Research-Led Teaching: A Pre-Requisite for Developing Higher Education Curriculum in the Humanities

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Abstract. University research is widely thought to improve university teaching through augmenting the curriculum development process. This seems to be a view widely held by many faculty members and students. This has not always been the case. That notwithstanding, research has more recently been thought to be important to university teaching and that teaching is also beneficial to research. What is not clear is how important these benefits are, especially in curriculum development within the context of the humanities. Distinguished academics have taken more than a passing interest in these matters, hence, the basis for this investigation. Using the sequential explanatory mixed methods research design, this paper sought to espouse the impact of the research-teaching nexus on curriculum development in higher education. A sample of 364 students and 102 lecturers from the Humanities were selected using the stratified proportionate technique to select the respondents for the study. A self-developed questionnaire and a semi-structured interview were used to solicit data from the students and lecturers. In order to ensure the construct validity of the self-developed questionnaire, a principal component analysis (PCA) was conducted. Means and standards deviation were used to analyse the quantitative data while, the reflexive thematic analysis was used to analyse the qualitative data. It emanated from the study that research-led teaching promotes intellectual development, heightens research skills and improves university image. It also promotes relevant and functional curriculum, ensures a highly differentiated university, and finally stimulates students' interest and knowledge development. It can therefore be concluded that research-led teaching has a significant impact on curriculum development and implementation at all levels of education, especially, within the humanities. It is, therefore, recommended that all stakeholders in higher education should ensure a stronger bond between research and teaching as part of encouraging and preparing both faculty members and students to embrace the smooth implementation of the nexus in order to enhance the curriculum. Also, faculty members should embrace student-centred pedagogies including research-led, research-based and research-tutored teaching, as well as, problem-based teaching and learning approaches.

Keywords: research-led teaching, curriculum development, research-teaching nexus, higher education**,** research-based teaching, research-tutored

Introduction

University research is widely thought to improve university teaching. This seems to be a view held particularly by academics (Elton, 2001). This has not always been the case. In the preface to his influential The Idea of a University Neumann (1994) wrote:

> *A University is a place of teaching universal knowledge. This implies that its object is, on the one hand, intellectual, not moral; and, on the other, that it is the diffusion and extension of knowledge rather than the advancement. If its object were scientific and philosophical discovery, I do not see why a University should have students.*

As part of the roles played by higher education, quality teaching should be guaranteed through fostering the quality teaching needs advocated by higher education institutions in order to ensure that the education they offer meets the expectations of students and the

requirements of employers, both today and for the future (Gerschwind & Brostrom, 2015). The impression created is that research should be in a position to discover the needs of society, employers and students, as well as, create a sense of innovation and creativity in students for them to become problem solvers in society. This view implies that if the research-teaching nexus is harnessed properly, the link between research and teaching could be properly established and become more useful for curriculum development in order to augment students' learning outcomes.

Stemming from this discourse, the questions left unanswered are whether, it is possible to bring university research and teaching into a closer and more symbiotic relationship. If that is likely, then it is possible to create better spaces for critical dialogue within and across disciplinary spaces to augment curriculum development. Also, can building on the relationship between research productivity and teaching effectiveness become a catalyst for building better connections between and among faculty members, students and 'real world' communities?

It is therefore, often difficult to strike a correct balance between teaching and research and to integrate the two effectively to promote effective learning outcomes through curriculum developmental processes. That notwithstanding, it is possible because it is likely that one's research can be affected by one's teaching and vice versa. Illustratively, it is often true that having to teach a concept compels one to understand it better than before as it is at this point that research plays a critical role in enhancing the effectiveness of the teaching and learning process.

It is noteworthy that several institutions of higher learning such as the universities' mission statements emphasise the value of academic research to students' learning, and for that matter, the curriculum. For instance, the mission statement of University of Cape Coast espouses that "*It is an equal opportunity university uniquely placed to provide quality education through the provision of comprehensive, liberal and professional programs that challenge learners to be creative, innovative, and morally responsible citizens* (University of Cape Coast Statute, 2016). To achieve this goal, the University has established a consultancy known as the Directorate of Research, Innovation and Consultancy (DRIC) unit to help achieve the research agenda of the University with its mission statement being: "to *oversee consultancy services engaged in by individuals and groups in the University; implement the University's research agenda; and create conducive environment to nurture creativity and innovation"* (University of Cape Coast Statute, 2016).

