (NAB, 2010).

The Role of Mentor Institutions

The mentoring institution is expected to provide academic oversight to ensure quality provision and outcomes in the institution being mentored. The role of the mentoring institution, as prescribed by the National Accreditation Board, is to:

- ensure that admission requirements of the mentored institution are in conformity with the approved national minimum requirement for admission to tertiary education institutions;
- ensure that examinations are properly regulated and conducted in the mentored institution;
- approve the appointment of external examiners for the programme(s) it is mentoring;
- ensure that the content of the programme of the mentored institution satisfies the minimum requirements for graduation in the specified discipline;
- vet the qualifications of academic staff of mentored institutions from time to time;
- be represented on the team of the mentored institution for the purpose of assessment of the programme by assessors of the National Accreditation Board.

Finally, the mentoring institution is expected to carry out an assessment of the programme for which affiliation is being sought by the mentored institution; and absorb students of the mentored institution in the event that the accreditation of the mentored institution is revoked or the mentored institution is closed down by the National Accreditation Board (NAB, 2010).

Responsibilities of the Mentored Institution

The mentored institution is expected to comply with the entry requirements approved by the mentoring institution in conformity with the national minimum standards. In this regard, it is required to submit

to the mentoring institution for approval changes in its entry requirements for the programme being mentored. Furthermore, the mentored institution is required to submit the name/s and qualifications of the external examiner/s to the mentoring institution for approval (NAB, 2010).

During application for charter, the mentored institution is obliged by the regulations of the National Accreditation Board to request its mentor to submit to the Board comprehensive appraisal report covering all aspects of the operation of the mentored institution, namely, infrastructure and other physical facilities, governance and management, academic programmes, staff and staff development, library and learning materials, research and intellectual output, financial management and other quality assurance policies and practices.

Results

Assessment of Views of Key Stakeholders Regarding Challenges in Affiliation and Mentorship in Higher Education

Many stakeholders including the University Teachers Association of Ghana, the Council of Independent Universities and other observers have voiced criticisms concerning the mandatory affiliation and mentorship requirement for accreditation and provision of presidential charter to private institutions. In fact, stakeholders claim that the process is time-consuming, costly and ineffective. In this section, the views of stakeholders concerning the affiliation and mentorship process in tertiary education in Ghana are assessed.

The Duration of Affiliation: The ten year period for new institutions to operate under mentor institutions before they apply for charter seems to be too long and involves too many steps. Some major stakeholders claim that the process frustrates innovation in new institutions and might lead to the "cloning" of older public universities. The Council for Independent Universities (CIU, 2017) states that the process of affiliation, originally intended as a service to support new universities, has become problematic and sometimes serves as a major hindrance to the introduction of new programmes. The CIU (2017) notes that programmes are often subjected to long processes of approval by the mentoring institutions before they are taken through yet another, similar, approval process by the NAB.

In fact, some private universities have been under mentorship for more than 15 years. Yankah (2017b) states that it should be easier for university colleges to become fully-fledged if all requirements are satisfied, without having to wait for 15 or more years before the entity can award degrees on its own.

The Cost of Affiliation: Stakeholders claim that fees charged by mentoring institutions tend to be arbitrary and exploitative (CIU, 2017). Indeed, the Council of Independent Universities (2017) states that affiliate institutions pay a range of fees, including dollarised institutional fees, programme subscription fees and admission fees which are paid by affiliate university colleges on behalf of each student per year. Apart from fees levied by the mentoring institutions, university colleges also pay accreditation fees to the NAB for accreditation renewals and approval of new programmes. Fees paid by university colleges to mentor institutions include university affiliation fees, programme affiliation fees, external moderation fees for questions, marked examination scripts and long essays. Additional charges include certificate and transcript issuance fees, students' enrolment fees, sitting allowances for prescribed meetings of committees with mentor's representative (CIU, 2017). Nsowah-Nuamah (2017) states that a private university college that wanted to run a programme was expected to pay between five thousand to seven thousand dollars to the new mentoring institution, which is renewable annually. Again, the private university had to pay six thousand Ghana cedis programme accreditation fees and extra three thousand Ghana cedis fees for certificate to the National Accreditation Board. These financial requirements had overburdened most private universities and, denied them resources for innovation and infrastructure development (Nsowah-Nuamah, 2017). Indeed, Anamuah-Mensah (2017) states that currently, an affiliate private university college pays fifteen dollars per student to a mentoring public university. Afranie (2018) states that regarding our MSc programme in Monitoring and Evaluation, we have to pay the fees prescribed to the mentoring institution and pay the relevant fees to the NAB, thus, we paid twice for the same product. Levies and charges paid by private institutions to mentoring institutions have affected the fees paid by students in private institutions. Anamuah-Mensah (2017) states that high affiliation fees were a major factor responsible for the high fees charged by private universities.

Multiple Oversight of Private University Colleges: As per the

regulation of the National Accreditation Board, private university colleges are expected to enter into affiliation/mentorship arrangements for every programme they intend to introduce. In this regard, different programmes of private universities may be supervised by different mentor institutions. Yankah (2013) states that the problem of multiple affiliation, arising from the diverse academic and professional programmes offered by private tertiary education institutions; and the mandatory requirement of NAB accreditation regulations which calls for academic programme affiliation with a public university and in some cases chartered professional bodies often results in conflicting requirements from mentor institutions/chartered professional bodies and NAB, leading to duplication of procedures for affiliation/ accreditation of private higher education institutions academic/ professional programmes.

Yankah (2013) explained that the situation was worsened when a private university had more than one mentor (public university A, B or C) that had distinct intellectual and administrative traditions, leading to "total confusion". Additionally, Yankah (2013) states that the situation leads to complete sacrifice of the institution's (private university) own identity which is completely replaced by multiple identities of the various mentoring institutions (public universities). Achio (2007) notes that affiliation to a number of institutions on different programmes leads to the imposition of different academic policies and conflicting quality assurance requirements on new institutions and that some of these policies and requirements may not bring beneficial effects to the delivery of programmes by institutions under mentorship.The Council for Independent Universities (2017) complained that private institutions often abandon the introduction of new programmes as a result of their inability to identify an institution with the expertise to provide oversight for the new programme. In this regard, they are compelled to seek or enter into affiliation and mentorship arrangement with a foreign institution even though the academic programme in question must be tailored to local needs.

Affiliation/Mentoring and Innovation in Private Universities: The mandatory affiliation and mentorship requirement in higher education could lead to the "cloning" of older universities by newly established ones. Afranie (2018) stated that whatever programme you want to introduce you must find a university which has mounted it before.

We have introduced programmes in Monitoring and Evaluation and Corporate Planning. No university has mounted such programmes in West Africa. However, as a result of the NAB's requirements, we had to find a mentor institution. Indeed, the system does not allow initiative and creativity. Dowouna *et al.* (2017) states that the mentoring procedures tend to limit innovation by private institutions in the academic programmes they offer. Additionally, Yankah (2017b) stated that rather than encouraging innovations…our policies rather applied penalties on institutions for attempting to be innovative. Indeed, instead of encouraging diversity and differentiation as provided by national policy, the mandatory affiliation and mentorship requirement rather stifles innovation; making new institutions carbon copies of older ones. Apparently, private institutions have been forced to be like carbon copies of mentor institutions instead of being granted the liberty to be innovative in their academic programme offerings. Forced adherence to rules of mentor institutions are not necessarily buying into quality measures of the mentee institution no matter how innovative and effective it may be (Dowuona *et al.,* 2017). Darkwa (2017) stated that the university affiliation system should foster collaboration and innovation but this is not the case, …and that the rigidity of the current affiliation system is a major hindrance for creativity and imaginative activity.