No wonder the University of Cape Coast has recently been adjudged the best university globally for research influence and among the top five universities in Africa through the relentless efforts of Directorate of Research, Innovation and Consultancy (DRIC) of the University of Cape Coast. In order for the university to sustain its current position in the Times Higher Education (THE) World University Rankings, it must look for more avenues to enable it connect its researches to teaching, thereby, ensuring that these researches inform their curriculum.

Perusing through the various mission and vision statements by these universities, it could be inferred that implicitly or explicitly, each of these universities, in one way, or the other, place much emphasis on the role of research in education than teaching. Validating this assertion, Anderson (2012) report a lack of literature concerning performance measurement systems in universities. However, there are ample evidence to suggest that research is valued more highly than teaching (Brew, 2010; Healey, 2005; Schapper & Mayson, 2010), and that many universities are placing increasing weight on research performance indicators for promotion, tenure, compensation and performance evaluation purposes (Gerschwind & Brostrom 2015; Taylor, 2007).

As an illustration, in the USA, for instance, tangible evidence suggest that research is valued more highly than teaching is provided by university compensation systems. For instance, Taylor (2007) found that in the USA the number of publications in top-tier journals was the main determinant of faculty pay. Notably, they also indicate that teaching effectiveness is a determinant of faculty pay and provide empirical evidence of a positive relationship between teaching effectiveness and pay. Although, this effect holds only for the segment of faculty with outstanding research records, a superior teaching performance is only reflected in a higher salary when a certain research quality threshold is reached. If this assertion is so, it is the curriculum that suffers in the long run since there are no equal proportions of research and teaching.

More specifically, while most of the identified literature focus on the research-teaching nexus in higher education, these literature show that the relationship between research and teaching is strongest at the PhD level and weakest at the Bachelors' level (Kyvik & Aamodt, 2015). This is not surprising because it is common knowledge that under normal circumstances, PhD education is easily susceptible to research integration into teaching, relative to other lower levels of education. Thus, PhD dissertations are considered as independent research contributions, while, the masters' thesis can be seen as a research contribution in some cases, whereas, the Bachelors' project are usually more representative of a learning process for the student (Kyvik & Aamodt, 2015). These expectations have also been formalised in the definition of learning outcomes, especially, at the PhD level, in reference to the national and international qualifications' frameworks. In order to further clarify the contention across levels of study, Kyvik and Vagan (2014) contend that while the relationship between research and teaching at the post graduate levels (Masters and PhD), is strongest in the natural sciences, medicine and technology, however, that is not so at the Bachelors' level.

Drawing on several surveys and literature on contemporary higher education curricula, faculty members are left with the option of operating at different levels of integration regarding the research-teaching nexus (Griffiths, 2004; Healey & Jenkins, 2009). According to them, as part of the integration, teaching can be *research-led* so that the curriculum is informed by the outcomes of research and the emphasis being placed on developing students' understanding of existing research findings. Teaching can also be *research-oriented* where the focus is on the methodological processes of research in their discipline and these students learn the practices of enquiry, coupled with how new knowledge is created and validated.

Also, teaching can be *research-tutored*, whereby students are engaged in discussions about existing research findings and practices. For research-based teaching, the curriculum is built by actively engaging students in research activities, whereas, teaching can be *research-informed* where teachers (potentially in collaboration with their students) undertake enquiry into their teaching by ensuring that teaching is evidence-informed, public, and open to scrutiny by peers. Research can also be *teaching-influenced,* whereby the engagement of students in ongoing research can inform the direction, scope, methods and outcomes of a study.

These experiences can be particularly, relevant when supervising students' research in which the experience of teaching and research is often described as blurred (Robertson & Bond, 2005), This can also be possible at the undergraduate level (Trowler & Wareham, 2007). According to Healey and Jenkins (2009), it is relatively easier to integrate research into teaching at the postgraduate level (research-based and research-tutored) than the undergraduate level (research-led and research-oriented) due to the nature of their curriculum design, where postgraduate studies is research dominant.

A plethora of studies have revealed a number of benefits inherent in the research-teaching nexus when implemented effectively by faculty members. Prominent among these

benefits are that faculty members and students can be partners and work together, not only in the research part of teaching, but in the other elements of teaching and teaching preparation in order to give students an opportunity to shaping and enhancing their own learning experiences (Healey, Flint, & Harrington, 2014). In such a partnership, faculty members and students actively engage in, and stand to gain from the process of learning working through collaborative partnerships. This pre-supposes that the effective engagement of students and faculty as partners in academia, is arguably, one of the most critical success factors for the advancement of higher education in the 21st century.

Moreover, students can also gain direct experience of the research environment and, in some disciplines, are allowed to take part in research work (Healey, Flint, & Harrington, 2014). In addition, students perceive clear benefits from staff research, including staff enthusiasm and the credibility of staff and towards their respective institutions (Neumann, 1994). This creates the impression that if faculty members are not involved in research, then they are simply, not at the forefront of their discipline, thereby, disadvantages students.

On the contrary, the nexus does not only offer benefits to the stakeholders involved. It also has its own side effects including funding mechanisms and the inequity of rewards between research and teaching have led to tensions among faculty members (Healey, Flint, & Harrington, 2014). Therefore, seeking rewards, funds, and career development has made faculty members focus more on research at the expense of the teaching. This in turn, has affected the quality of education. Validating these disadvantages, Neumann (1994) indicates that students' perceived disadvantages from staff involvement in research leads to circumstances where staff do not have enough time for their students, and that students do not benefit directly from staff research. Breen and Lindsay (1999) also cite that research activity diverts attention away from teaching duties such as contact with students. This contrasts with the findings of Dekker (2016), who denied the common complaint that there is not enough time to be a good researcher and a good teacher. They further indicate that it is possible to do good research without detracting significantly, from the time and attention devoted to teaching, and they suggest that the key to reconciling the demands made by research and teaching is the effective organisation and management of time.

Dekker (2016), therefore, conclude that there are two opposing viewpoints, namely, either a trade-off or a synergetic relationship between research and teaching. In addition, he reinforced a warning that an immersion in research apparently can breed narrowness that detracts from the broad-based knowledgeability that students perceive as being an important element of good teaching. In a nutshell, stemming from the above discourse, some scholars advance the argument that the research-teaching nexus helps in facilitating the curriculum developmental processes, while others argue that the nexus detracts the smooth development and implementation of the curriculum. It is in light of this that this paper sought to espouse the impact of the research-teaching nexus on curriculum development in higher education. In view of this, the focus of this paper is to espouse the impact of the research-teaching nexus on curriculum development in higher education.

The rest of this paper is organised as follows: An extensive review of literature followed by the methods as well as the results. After which a comprehensive discussion was followed by drawing implications on the findings by way of conclusion and was climaxed by recommendations.

Literature Review

Perceived Impact of the Research-Teaching Nexus

Positive impact of the research-teaching nexus

Several arguments have been advanced in support of the idea that doing research would improve a faculty member's teaching. Therefore, Dekker (2016) claims that exposure to a person who is actively engaged in research has the tendency to result in students acquiring the "qualities of mind" of a scholar. In support of this assertion, Neumann (1994) states that the nexus provides students with the enthusiasm within the context of their discipline that some faculty members convey when they refer to their own work during lessons that has the tendency to positively impact students' motivation to learn. Students can also gain direct experience of the research environment and, in some disciplines, are allowed to take part in research works in any form (Dekker, 2016). In addition, students perceive clear benefits from staff research, including staff enthusiasm and the credibility of staff and their respective institutions (Neumann, 1994). This creates the impression that when faculty members are not involved in research, they are perceived to be simply, not at the fore-front of their discipline thereby, impacting adversely, on their students' learning outcomes.