*Ineffective Oversight and Conflict of Interest***:** Stakeholders have questioned the effectiveness of the mentoring process and raised issues of conflict of interest in the relationship between mentor and mentee institutions. Dowuona *et al.* (2017) stated that after almost ten (10) years of mentorship, NAB Academic Audit continues to reveal serious lapses in some mentee institutions. Under the current legal framework, it is uncertain that NAB, mentors and mentees are efficiently living up to their respective roles as defined in the LI 1984 (2010). Achio (2017) states that there seems to be too much interference in the day-to-day activities of private universities than merely guiding affiliated institutions; including participation in almost all meetings (committee, departments and council) of private universities by representatives of public universities. The University Teachers Association of Ghana (UTAG) (2017) questions the effectiveness of the mentoring process in view of the sheer numbers of private institutions the few chartered institutions are expected to supervise. UTAG (2017) notes that mentor institutions seem to have too many mentee institutions and questions

whether mentoring institutions have the needed resources, structures and personnel to perform their mentoring role effectively. For example, the Kwame Nkrumah University of Science and Technology lists forty affiliated institutions; the University of Cape Coast lists thirty-eight; the University of Ghana lists twenty-three; and the University of Development Studies, twenty. This huge numbers of mentee institutions are likely to diminish the provision of quality educational services at the mentor universities themselves as majority of the faculty members are likely to spend part of their time in monitoring the activities of mentee institutions (CIU, 2017).

Inequity in the Regulation of Public and Private Institutions: The processes for setting up private tertiary education institutions involves registration of a company, application for authorisation, setting up of infrastructure and other teaching and learning facilities, affiliation with a chartered tertiary institution, application for institutional and programme accreditation. Other requirements include three-year renewal of institutional accreditation, three-to-five-year renewal of programme accreditation, five-year cyclical review of the institutions performance and a ten-year minimum requirement to apply for charter. For public institutions, all the foregoing processes do not apply except for programme accreditation and the five-year review. In fact, there seems to be a different mode of establishment of some public universities. Thus, in the public sector there seems to be no standardised procedure for establishment and accreditation of tertiary institutions. In spite of the requirement for private institutions to be affiliated to chartered institutions for a minimum of ten-years to older public tertiary education institutions, public universities (University for Development Studies (UDS), University for Health and Allied Sciences (UHAS), University of Energy and Natural Resources (UNER) and the Technical Universities recently established) have been established as fully-fledged tertiary institutions from inception. This brings to the fore questions regarding evenness in the application of the regulations of the National Accreditation Board to private and public institutions.

Discrimination and Inappropriate Designation of Private Universities: Private universitiesare required to operate under the tutelage of fully-fledged public universities for more than ten years before they are considered for charter. During the period of mentorship, private universities are known as "university colleges". The designation

of University College has nothing to do with the technical requirements for operating a university or the number of students enrolled. Yankah (2016) stated that private universities suffered discrimination as being tagged as "university colleges" meaning that they were not matured enough to be called fully-fledged universities. A university college refers to a private university that has not been given presidential charter to operate as a fully-fledged institution, thus operates under the oversight of a public institution. Yankah (2013) states that gross injustice and open discrimination is often meted out to private universities. And this is due to the fact that private institutions are required to operate under the tutelage of chartered public universities for more than ten years before they are allowed to award their own degrees. Additionally, Yankah (2017a) states that unlike new public universities, private universities have been blacklisted by policy and do not offer degrees of their own, suggesting that though they are accredited they are immature toddlers, which operate under fully-fledged public universities.

Discussion

We set out to assess the historical antecedents regarding the praxis of affiliation in higher education in Ghana; discuss the rationale and the mechanism of affiliation and mentorship; determine the effectiveness of the affiliation and mentorship arrangements in higher education in Ghana and discuss ways to improve the regulatory environment for private universities in Ghana. The practice of affiliation and mentorship seems to ensue from the colonial practice whereby institutions in the former colonies were affiliated to universities in European metropolitan centres for mentorship. As noted earlier, the University College of the Gold Coast which became the University of Ghana after independence was affiliated to the University of London. Thus, the University of the Ghana (Gold Coast) adapted the curricula of the University of London; its examination questions, marked scripts and examinations results were vetted in London and consequently graduates of University of Ghana (Gold Coast) were awarded degrees of the University of London. Through the affiliation arrangements, the University of London supported the development of higher education in Ghana and exercised oversight for quality assurance.

The University of Ghana mentored the University of Cape Coast which in turn mentored the University of Education, Winneba. The University of Energy and Natural Resources and the University of Health and Allied Sciences which were established as fully-fledged public universities have rather loose affiliation arrangements with the University of Ghana and the Kwame Nkrumah University of Science and Technology respectively. These associations enabled the two new universities to adopt or adapt the curricula and policies of the older public universities.

The National Accreditation Board has since its establishment in 2002 required private universities to seek affiliation to older public universities as a pre-condition for accreditation. In fact, the National Accreditation Board regulations require that private universities seek affiliation with a chartered institution before accreditation and for every programme they mount. As a result of the mandatory affiliation and mentorship requirement (cohesive isomorphism) private universities are compelled to operate under the oversight of older public universities over ten years and adopt their policies and management practices.

Afeti (2015) states that in higher education, isomorphism may result from newer or lower level institutions seeking to imbibe the traditions, norms as well as the practices of an older or an elite institution. For the lower institution, isomorphism is a status seeking undertaking that creates a springboard to be considered as a university. In the case of Ghana, the regulatory requirement is resulting in isomorphism in higher education. Private tertiary education institutions have been forced by the National Accreditation Board to adopt or adapt the practices of older public institutions as a means of securing accreditation. However, the forced "marriages" had not resulted in massive quality provision in private universities. Indeed, in spite of the elaborate regulations put forth by the National Accreditation Board, audit exercises conducted by the National Accreditation Board has often revealed infractions of the Board's regulatory requirements by institutions under mentorship. These infractions include admission of unqualified students, recruitment of staff with fake certificates and ineffective programme delivery (NAB, 2012).

This policy (affiliation and mentorship) stifles differentiation, promotes homogenisation in governance, management and programme

offering. In fact, the policy is leading to cloning in higher education in Ghana. The mandatory ten-year affiliation period is too long. Indeed, Yankah (2017b) states that ten years of mentorship is certainly too long and that there are university colleges (in other parts of Africa) but not in the sense of being a mentee. Additionally, the behaviour of older public universitties who seem to want to take advantage of the mandatory requirements for affiliation to exact the maximum rent, rather than offer public service, makes the affiliation and mentorship arrangement too costly for new institutions. Anamuah-Mensah (2017) stated that private universities should be given the space to grow. And that a more conducive regulatory mechanism should be put in place to improve their enrolment and output. This should cover affiliation fees, which are a disincentive to the growth of private universities (Anamuah-Mensah, 2017).

From the view of stakeholders and evidence from the National Accreditation Board itself, it could be stated that the compulsory affiliation and mentorship mechanism in higher education in Ghana is not effective as far as assurance of quality is concerned. In this regard, the Board should come up with new pathways for Presidential Charter for new institutions. It is suggested that the compulsory affiliation requirement in higher education in Ghana be abolished forthwith. Notwithstanding this suggestion, newly-created institutions should be encouraged to seek voluntary associations with older institutions accredited in Ghana and abroad for the purpose of fostering staff and student exchange, joint research, voluntary adoption of quality assurance practices and the development and mounting of new programmes.

No institution should be coerced to be affiliated to older public institutions as part of the requirements for accreditation and charter. The policies of the National Accreditation Board should be reviewed in such a way as to foster progressive development of knowledge in the various disciplinary areas and encourage experimentation in governance and management, instead of promoting the blind copying of the academic policies and management practices of older public universities.

The Board should enhance its own capacity to enable it intensify its auditing activities in both old and new institutions in Ghana. This calls for the training of knowledgeable assessors and auditors and regular assessment of the activities of higher education institutions.