From an idealistic perspective, explained that common pursuit of knowledge is the value of university education for its own sake and participation in research is justified on normative grounds. More often than not, the justification for research-based teaching follows a functional reasoning. This is attributed to the reason that a learning society and the knowledge economy requires specific competences such as capacity for independent learning, critical thinking, and understanding the process of knowledge creation; and all this presumes some exposure to the research process. Brew (2010), therefore, states that education is enhanced when the curriculum is designed to engage students in a variety of research-based activities and/or induct them into the research community.

Studying in a research-active environment appears to benefit students directly, as evidenced by higher students' satisfaction (Jenkins, 2004) and improved motivation (Healey, 2005). He espoused that students in a research-led environment demonstrate a higher quality learning experience and they are more likely to adopt a deeper, rather than a surface approach to their learning. Benefits of research activities on student development have been well documented in the literature (Taylor, 2007) and a research-based teaching approach has been found to benefit students' learning outcomes (Brew, 2010; 2013; Healey, 2005; Ozay, 2012).

In spite of these benefits, integrating research into teaching has several challenges and risk factors. These challenges and risk factors of research-based teaching in higher education categorised into three as follows: intrinsic risks related to the actual teaching task (including curriculum design, lesson planning, classroom delivery); extrinsic risks that impact the teacher from outside of the explicit teaching process (such as institutional policy, economic climate); and learning risks identified from the student perspective (involving research engagement impact on overall learning experience).

Elaborating further, Breen and Lindsay (1999) also report possible positive effects of research on teaching when teachers remain updated on new methodological approaches and on current developments within the context of their discipline. They found two positive effects of teaching on research that includes researchers maintaining an awareness of the discipline which enabled them to conceptualise issues better within the context of their discipline, as well as, stimulating their enthusiasm and passion for their discipline. Dekker (2016) also adds that research-based teaching leads to problem-solving abilities, critical thinking skills, as well as, a strong sense of creativity and innovation. These and other benefits for students' engagement in research-based teaching are documented in several publications (Bauer & Bennett, 2003; Hensel, 2012; Kinkead, 2011; Walkington, 2015).

Illustratively, whiles depicting the benefits of the research-teaching nexus, a professor of English wrote "the higher education literature confirms that students who engage in undergraduate research receive numerous benefits including improvement and refinement of their researching, writing, revision, and collaborative skills. Undergraduate research promotes creativity and alternative ways of thinking and sharpens students' ability to analyse, interpret, and synthesise, and gives them the opportunity to understand research ethics, particularly, in the context of their disciplinary community" (Kinkead, 2011, p. 21-22). In another study, students were made to describe opportunities to frame their own lines of inquiry regarding their research experiences. It emanated from the study that teachers intimated that teaching has become the key to growing our research activity, while offering our students a transformational learning experience. We therefore, encourage and support our students to create knowledge as partners through research-based teaching and learning (Hoskins & Mitchell, 2015).

Discussing the impact further, the observation that many students are underachieving is a starting point. The Association of American Colleges and Universities (2009) asked after this observation the question what universities can do to help students to "achieve the forms of learning that serve them best, in the economy, in civic society, and in their own personal and family lives" (Association, 2009, p. 17). The answers include seven 'high-impact educational practices', i.e. practices that have been widely tested and have been shown to be beneficial for students from many backgrounds. Undergraduate research is one of these 'high-impact practices'. Student-faculty research has, according to the report, a positive relationship with many university educational objectives and with 'deep learning' (rather than surface-level learning). The goal of undergraduate research is "to involve students with actively contested questions, empirical observation, cutting-edge technologies, and the sense of excitement that comes from working to answer important questions" (Association, 2009, p.20).

Educational sciences provide various scientific motivations for research-based teaching. The National Commission on Educating Undergraduates in the Research University in the USA (hereafter referred to as the Boyer Commission, 1998) recommends to 'Make research-based learning the standard', referring to 'a point strongly made by John Dewey almost a century ago: learning is based on discovery guided by mentoring rather, than on the transmission of information' (Boyer, 1998, p. 15). The Commission recommends 'to turn the prevailing undergraduate culture of receivers into a culture of inquirers, a culture in which faculty, graduate students, and undergraduates share an adventure of discovery' (Boyer, 1998, p. 16). Every course in an undergraduate curriculum 'should provide an opportunity for a student to succeed through discovery-based methods' (Boyer, 1998, p.17). Therefore, it can be concluded that research-based teaching and learning fits also well with more recent theories of motivation and learning, including the self-determination theory (Deci & Ryan, 2012; Martens & De Brabander, 2014).

In furtherance, the League of European Research Universities (LERU) presents research-based teaching and learning more or less as self-evident by indicating that "research-intensive universities that couple world class research and education provide the most efficient means of providing this combination of basic research and research-based education'. LERU asks the EU 'to support the vital interaction between basic research and education in research universities" (League of European Research Universities, 2002, p. 1). It is interesting to note that documents from individual universities in Europe show that a close intertwining of teaching and research is important for these universities because this link strengthens their identity as a university. This has the tendency to give their students' genuine research experiences they cannot get in any other setting ordinarily devoid of research-based teaching. Therefore, research-based teaching and learning is also important for universities

because it helps universities to fulfil their mission to stimulate, encourage and support students to develop the knowledge, insights, attitudes and skills they are expected to need in follow-up studies and professional careers (Giller, 2011).

More so, faculty members also expect that by engaging students in research can better develop highly valued competencies such as a critical attitude, a humble attitude because researchers accept that there is nothing like 'the' truth, to think independently, and to express thoughts clearly (Healey, Flint, & Harrington, 2014). 'For me, the most important thing is to get the students critical towards everything they do… Not to accept anything as truth' said a law lecturer from the University of Helsinki (Healey, Flint, & Harrington, 2014). More research-based teaching is also expected to contribute to transferable skills such as problem solving and team working and to attitudes such as intellectual curiosity, persistence, and identification with and a sense of attachment to a particular discipline, institute, and/or university (which is an important intrinsic motivation factor). Implying that more research in teaching is also desirable for faculty members who have the passion for doing research because they can easily integrate these researches into their teaching.

Research-based teaching can also be instrumental to the teacher's own research when students discuss conducted research and plans for future research, especially, when they assist in data collection and analysis. Illustratively, a professor emeritus of English and Rhetoric of the University of Chicago wrote: "My books would have been quite different and to me less valuable if I had produced them in solitude or after talking only with professional colleagues. It was not just that thinking about how to teach students to read responsibly led me to ideas that I would otherwise have overlooked. Rather, responding to students' rival readings actually changed my opinions about how to appreciate a given novel or work of criticism. For these and other reasons, teaching and publishing have always been deemed absolutely inseparable" (Boyer, 1998, p.16). Reciprocity is a characteristic of research-based teaching, implying that academics learn from students when they ask good questions.

In a nutshell, although, the nature and benefit of research-based teaching have received considerable attention in recent years (Malcolm, 2014), its place in higher education policy and practice still tends to be vague. A stronger link between research and teaching may also benefit faculty members. These faculty members seem to value the combination between research and teaching (Hensel, 2012) and they recognise that even under a strong research performance pressure, together they are more than just the sum of the parts (Smith and Smith, 2012). Nevertheless, it does not mean that any research-active teacher would automatically incorporate their research experiences into their teaching. It is perhaps, not necessary to be an active researcher in order to effectively implement research-based teaching, it demands a conscious effort on the part of the individual faculty member and receptibility on the part of the student.

Negative impact of the research-teaching nexus

Funding mechanisms and the inequity of rewards for research and teaching in higher education have caused tensions among faculty members (Malcolm, 2014). Also, seeking rewards, funds, and career development has compelled faculty members to focus more on research at the expense of the teaching since they believe research is more rewarding by their institutions. This in turn, has affected the quality of education.