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Examining the Research Paradigms of Business Education Lecturers in Public Universities in Ghana

FAISAL IDDRIS, AHMED M. MUSA & RICHARD ASIEDU

Abstract

Public universities in Ghana are increasingly being urged annually by the National Council for Tertiary Education—a regulatory agency in Ghana—to publish their research outputs for national development. This paper examines research outputs from four public universities in Ghana that offer business programmes—Business, Management, and Accounting. The study sought to find out the number of publications by lecturers in four universities from 1961 to 2017 and the types of methods mostly used by business lecturers to conduct research. Scopus Electronic Database was used to extract business articles published in four universities from 1961 to 2017. A total of 7,195 publications from four selected universities (University of Ghana (UG), University of Cape Coast (UCC), University of Education, Winneba (UEW) and Kwame Nkrumah University of Science and Technology (KNUST)) were generated. Systematic literature review was used for the study. Business education lecturers from Cape Coast had the highest number of articles (100) in the Scopus database. Conversely, University of Education, Winneba had the lowest number of articles (16). It was realised that most business lecturers (71%) in the four universities preferred Quantitative research methodology. The paper urges policy makers in public universities in Ghana to put equal premium on quantitative, qualitative and case study driven research, as a way of generating novelty in research findings.

Introduction

This study presents research output of business education lecturers in four public universities in Ghana on the basis of published research in peer-reviewed journals by specifically focusing on the scientific paradigms and the choice of particular methodology used. Generally scientific work is shaped by paradigms (Kuhn, 1970). Morgan (2007) defined paradigms as "systems of beliefs and practices that influence how researchers select both the questions they study and methods that they use to study them". Morgan (2007) further emphasised that there is

the need to devote equal attention to studying connection between methodology and methods. The methodology used may determine the philosophical assumption of the researcher, and further determine whether a researcher aims at theory development or theory testing (Morgan, 2007). Other scholars have examined research output of university lecturers (Hemmings & Kay, 2010; Pomfret & Choon Wang, 2003; Popoola, 2008; Rosentreter, Singh, & Schönbohm, 2013).

However, there have been little empirical studies to examine the research methodology of business education lecturers in public universities in Ghana. Examining the research paradigms may help in understanding the direction of researchers in business education with regards to theory development or theory testing. Therefore, the purpose of this paper is to examine the publication trend of public sector university lecturers by specifically focusing on business oriented publication that appears in peer-reviewed journals. Even though there are expansive areas of business subject publications, this paper will focus on three key areas viz. Business, Management, and Accounting. Authored books and book chapters were excluded. This paper will attempt to answer the following research question:

  1. What are the main types of research methodology used by business education researchers in public universities in Ghana?

Literature Review

Philosophers and scientists have debated over centuries on issues about what knowledge is and how we gain knowledge about the world (Miller, 1987; Sullivan, 2001). Kuhn's (1970) study of scientific work over centuries has been influential in shaping the concept of paradigms. On the other hand, Morgan (2007) contended that researchers' paradigm tends to influence the methodology used in an inquiry. According to Leedy (1995), quantitative research method is used to answer questions on relationships within measurable variables with an intention to explain, predict and control a phenomenon. Similarly, researchers often test theories as explanation for answers to their questions in quantitative research design (Creswell, 2009)

In contrast, the aim of a qualitative study is to provide an in-depth description and analysis based on the interpretations of experiences

and perceived meanings that were elicited from the study participants (Creswell & Clark, 2007). The application of mixed methods research resides in the middle of this continuum because it incorporates elements of both qualitative and quantitative approaches (Cresswell, 2014).

Prior empirical research on researchers' output

In recent years, there have been studies on university researchers' output by several scholars. For example, Hemmings and Kay (2010) examined Australian university lecturers' publication output and realised that lecturers with high qualifications who devoted greater part of their time to research are more likely to enhance their career. Similarly, Pomfret and Choon Wang (2003), examined the research output of economics departments of Australian universities and realised that research output of academic staff in economics departments was low. These scholars, they contended, did not regard research as integral component of their job since there was no censure for failing to produce scholarly articles. Furthermore, the work of Pomfret and Choon Wang (2003) and Rosentreter *et al*. (2013), on the research output of management accounting lecturers at Universities of Applied Sciences and Technology in Germany and South Africa respectively, revealed that institutional support and availability of time greatly influenced researcher academic output.

On the other hand, Popoola (2008) investigated the use of information sources and services and their effect on the research output of social scientists in Nigerian universities and concluded that information source and services are critical to scholarly publications. Thus, the non-availability of information sources invariably precludes the conduct of meaningful research in business education. In the Ghanaian context, Owusu-Nimo and Boshoff (2017) examined Ghanaian University role in research collaboration. The study revealed that universities and government sectors were highly dependent on collaboration for research production. Similarly, Iddris (2017) examined the research output of lecturers in selected public universities in Ghana. His analysis revealed that medicine, agricultural, biological and environmental sciences contributed 49 percent out of 27 subject areas analysed. Conversely, business, management, and accounting accounted for 3 percent of the total publications analysed.

The extant literature reviewed above has shown that business researchers' output based on their paradigms which in turn influence their research methodology does not seem to have received much attention in the Ghanaian research community. This paper is therefore, driven by the need to contribute to literature in the area.

Research Method

This paper used systematic literature review (SLR) proposed by Tranfield, Denyer, and Smart (2003). We chose Scopus electronic database for the SLR. The rationale for choosing Scopus was that it covers over 21,500 peer-reviewed journals (including 4,200 full open access journals) from over 5,000 international publishers. This made it suitable to search for and locate substantial number of peer-reviewed publications. The population for this study consists of peer-reviewed articles of business faculty members of University of Education Winneba (UEW), University of Cape Coast (UCC), Kwame Nkrumah University of Science and Technology (KNUST) and University of Ghana (UG) published in Scopus electronic database. These public universities were chosen because they had offered business programmes for over ten years. The total number of business oriented articles identified and used as the sample frame is 291.

The database searching process

The search of the publications was restricted to Scopus electronic database. The SLR process started by using single keywords *University of Education Winneba*, *Kwame Nkrumah University of Science and Technology*, *University of Cape Coast*, and *University of Ghana, Legon*. The first search was done on 14thAugust, 2017 and the second on the 20th December, 2017. The initial search criteria used were:

- All years of publication
- English language publications
- Types of publication (articles, review, books, book chapter etc.)

Within the remit of criteria used, the database generated 7,195 peer-reviewed articles from 1961 to 2017. Out of this number, 230

came from (UEW), 2,491 from (KNUST), 1311 from (UCC) and 3,163 from (UG) see Table 2. The publications covered 27 subject areas. These include medicine, agricultural and biological sciences, social sciences, environmental science, immunology and microbiology, biochemistry, genetics and molecular biology, earth and planetary sciences, arts and humanities, pharmacology, toxicology and pharmaceutics, chemistry, economics, econometrics and finance, nursing, business, management and accounting, engineering, physics and astronomy, psychology, mathematics, energy, computer science and veterinary.

Next, we limited our search to publications under the category of business, management and accounting for the purpose of this study. Furthermore, we excluded books, and book chapters since these do not include the methodological sections needed for our analysis. As a result of the search, the following hits were made and analysed:

  i.   UEW   16 articles   (5.4%)
 ii.   UCC   100 articles (34.3%)
iii.   KNUST   92 articles   (31.6%)
 iv.   UG   83 articles   (29%)

Results

Table 1 presents the top 23 journal outlets where business education researchers published their articles. In total we retrieved 168 different journals from the Scopus database. The International journal of consumer studies recorded the highest number of article publications from business education researchers.

Table 1 shows only journals with more than three publications from business lecturers. Through our analysis we found out that only two articles were published in three (3) and four (4) star journals in the 1990s. The publications were made by two lecturers from University of Ghana Business School in the Journal of Business Venturing (1993) and International journal of production economics (1998). Our analysis reveals that there has not been an article published by Ghanaian business lecturers in top rank journals listed in The Association of Business Schools (ABS) from 2000 to date (2017).

Table 1: Journal outlets ranked by number of peer-reviewed articles in Scopus database

Journals	Articles
International Journal of Consumer Studies	11
African Journal of Economic and Management Studies	10
Academic Leadership	9
Tourism Management Perspectives	8
Applied Geography	8
Journal of Marketing for Higher Education	6
International Journal of Public Administration	6
Journal of Financial Management of Property and Construction	5
South African Journal of Economic and Management Sciences	4
Journal of Sustainable Tourism	4
Journal of Hospitality and Tourism Management	4
Agricultural Finance Review	4
Tourism Planning and Development	3
Journal of Management Development	3
Journal of Developmental Entrepreneurship	3
International Journal of Project Management	3
International Journal of Procurement Management	3
International Journal of Entrepreneurship and Small Business	3
International Journal of Construction Management	3
International Journal of Business Excellence	3
Industry and Higher Education	3
Engineering, Construction and Architectural Management	3
Corporate Governance (Bingley)	3

As indicated earlier, the total peer-reviewed articles from the Scopus database listed under business, management and accounting was 291 see Table 2. Articles from the four universities represent (291/7195*100) 4 percent of the total publication. Iddris (2017) reported a similar figure (3%). Our approach of focusing on Scopus database is in line with earlier bibliometric research by Owusu-Nimo and Boshoff

(2017) who relied on Web of Science (WoS) as the only source of peer-reviewed articles for analysis, to investigate collaborative initiatives research output by Ghanaian university researchers.

Table 2: Articles compared, by BMA and all subject areas in the Scopus database

Articles	*UCC*	*KNUST*	*UG*	*UEW*	*Total*
Business, management & accounting (BMA)	2002–2017 100 articles	2007–2017 92 articles	1983–2017 83 articles	2004–2017 16 articles	**291**
Articles in all subject areas	1971–2017 1311 articles	1962–2017 2491 articles	1961–2017 3163 articles	2003–2017 230 articles	**7195**

The data in Table 2 shows that UG was the first to list papers under business, management and accounting in 1983. UCC on the other hand had the highest number of articles (100) listed in the database.

Types of Research Methodology used by Business Lecturers of UG, UEW, UCC and KNUST

Figures 1a, 1b, 1c and 1d show the individual research methods employed. UCC has the highest number of articles using quantitative research method (77%), followed by UG (70%), UEW (63%) and KNUST (59%).

There are few papers that employed review of existing literature as a research method. KNUST recorded the highest articles employing mixed-method (19%). UEW recorded high articles using qualitative method (31%) while UCC recorded the lowest in qualitative method (14%).

Research Methodology used by Combined Business Researchers from KNUST, UCC, UG and UEW

Table 3 shows that quantitative research (71%) is the most used research methodology by business education lecturers in the four public universities in Ghana.

Fig. 1: Research Methodology used by Business Education Lecturers of UG, KNUST, UEW and UCC

Fig.1a: Research Methods used by KNUST

Fig. 1b: Research Methods used by UCC

Fig.1c: Research Methods used by UEW

Fig.1d: Research Methods used by UG
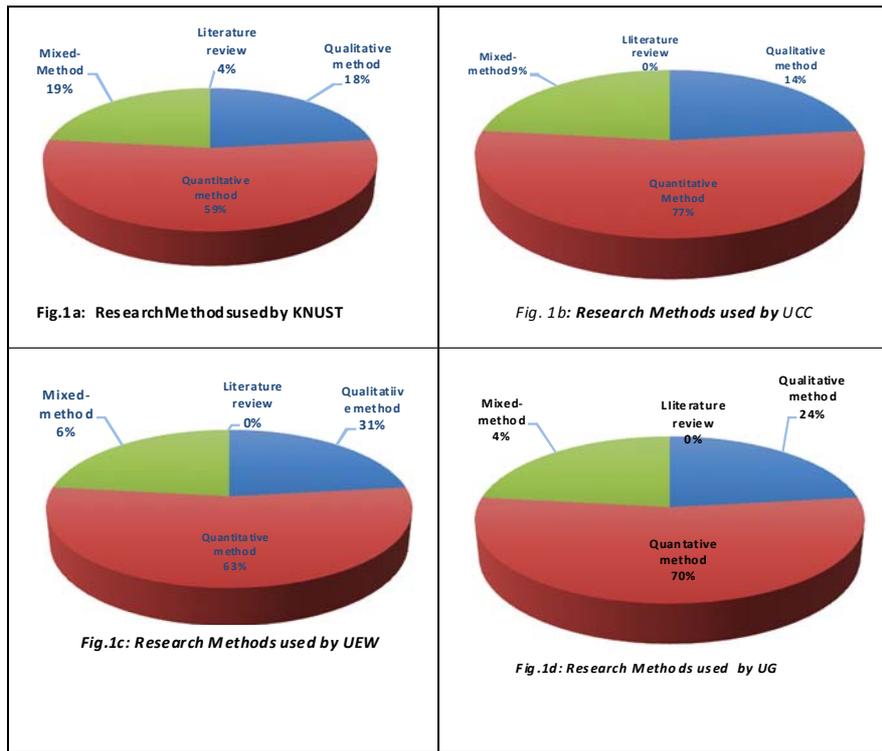
Table 3: Business Research Methodology adopted by Business Education Lecturers in four Public Universities in Ghana

Research methodology	UCC, UG, KNUST and UEW
1 Quantitative method	71%
2 Qualitative method	20%
3 Mixed method	11%
4 Literature review	1%

Discussion and Conclusions

The purpose of this study was to examine the research paradigm of publications by business education lecturers in four public universities in Ghana by specifically focusing on the main types of research

methodology used in their articles that appear in peer-reviewed journals. The research question posed was: What are the main types of research methodology used by business education researchers in public universities in Ghana?

The pattern that emerged from our analysis shows that business education researchers are more oriented towards the use of quantitative research methods (71%). The findings show that most business education researchers in the four public universities have post-positivism paradigm assumptions (Sullivan, 2001). This implies that the philosophical assumptions of some business education lecturers in public universities in Ghana aim at testing already existing theories other than developing new theories. The use of qualitative inductive approach is however, noted to be appropriate in the subject areas where there are limited theories (Eisenhardt, Graebner and Sonenshein, 2016). In organisational research quantitative results can be used to supplement qualitative data (Jick, 1979). Saunders (2011) further argued that both qualitative and quantitative methods may be used appropriately with any research paradigm.

The low percentage of total research output (4%) by business education researchers is in accord with (Ho, 1998) whose research in six universities in Hong Kong showed that lecturers in the humanities and social sciences had higher publications than those in business. Similarly, Pomfret and Choon Wang (2003) found that lecturers in economics department in universities in Australia had low publications in peer-reviewed journals.

The study also revealed that qualitative research method is mostly used by business lecturers of University of Ghana in their publications in journals. The study further revealed that among the four public sector universities sampled for the study, University of Cape Coast business education lecturers mostly used quantitative and literature review methods in their published articles. Finally, the study revealed that compared with lecturers from other universities in Ghana, business lecturers from Kwame Nkrumah University of Science and Technology mostly used mixed-method in published articles.

Policy Implications of the Study

First, the study revealed that over 71 percent of business education

researchers from UG, UEW, KNUST and UCC used quantitative research methods in their work. This means that the researchers are more likely to test existing theories, concepts and factors developed. This does not augur well for business researchers in less developed countries like Ghana. Hence there is the need to incorporate more qualitative methods and case studies in Business research. This methodological approach will enable the Ghanaian business researcher to engage in theory development (Eisenhardt *et al*., 2016).

Second, the use of qualitative inductive research has been found to generate novelty (Eisenhardt *et al*., 2016). In sharp contrast to quantitative research paradigm, the qualitative research paradigm provides an in-depth understanding of the empirical events under investigation. It allows for detailed understanding of the empirical business phenomenon from participants' viewpoint in relation to theory and reality. It further enables the researcher to get complete account through emergent process (Creswell & Clark, 2007). Thus, business researchers need to employ more qualitative research, since quantitative business research falls short of providing the insights needed to make expensive business decisions (Cooper & Schindler, 2011).