Neumann's work (1994) indicates that students' perceived disadvantages from staff involvement in research unavailability of staff to attend to students' needs coupled with the notion that they never benefited from staff research. To be more elaborate on the adverse implication of the nexus on teaching and learning outcomes, Breen and Lindsay (1999) also cite that research activity diverts faculty's attention from teaching tasks such as contact with students. This contrasts with the findings of Hensel (2012) who denied the common complaint that there is not enough time to be a good researcher and a good teacher. They

indicate that it is possible to do good research without detracting significantly from the time and attention devoted to teaching, and they suggest that the key to reconciling the demands of the two is organising or managing time effectively. Therefore, he concluded that there are two opposing viewpoints, namely either a trade-off or a synergetic relationship between research and teaching. Moreover, Anderson (2012) reinforce a warning that immersion in research apparently can breed a narrowness that detracts from the broad-based knowledgeability that students perceive as being an important element of good teaching from their faculty.

Empirical Review on the Impact of the Research-Teaching Nexus

Examining students' perspectives on the link, Hajdarpasic, Brew, and Popenici (2015) have investigated the views of 200 undergraduate students at a large and research-intensive university in Australia. The study aim was to understand the way students thought they would benefit from being taught by researchers instead of non-researching staff. In this way, they aim to explore the particular value of academics' research for teaching. The core conclusion supported findings from earlier studies that found a positive link. Their results indicate that staff research engagement was crucial for students' understanding of content, had an impact on their enthusiasm for learning and teaching, encouraged postgraduate study, had an important role in undergraduate research and had an impact on developing employment related skills. Similar results have also been shown elsewhere.

A study of a larger scale that goes beyond some of these issues is that by Mägi and Beerkens (2015) in Estonia. They addressed the impact of research-active staff members' involvement in teaching on students' learning experiences, in other words "of how, and whether at all, a research-intensive environment offers a better learning experience for students" (Mägi & Beerkens, 2015, p. 1). Drawing on national survey data from academic staff (N=679) it was shown that teachers who were active researchers were more inclined to integrate research outcomes into teaching, to engage students in research groups and co-publish with students. In addition to the teacher's research-intensity it was her or his intrinsic interest in both activities teaching and research that did matter mostly for the use of these practices. Furthermore, the study showed that this engagement also had discipline- and institution-specific characteristics (higher rates of inclusion in projects and co-publication with students in natural sciences, incorporation of research into teaching in humanities and social sciences). A limitation of their data set is that it does not specify whether the responses are based on undergraduate or graduate teaching experience, thus the study does not address the potential variation across levels of education.

The report of the British Educational Research Association (BERA, 2014) and the Action and Research Centre (RSA) addressed the teaching-research link in the teacher profession. The BERA-report reviews the evidence by asking whether research might improve the quality of both the teacher profession and the quality of teacher students' learning experiences. Drawing on a broader definition of research comprising enquiry-based learning, engagement with research, and research literacy, the review identified four strategies in which research might contribute to the quality of teacher education: first, grounding teacher education programs on research-led knowledge from a range of disciplines; second, the use of research to inform structure and design of teacher education programs; third, to equip teachers and teacher educators to engage with research and becoming users of research; fourth, help teachers and teacher educators to conduct their own research supporting the idea of teachers as researchers. Thus, based on the review of the evidence, the report strongly argues for the positive impact of a teacher profession grounded on research literacy and engagement and its effect on learner outcomes. This, in turn enhances quality through empowerment of practitioners (BERA-RSA, 2014).

In Pakistan, Khan, Mohammad, Ahmed, Saeed and Khan (2012) examined the impact of activity-based teaching on the students' achievement in Physics at secondary level. Thirty (30) lessons were selected from 9th class Physics for this study. All the science students of secondary schools of Khyber Pakhtunkhwa, studying Physics at the 9th grade, constituted the population. A sample of 50 students was randomly selected from Government Secondary School Behzadi ChakrKot Kohat. Pretest-Posttest Control Group Design of experimental research was selected for this research study. Two Multiple Choice Questions type achievement tests were used as research tools for the data collection. Experimental group was taught with the help of activities whereas the control group was taught the same lessons through traditional method of teaching for the period of six (6) weeks. T-test was used to analyze the data. The results showed that the activity-based teaching is more effective for the development of higher order skills in the students. Also, Learning activities if based on real life experiences help learners to transform knowledge or information into their personal knowledge which they can apply in different situations.