Third, university authorities should provide support towards facilitating regular workshops, seminars, symposium, and conferences on the need to explore other research paradigms to further enrich the existing repository of knowledge on business research in Ghana.

Limitations and Suggestions for Further Studies

The results indicate that researchers are oriented towards quantitative method. We caution that a limited focus on electronic database (Scopus) without regard to local journals that are not listed in Scopus electronic database can have detrimental consequences on the results

Secondly, the study focused on four universities so further studies on the topic may extend to other public universities that offer business studies in Ghana. Thirdly, this study presents research output based on articles that are categorised under business, management and accounting in Scopus electronic database. It is suggested that further studies on this topic should be extended to cover all other subjects offered in public universities in Ghana.

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Changes in Educational Quality Over Time at a Polytechnic in Ghana

MAAME AFUA NKRUMAH

Abstract

This article discusses the stability of students' performances over time (2007–2009) in one Ghanaian Polytechnic. The purpose was to examine patterns of stability in the students' performance over time and the overall structure of the variances for quality improvement. The study focused on three generic courses—African Studies, Communication Skills and Computer Literacy using secondary data from MET Polytechnic (a pseudo name chosen for ethical reasons). The design of the study was exploratory but a case study approach was taken. The quantitative data collected was analysed using multilevel statistical techniques.

Although, a mixed trend was generally observed, statistically significant year-to-year change was found only in the students' "value added" performance in first semester Communication Skills. On average, the students declined in their "value added" scores by 0.011 units per year over the period. Also, "department effects" demonstrated by averages of 29 percent across the first semester courses—African Studies, Communication Skills and Computer Literacy; and 26 percent across the second semester courses—Communication Skills II and Computer Literacy II were first noted. These suggest that students' performances varied between departments with time.

In terms of the overall structure of the variances, statistically significant differences between cohorts rather than departments were observed (differences between departments were not significant when 'year' was at level 3, department at level 2 and students at level 1). A key recommendation was that departments need to be consistent in their effectiveness by ensuring that all successive students experience relatively the same quality of education.

Introduction

The stability of students' performance over time has been investigated by several researchers for various reasons including accountability (Gray, Goldstein & Jesson, 1996). However, the aim of this study was to identify the quality of students' performance over time for quality improvement purposes within MET Polytechnic a pseudoname chosen for ethical reasons. The study specifically looked at: (a) the patterns of stability in the students' performance over a period of three years and

(b) the overall structure of the variances; in the following three core curriculum areas: African Studies, Communication Skills and Computer Literacy

Examining the quality of three courses was considered important because they constitute qualities, skills and attributes that all graduates are expected to possess for the world of work and as agents of social good in the future. In literature they are described as "general functional abilities and personal skills that can usefully complement discipline specific learning outcomes" (Barrie, 2006: 223). Most importantly, the courses form the core of most tertiary subject specific/disciplinary knowledge and are expected to facilitate the learning process itself (Bowden *et al.,* 2000; World Summit on Information Society, 2005).

The study was necessary because, this is the first time such a large scale trend analysis has been conducted at MET Polytechnic to formally document the trends in the students' performances over time in core curriculum areas such as African Studies, Communication Skills and Computer Literacy. Granted, some earlier studies have used the excel programme to carry out similar analysis. Nevertheless, such studies have failed to control some factors that are beyond the control of schools including students' prior attainment, background, socioeconomic status (SES), institutional context etc.

In contrast, the current study recognises that, variations in students performance over time is influenced by several factors including those beyond the control of institutions. Also, the study took into consideration the fact that influences on student achievement are multilevel, in that, there are inbuilt hierarchies inherent in students' data (e.g. students may be found within departments/cohorts). The use of multilevel statistical technique in analysing the data therefore provided several advantages, including the ability to (a) simultaneously examine the effects of the different variables (e.g. prior attainment and background), at both department and student levels, (b) place explanatory variables at their correct levels in the data hierarchy to avoid aggregation or disaggregation of data to a single level of analysis and, (c) examine the mean relationship between the student's outcomes and the explanatory variables on one hand (i.e. from fixed part of the model) and the proportion of the total variance attributable to departments and students at the same time (i.e. from random part of the model). The technique further provided standard errors, confidence intervals and significant

tests (Bryk & Raudenbush, 1992; Heck 2008). The adoption of multilevel statistical techniques by this study is therefore more defensible in examining issues of stability over time compared to the simple descriptive statistics and correlations often employed by some researchers (e.g. Hoskins *et al*., 1997; Harvey, 1995).

A review of international evidence further indicated that very few studies have actually looked at the performance of students over time using multilevel statistical modelling (see Gray *et al*., 2001; Thomas *et al*., 2007). Most of these studies however, have been conducted outside Africa and Ghana. These have used multilevel statistical techniques to appropriately facilitate the exploration of issues such as: (a) consistency in students' performance over time and (b) stability in schools upon different kinds of outcomes. Accordingly, many researchers examining issues similar to those examined by this study have used the technique (e.g. Thomas *et al*., 2007; Yu and Thomas, 2008).

Two approaches to measuring trends over time have been presented by Thomas *et al*. (2007). "The first approach models trends assuming a linear relationship over time. This approach smoothes out the year-to-year variation and estimates only an intercept and a slope across the cohorts. The second approach models trends without assuming a linear relationship over time, i.e. the results of each cohort are estimated separately by fitting a dummy variable to represent each year" (p. 270). According the Thomas *et al.,* the linear approach is more appropriate for judging long-term patterns of change in school performance, as it irons out some of the apparent year-to-year instability. The second method, in contrast, indicates only instability of school results over time.

Findings from such studies have been mixed. For instance, a study of all secondary schools in one Local Education Authority (LEA) in the United Kingdom (UK) by Gray *et al*. (1996), used data from five separate cohorts of pupils. The study indicated that only a small minority of schools were either improving or deteriorating over the five year period. Another study by Thomas *et al.* (2007) explored what happened to school performance in one very large English school district. The study used a data set that provided "value-added" data (e.g. information on prior attainment, background), for ten cohorts of pupils (1993–2002) in the Lancashire Local Education Authority (LEA). The study showed a trend of underlying improvement in both "raw and Value Added"

(VA) performance in the General Certificate of Secondary Education (GCSE), across all schools during the period. Leckie & Goldstein (2009), similarly, utilised examination data taken from the National Pupil Database for all pupils in the English State Education System who took their GCSE or equivalent qualifications between 2002 and 2007 (six cohorts of pupils). Their fixed and random parts parameter estimates indicated a fair stability across all six cohorts.

As argued by Hutchison (2003), data on three or more cohorts are necessary if schools that are improving or declining in their effectiveness are to be identified in a trend analysis. Fortunately, "value added" data on three student cohorts (2007–2009) were available at MET Polytechnic. The data available for the study included: (1) students' exams scores in African Studies [AFS], first and second semester Communication Skills, [CS1 and CS2] and first and second semester Computer Literacy [CL1 and CL2]), (2) students' prior attainment in English, Maths and Science, (3) students' background e.g. age and gender and (4) students' SES e.g. language spoken.

Study Objective

The study had the following two specific objectives:

(a) To estimate the stability in the students' performance over time.
(b) To examine the overall structure of the variances.

Research Question

The key questions addressed by the study were:

1. To what extent are the students' performances in the selected outcomes stable or not stable over time (2007–2009)?

2. What is the overall structure of the variances?

Methodology

An exploratory design using MET Polytechnic as a case study was utilised. An exploratory design was appropriate because this is the first time the research problem examined by the study is being addressed

in the study's context. In simple terms, the study sought to gain insight and familiarity with the basic details of quality in the study's context so that future research can focus on relevant issues. The case study approach, on the other hand, was useful in understanding the dynamics present in the single setting of MET Polytechnic (Tashakkori & Teddlie, 1998). These, however, limit the ability of the study to make definitive conclusions or generalisations to other contexts.

The study involved the collection of secondary data. The data collection process began when approval to carry out the research at MET Polytechnic was given in a written form. The three generic courses examined—African Studies, Communication Skills and Computer Studies were courses undertaken by all first year students. Overall, 5944 students (AFS), 5881 students (CS1 and CS2) and 5879 students (CL1 and CL2) from three student cohorts (2007–2009) were utilised. A dataset simply called "the 2007–2009" dataset was created by matching up the students' information on the following for each course: (1) cohort, (2) academic department, (3) previous achievements in English, Maths and Science, (4) background and (5) SES.

The dataset was then analysed using multilevel statistical techniques (MLwiN2.24) using the linear approach suggested by Thomas (2007). Hence, only the baseline intercept/cons (2007) and the slope (year) across the three years was estimated and the average time trend was estimated across all departments. The department residuals essentially reflected those departments that were (a) performing in line with the average time trend or alternatively, (b) significantly better or (c) significantly worse than the average trend. The multilevel analysis presented several advantages to the study including the ability to: (a) place explanatory variables at their correct levels in the data hierarchy to avoid aggregation or disaggregation of data to a single level of analysis (Heck, 2008), and (b) estimate the proportion of the total variance attributable to departments and students at the same time.

Thus four different statistical models simply referred to as Models 1–4 were generated. The models were developed by first adding the variables individually to the fixed part of the Model to see whether they were statistically significant (at 0.50 i.e. being 1.96 times larger than the associated standard error). Statistically significant variables were then added together as a group to see their relevance. The four models developed were:

(a) two 2-level models (Models 1A and 4A) and (b) two 3-level Models (Models 1B and 4B). The 2-level models had department at level 2 and student at level 1 as illustrated by figure 1 in the appendix.

  The purpose of the 2-level Models 1A and 4A was to estimate the year-to-year change (stability) in the students' performance over time. Models 1A and 1B are referred to as null Models because they did not control for any explanatory variables.

(b) The 3-level models 1B and 4B on the other hand, had cohort at level 3, department at level 2 and student at level 1 as depicted diagrammatically by figure 2 respectively in the appendix.

  The purpose of the 3-level Models 1B and 4B, on the other hand,was to see the overall structure of the variances and the size of the between-year variation. Model 4A and 4B are called "value added" models because they controlled for value added data such as: the students' prior attainment in English, Math and Science, background information and SES and department context in form of mean prior attainment. The 2-level and 3-level models were essentially the same and reflect almost the same findings except that the 3-level model is specified in a slightly different way to allow easy calculation of the intra-year correlations in addition to the intra-class correlation.

Results

The presentation of the study results are done in the following order:

(a) Correlations between departments across years.

(b) The year-to-year change in the students' performance (stability)—Models 1A and 4A.

(c) The overall structure of the variances using Models 1B and 4B.

Correlations Across Years Between Departments

As demonstrated by previous studies, the first step in modelling trends over time is to establish pattern of relationships (correlations), across years between departments. Accordingly, Table 1 in the appendix presents the mixed relationship (positive and negative), between the performance of one cohort in one outcome and the performance of another cohort in the same outcome for the period 2007–2009. As seen from the Table 1 under Model 1A, the year to year changes from 2007 to 2008 and from 2007 to 2009 were negatively correlated for all five outcomes. The year-to-year change for 2008 to 2009 for CS2 was also negative.

The negative correlations generally indicate a downward trend, suggesting that departments whose students perform well in one year were more likely to have students whose performance would be worse than or below the performance of students in the previous year and vice versa. Overall, these findings suggest that knowing the overall performance of students for one year may provide a good basis for predicting the performance of students in the subsequent years as argued by previous researchers (Gray *et al.,* 1996; Gray *et al.,* 2001).

However, the year-to-year change from 2008 to 2009 correlated positively for African Studies, CS1, CL1 and CL2. The positive correlations in contrast support the view that departments whose students perform well in one year are more likely to have students who would perform at around the same level in later years. The results of Model 1B are similar to that of model 1B and so they are not discussed in detail

**The Year to Year Change in the Students' Performance
(Models 1A and 4A)**

The results of Models 1A and 4A (2-level linear model) can be found on Table 2 in the appendix. On average, Model 4A adjusting for students' prior attainment, background and department context respectively explained 2 percent and 23 percent of the total variance for the first and second semester outcomes respectively. At the department level, one percent and 50 percent of the total variance were respectively

explained. The model also explained 2 percent and 12 percent at the student level respectively.

In terms of trends over time, significant year-to-year change was found only in the students' "value added" performance in CS1. Generally Model 4A portrayed a downward trend across the three cohorts for CS1. On average, the students declined in their "value added" scores in CS1 by 0.011 units per year. There also appeared to be "department effects demonstrated by averages of 29 percent and 26 percent of the remaining unexplained total variances attributable to departments" (see Table 2 in the appendix). This suggests that the students' performances varied between departments with time, i.e. while some departments declined in their performance in specific outcomes, others at least remained the same or improved over time.

This finding was visually illustrated using plots (see Figures 3 and 4 in the appendix). Each straight line or bar in the Figures represents a department. The extent of improvement or decline in individual departmental performance from year could be judged in relative terms. That is, while some departments could be said to have made sharp average improvements or decreases over the period, others could only be described as having made modest or steady improvements or decline over time.

The somewhat upward and downward trends, observed in both the "raw and valued added" performances of the students (as depicted by Figures 3 and 4 in the appendix), were expected. In fact, earlier studies have similarly provided evidence of no obvious trend of effectiveness or performance over time in institutions. Only a very small minority of institutions have clearly demonstrated patterns of an upward or downward trend in their performance or effectiveness consistently over time (Gray *et al.,* 1996; Thomas *et al.,* 2007).

Overall, the plots show that the trend in the students' "raw and value added" performances in CS1 were mixed. As argued by Gray *et al.* (1996) there are several substantive reasons why a department's performance might change over time. The most obvious reason being the precious achievement of students, i.e. those appearing to be improving might have had a better student intake and vice versa. However, further research on this issue is necessary. For quality assurance purposes, the graphical representations suggest the need for specific departments to improve in particular outcomes/courses.

The Results of Model 1B and 4B—The Overall Structure of the Variances

As earlier indicated, the study also fitted a 3-level Model with cohort at level 3, department at level 2 and students at level 1. The main interest of this model was the overall structure of the variances, and the size of the between-year variation as a component of the between-department variation. Table 2 in the appendix shows the results of how the variations in the students' performances were allocated between the three levels—cohort, department and student. Interestingly, all the between-year variations (year level) were statistically significant for both Models (1B and 4B). In contrast, none of the variances at the department level was statistically significant. The implication is that variances across cohorts may be larger compared to variances across departments. There could be several factors responsible for this, key among which is differences in the mixes of students per year. The between-year variance component for Model1B was between 0.116 and 0.171 (across the first semester courses—AFS, CS1 and CL1) and 0.126 and 0.217 (across the second semester courses—CS2 and CL2). Equivalent values for Model 4B were 0.116 to 0.171 (first semester courses) and 0.087 to 0.152 (second semester courses).

The size of the between-year variation as a component of the between department variation (intra-year correlation) however, showed that the 16 departments were quiet moderately unstable in their year to year "raw" performance. Only about one-sixth of the between department variation in the students' "raw" performance (Model 1B) was attributed to cohort (14% and 18% respectively across the first and second semester courses). However, this reduced to one-seventh in the case of their "value added" performances as estimated by Model 4B (averages of 14% and 15% respectively). This latter finding suggests that departments were relatively more stable in their year-to-year effectiveness with regard to the students' "value added" performances.

The Effect of the Selected Variables (Model 4A)

This section focuses on results of the fixed part of Model 4A that were statistically significant at the 0.05 significance. The discussions are based on Model 4A because it contains the selected variables (Model

1B did not control for any variable). The groups of variables whose effects are discussed here include prior attainment, background and mean prior attainment.