In the UK, Healey (2005) examined the link between research and teaching to benefit students' learning. He established that these links may take many different forms and may be found in all types of higher education institution. The study sought to explore the complexity and contested nature of the research-teaching nexus indifferent national and institutional contexts, with particular reference to geography. It is argued that the relationship depends on how the terms 'research' and 'teaching and learning' are conceptualised. The study's findings revealed that undergraduate students are likely to gain most benefit from research in terms of depth of learning and understanding when they are involved actively, particularly through various forms of inquiry-based learning. The development of such research-based curricula provides challenges to staff across the sector, not least because they may lead to finding new ways for staff and students to work together.

Research Methods

Population

The population for this study comprises all students and lecturers from the Humanities across public universities that offer Education including undergraduates, graduate students and post-graduate students summing up to 1809 (Students Records, Education Public Universities, 2019). Based on the Krejcie and Morgan (1970) sampling table, 364 students partook in the study. For the qualitative aspect 8 students comprising undergraduate and postgraduate students were involved. On the side of the lecturers, all the 102 lecturers were involved in the study by responding to the questionnaire, while 5 of them were involved in the interview. The choice of these universities was informed by the fact that they offer Education and for that matter, are properly positioned to offer better insights about the link between research and teaching in the context of curriculum development.

Regarding the sample selection, the proportionate stratified sampling technique was used to select the Business students so as to ensure a fair representative selection. Afterwards, the simple random lottery technique was used to complete the selection process in order to ensure that each student was given an equal chance to participate in the study. The sampling of the cases was done in such a way to reflect the different perspectives from the participants in order to have enriched and deeper insights into the issue under investigation (Creswell, 2013). In all, 364 students across levels were involved in the study.

Research Instruments

Self-developed questionnaire was used to elicit information from the students. To ensure a high level of reliability of the instrument, it was designed to conform to literature,

and aspect of it was adapted from reliable scholars to ensure high integrity. The development of the instrument was informed by literature subjected to peer review and enriched with pilot testing. A pilot-test of the questionnaire was conducted in one of the Universities have similar mandate and characteristics of the universities involved in the actual study. To ensure the face validity of the items on the questionnaire, the items were strictly crafted to conform to the literature. To also ensure content validity, the questionnaires was handed over to experts and other colleagues who went through and offered their suggestions. In order to ensure the construct validity of the self-developed questionnaire, a principal component analysis (PCA) was conducted. An oblique, specifically, *promax rotation* was used, where the eigenvalue-greater-than-one rule was used to determine an appropriate number of factors to retain. Thus, only factors with an eigenvalue of 1.0 or more were retained for further investigation (Kaiser, 1958).

To clarify further, the eigenvalue of a factor represents the amount of the total variance explained by that factor. It is worthy of note that, what Thurstone (1947) refers to as 'simple structure' was experienced through the factor analytic process. This involved each of the variables loading strongly on only one component, and each component being represented by a number of strongly loading variables, making the measurement scales stronger. The least Kaiser-Meyer-Olkin measure of sampling adequacy was .64, which is acceptable. Bartlett's Test of Sphericity indicates that the correlations between variables are different enough from zero, $p < .001$. Several factors emerged, which cumulatively explained an average amount of 70% of the variance measured by the items.

Data Processing and Analysis

The data gathered was checked one after the other to ensure its completeness. Respondents who did not respond to more than 10% of the items on the questionnaire were eliminated (Koshy, 2010). The questionnaires were then numbered from one to the last number based on each category of respondents. The data was coded and entered into the Statistical Product for Service Solution (SPSS, version 23) computer software. The data was screened for entry errors and outliers. Inferential analysis was done using a confidence interval of 95% and an alpha level of .05. For inferential analysis, the researcher checked for the normality assumptions together with other significant assumptions depending on the type of statistical analysis.