The Effect of Prior Attainment Measures (Model 4A)

The individual prior attainment measures whose fixed effects are examined here are: English, Maths and Science (across all five outcomes). From the model estimates, prior attainment measures in English and Science impacted positively on African Studies, CS1, CL1 and CS2. On average, an increase of one standardised unit in *English* resulted in an increase of: 0.084 units in CS1, 0.073 units in CL1 and 0.029 units in CS2. An average increase of one standardised unit in *Science* on the other hand, increased the students' performance in: CS1 by 0.043 units, CL1 by 0.043 units and CS2 by 0.027 units. Prior attainment measures in *Maths* also impacted positively on AFS and CL1. An average increase of one standardised unit in *Maths* increased the students' performance in AFS by 0.077 units and 0.034 units in CL1 (see Table 3 in the appendix).

The Effect of Student Background (Model 4A)

This section discusses the effects of age and gender on the students' performance. As seen from Table 3 in the appendix, student gender impacted positively on AFS but negatively on CL1. On average, female students outperformed their male counterparts in AFS by 0.144 units. The males, on the other hand, outperformed the females in CL1. On average, the males obtained 0.100 units more in CL1 than their female counterparts. Although differences in the performances of males and females in higher education have proved highly controversial and inconclusive, most studies have found females to be having marginally significant superiority over males (e.g. Rodgers & Ghosh, 2001; Rodgers, 2007).

The effect of age on three of the outcomes examined (CS1, CL1 and CS2), was negative. On average, older students obtained 0.018 units less in CS1, 0.032 units less in CL1 and 0.012 units less CS2 compared to younger students. The superiority of younger students over older students has also been found by earlier researchers. For instance, Richardson (1994b) argued that mature students are at a disadvantage

when pursuing higher education. Also, Wößmann (2003), using an international database of more than 260,000 students in 39 countries found student age to be negatively related to their performance.

Discussion

One key finding from the study was that, the year-to-year change for departments was mixed. For example, the year-to-year change for CS2 (2008–2009) was negative. However, over the same period the year-to-year change for African Studies, CS1, CL1 and CL2 was positive. As earlier mentioned, the negative correlations generally indicate a downward trend while a positive correlation suggests improvement in performance over time. Thus, the students generally improved their core skills and competences in the first semester courses: African Studies, CS1 and CL1. However, improvement was seen only in Computer Literacy during the second semester. Perhaps, the students might have improved their core competences in CL2 because they had additional opportunities to practices during lessons in other courses. For example, computer applications in specific fields of study are common to most academic programmes. Accountancy and Engineering students might have respectively improved their competences in computing during Computer Applications in Accounting and AutoCAD lessons, for instance.

Surprisingly however, the students' declined in their Communication Skills during the second semester. According some Communication Skills teachers in the Polytechnic, the decline in CS2 could be due to a number of factors. For example, students who came from secondary schools might have seen the first semester course content of Communication Skills as almost a repetition of the secondary school English Language syllabus which mostly emphasised fundamental areas such as: concord, sentence construction, clauses, phrases, parts of speech, punctuation etc. The average student was therefore, able to "do well" during the first semester. Nonetheless, the students might have been found wanting during the second semester after the foundation was "supposedly" built. Of course, the content of second semester Communication Skills is more demanding, especially, as the focus now shift to creative writing and critical analysis of issues as demanded by aspects such as argumentative, expository and descriptive writings,

business correspondences, technical report writing, summary, speech writing etc. Thus, it is possible that core competences required for successfully going through the second semester content was poorly built. Hence, course teachers need to bear in mind when teaching during the second semester.

Indeed these, explanations may be speculative. Further research is therefore necessary to confirm or clarify the speculations given. These notwithstanding, Linn and Haug (2002: 32), argue that "negative correlations of change with initial status are not unexpected unless the variability of scores increases substantially from year one to year two".

Another key finding from the study was the mixed effect of students' age and gender on their performance. This finding is in contrast to the findings of some earlier studies. For instance, within the African context, Yu & Thomas (2008), investigated the importance of a wide range of explanatory variables such as pupil gender, age, SES, etc. on students' performance using secondary data from fourteen member countries of the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) and multilevel modelling statistical techniques. The study found that pupils' gender and age had little or no influence on their performance in that context i.e. the performance of the students was not affected by their age or gender. Perhaps, further research is necessary to understand why students' age and gender had an effect on the students' performance in the context of this study.

Nevertheless, it is important to note that Yu & Thomas' (2008) study was conducted at the pre-tertiary level. This notwithstanding, the comparison was considered appropriate because there was no comparable study at the Higher Education (HE) level in Africa, once again emphasising the originality of this study. Also, the variables explored at the pre-tertiary level are common to HE. For example, the variables examined by the study—student prior attainment, background, SES, exams scores are to an extent common to HE. The key difficulty in conducting such a study at the HE level however, is that institutions at this level are typically independent and so academic standards and examinations may vary. In other words, there is lack of uniformity between institutions in terms of entry and exit points. Also, the context of institutions may be different. This explains why the study focused on just one Polytechnic. Obviously, this limits the findings of the study to MET Polytechnic.

Other studies at the HE level outside African have however, found student gender, age and other background characteristics to be statistically significant (Hoskins, *et al.,* 1997). For instance, Johnes (2006) when investigating the degree performance of males and females in United Kingdom Universities argued that possibly the strongest and most consistent view is that males achieve worse degree results than females. Proposed explanations given by previous studies include biases in markers and existing stereotypes such as markers expecting males to do well.

Conclusion

This study examined the stability of the students' performance in five generic outcomes over a period of three years (2007–2009) using the linear approach. The results of Model 4A which assumed a linear relationship between student and department performance over time, suggested a statistically significant downward trend in the students "value added" performance in CS1. Models 1B and 4B on the other hand examined the overall structure of the variances using a 3-level model. The analysis showed that departments were comparatively less stable in their year to year "raw" performances compared to their "value added" performances. On average, 14 percent (across African Studies, CS1 and CL1) and 18 percent (across CS2 and CL2) of the differences between departments were respectively attributed to cohort.

This implies that, there were more differences between cohorts than between departments. The difference however, reduced to an average of 15 percent across the second semester courses—CS2 and CL2 in the case of the "value added" models that statistically controlled for students' prior attainment, background and SES. This suggests that departments were relatively more stable in their year-to-year effectiveness with regard to the students' "value added" performances.

Recommendation

As shown by the findings of the study much more significant differences between cohorts rather than between departments were evident. One key factor identified by the study as potentially explaining this is, differences in the mixes of students per year. Thus, it is recommended

that perhaps, the variables identified by this study as affecting the students' performance including students' entry qualification, background, SES; in addition to other factors identified by previous studies such as students' perception about the courses, whether or not students feel valued offering a particular programme etc. should be considered in admitting fresh students. This is to ensure adequate mixes in the composition of students in specific academic departments. In this way departments could be consistent over time in ensuring that quality education is provided for all groups of students.

Assuredly, there are some other factors identified by previous studies as influencing students' performance that this study did explore in the context of the study. Such variables include student motivation, the relevance of physical facilities, teaching learning materials, teacher salaries and peer pressure. As such, a new research investigating the effect of these issues at the tertiary level in the African context is recommended.

Also, the study was restricted to only three generic courses African Studies, CS and CL even though there were other generic courses that could have equally been explored (e.g. Entrepreneurship, Research Methods). Hence an investigation into the other courses is recommended.

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APPENDIX

TABLES

Table 1: Department Level Residual Correlations Across Years (2007–2009) for Each Course

	MODEL 1A Cons (2007)	2008	MODEL 1B Cons (2007)	2008
African Studies				
2008	–0.846		–0.775	
2009	–0.791	0.741	–0.774	0.742
CS1				
2008	–0.260		–0.216	
2009	–0.647	0.345	–0.748	0.311
CL1				
2008	–0.693		–0.674	
2009	–0.719	0.480	–0.688	0.459
CS2				
2008	–0.373		–0.600	
2009	–0.575	-0.313	–0.358	–0.280
CL2				
2008	–0.798		–0.799	0.750
2009	–0.796	0.750	–0.796	

Table 2: Models 1A and 4A (Two-Level Linear Models)

	Model 1A					Model 4A				
	AFS	CS1	CL1	CS2	CL2	AFS	CS1	CL1	CS2	CL2
Fixed Part										
Cons	0.114 [0.134]	0.253 [0.174]	0.195 [0.164]	0.213 [0.147]	0.375 [0.213]	0.371 [0.169]*	0.245 [0.174]	0.918 [0.200]*	0.152 [0.097]	0.274 [0.173]
Slope	−0.047 [0.069]	−0.101 [0.071]	−0.045 [0.063]	−0.083 [0.056]	−0.121 [0.091]	−0.222 [0.088]	−0.109 [0.071]*	0.045 [0.064]	−0.061 [0.046]	−0.098 [0.075]
Prior attainment										
English						0.056 [0.012]*	0.084 [0.013]*	0.073 [0.013]*	0.029 [0.013]*	−0.013 [0.011]
Maths						0.077 [0.014]*	0.009 [0.014]	0.034 [0.014]*	0.003 [0.013]	0.034 [0.012]
Science						0.057 [0.014]*	0.043 [0.014]*	0.043 [0.014]*	0.027 [0.014]*	0.010 [0.012]
CS1/CL1									0.302 [0.013]*	0.360 [0.011]
Background										
Gender(Male)						0.114 [0.028]*	0.016 [0.029]	−0.100 [0.030]*	0.021 [0.029]	−0.042 [0.026]

Table 2 (*cont'd*)

Age						−0.001 [0.005]	−0.018 [0.005]*	−0.032 [0.005]*	−0.012 [0.005]*	−0.013 [0.005]
Mean English						−0.262 [0.119]*	−0.325 [0.351]	−0.163 [0.306]	0.251 [0.172]	−0.321 [0.318]
Mean Science						−0.115 [0.324]	0.334 [0.209]	0.043 [0.014]*	0.193 [0.102]	0.004 [0.189]
Random Part										
Slope	0.066 [0.027]*	0.073 [0.029]*	0.055 [0.022]	0.043 [0.011]*	0.125 [0.047]*	0.069 [0.027]*	0.072 [0.028]*	0.057 [0.027]*	0.027 [0.021]	0.084 [0.032]*
Between students	0.921 [0.017]*	0.848 [0.016]*	0.881 [0.016]*	0.930 [0.017]*	0.783 [0.014]*	0.903 [0.017]*	0.836 [0.015]*	0.864 [0.016]*	0.847 [0.016]*	0.665 [0.012]*
Total	1.172	1.295	1.274	1.238	1.472	1.151	1.279	1.250	0.978	1.107
Variance explained										
Dept.						1	1	2	63	36
Student						2	1	2	9	15
Total						2	1	2	21	25
% variance attributable to dept.	21	36	31	25	47	22	35	31	12	40

Note: * = Statistically significant at 0.050 significance level (being 1.96 times larger than the associated standard error)

Table 3: Models 1B and 4B (Three-Level Linear Models)

	Model 1B					Model 4B				
	AFS	CS1	CL1	CS2	CL2	AFS	CS1	CL1	CS2	CL2
Fixed Part										
Intercept	0.186 [0.034]*	-0.059 [0.059]	0.128 [0.064]	-0.081 [0.061]	-0.182 [0.077]*	0.040 [0.096]	-0.086 [0.013]*	-0.128 [0.064]	-0.069 [0.052]	-0.121 [0.065]*
Year (linear term)	-0.361 [0.091]*	0.159 [0.145]	0.329 [0.151]*	0.186 [0.138]	0.459 [0.182]*	-0.088 [0.209]	0.149 [0.143]	1.102 [0.190]	0.146 [0.119]	0.295 [0.157]
Prior attainment										
English						0.137 [0.073]	0.086 [0.013]*	0.018 [0.003]*	0.028 [0.013]*	-0.015 [0.011]
Maths						0.052 [0.013]*	0.012 [0.014]	0.031 [0.014]*	-0.002 [0.014]	0.033 [0.012]*
Science						0.055 [0.013]*	0.044 [0.013]*	0.010 [0.003]*	0.026 [0.013]	0.011 [0.012]
CS1/CL1									0.296 [0.103]*	0.347 [0.011]*
Background										
Gender						0.100 [0.028]*	0.013 [0.029]	-0.100 [0.029]*	0.023 [0.029]	-0.048 [0.025]
Age						0.002 [0.005]	-0.019 [0.005]*	-0.035 [0.005]*	-0.014 [0.005]*	-0.015 [0.004]*

Table 3 (*cont'd*)

Random Part (Variances)										
Between cohorts	0.184 [0.021]*	0.113 [0.028]*	0.133 [0.033]*	0.126 [0.030]*	0.217 [0.047]*	0.171 [0.020]*	0.116 [0.029]*	0.123 [0.030]*	0.087 [0.022]*	0.152 [0.034]*
Between departments	0.022 [0.014]	0.073 [0.040]	0.050 [0.034]	0.013 [0.018]	0.060 [0.046]	0.029 [0.016]	0.052 [0.033]	0.045 [0.031]	0.009 [0.013]	0.039 [0.031]
Between Students	0.782 [0.015]	0.827 [0.015]	0.858 [0.016]	0.873 [0.016]	0.719 [0.013]	0.778 [0.015]	0.814 [0.015]	0.841 [0.016]	0.797 [0.015]	0.613 [0.011]
Total	0.988	1.103	1.041	0.997	0.996	0.978	0.982	1.009	0.893	0.803
% Variance Attributable to:										
Year	19	10	13	13	22	17	12	12	10	19
Departments	2	75	1	6	3	3	5	4	1	5

Note: * = Statistically significant at 0.05 significance level (being 1.96 times larger than the associated standard error)

FIGURES

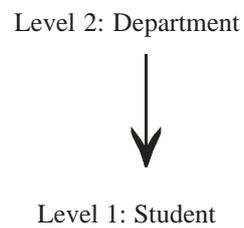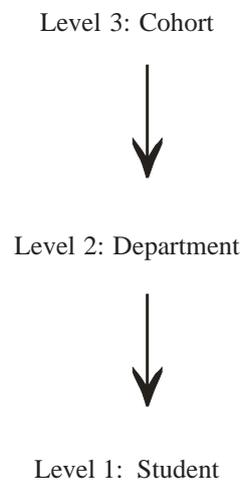**Figure 1: The Structure of the Two Level Model 1A and 4A**

Level 2: Department

Level 1: Student

Figure 2: The Structure of the Three Level Model 1B and 4B

Level 3: Cohort

Level 2: Department

Level 1: Student

Figure 3: Trends Analysis (Model 1A for CS1) 2007–2009

Figure 4: Trends Analysis (Model 4A for CS1) 2007–2009

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Articles must be submitted as MSWord documents; each should contain the name, professional title/institution (if any), and complete contact information for each author. Articles should not exceed 5000 words in length and should be double-spaced (including endnotes, reference and appendix) on A4 paper, one sided only. Pages should be numbered (bottom right corner).

Abstract
Each article should be accompanied by an abstract of not more than 250 words.

Notes
Notes explaining points made in the test should be indicated by numbering within the text and explained at the end of the main article before the reference list and not at the bottom of the page.

References
All works consulted should be listed at the end of each article under the headline REFERENCES. Authors should be listed alphabetically in the following order: surname, initials, year of publication, title of the article, title of the journal or book (in italics), and publishing house.

Tables, Figures and Abbreviations
Tables, figures and abbreviations (where necessary) are to be provided on a separate page at the end of the article.

Review Process
Articles are blind reviewed and are publishable only upon favourable recommendation.

Notes on Contributors
Contributors are to provide a short profile of themselves. This should be not more than 100 words.

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