In testing for the normality, multiple indicators were used since only one could not be relied on. The Shapiro-Wilk test did not provide enough evidence, an inspection of the graphs was necessary. In some cases, the mean and the median were also compared. This was necessary because Pallant (2010) argues that data with large samples are likely to yield a significant result using the Shapiro-Wilk test. After testing for statistical significance, the practical significance (effect sizes) was also computed to find out the magnitude of the differences. After a thorough check, the closed-ended questionnaire items were analysed statistically using descriptive statistics (i.e. means and standard deviations). For the qualitative analysis, reflexive thematic analysis was used to develop the themes. The opinions expressed and those cited were chosen to be reflective of the opinions of the participants. To ensure confidentiality, all participants were identified by pseudonyms such L1, L2, L3 for lecturers and RM 1, RM 2 for research master' students; UGD 1, UGD 2 for undergraduate students; and PhD 1, PhD 2 for Doctoral students. I used the steps proposed by Creswell (2013) in qualitative data analysis such as that includes reading through transcripts and drafting memos, tentative exploration of the data; coding the data by segmenting and marking the text; utilizing codes to create themes by aggregating related codes together; linking and interrelating themes; and creating a plot.

Results

Perceived Impact of Research-Teaching Nexus on Teaching and Learning

The justification for investigating the impact of research-led teaching on higher education curriculum is that, there are impact that accrue to any activity undertaking in education. Therefore, the integration of research into teaching is likely to yield both positive and adverse effect on teaching and learning outcomes in higher education, especially, universities. It would be a great deception to measure conceptualisation, experiences, level of integration and factors affecting the integration of research into teaching without recourse to the perceived impact from the perspective of both lecturers and students. In addition, empirical evidence on the nexus have indicated a great deal of impact from the research-teaching nexus if implemented in higher education.

Quantitative Results

To find out the impact of the research-teaching nexus on teaching and learning outcomes, means and standard deviations were used to analyse the data collected. Based on the results, most of the respondents were in agreement to the factors affecting the compatibility of the link between research and teaching. Table 1 presents these compatibility factors affecting the intercourse between research and teaching.

Table 1. Perceived impact of research-teaching nexus on teaching and learning

Status	Students		Lecturers	
	M	SD	M	SD
Intellectual Development	4.25	.68	4.33	.64
Heightens research and employability skills	4.24	.74	4.35	.62
Students' Interest and Knowledge Development	4.14	.67	4.12	.63
Promotes relevant and functional curriculum	4.32	.61	4.12	.63
Highly differentiated university	4.06	.72	4. 56	.66

Source: Field Data (2020)

Table 1 reveals the perceived impact of the research-teaching nexus in higher education from the perspectives of both faculty members and students. Prominent among the impact is highly differentiated university as indicated by the lecturers (M = 4.56, SD = .66), as well as, students (M = 4.06, SD = .72). By this, both lecturers and students indicated that the research-teaching nexus highly distinguishes one university from the other by giving it a distinctive and unique identity. This implies that the manner in which the research-teaching nexus is implemented is a true reflection of teaching and learning in the university. The way the nexus is manifested tells whether it is a research-intensive university or not. This is likely to enhance the image of the university.

The impact of the nexus is also made manifest through the intellectual development of students (M=4.33, SD=.64) as indicated by lecturers, as well as students (M=4.25, SD=.68). By this, they indicated that the link between research and teaching promotes and supports learning and teaching as a process of intellectual enquiry. The intellectual development impact also creates an experience sharing avenue among students and faculty members coupled with deepening teachers' knowledge of the subject matter.

In addition to the impact of the nexus, they revealed that the nexus heightens research and employability skills as indicated by lecturers (M=4.35, SD=.62) and students (M=4.24, SD=.74). This is attributed to the fact that the nexus develops, in students, important graduate attributes such as research skills, data gathering skills and information synthesis skills.

In furtherance, the respondents indicated that the research-teaching nexus promotes relevant and functional curriculum (*M*=4.32, *SD*=.61). They indicated that the nexus bridges the gap between theory and practice and increases the `opportunity for inquiry and critique. The impact of the nexus is realised through the enhancement of students' interest and knowledge development (*M* = 4.14, *SD* = .67). They described this as a situation where the research-teaching nexus is perceived as stimulating the interest and enthusiasm of the students for a course where the nexus is applied. The nexus also increases students' awareness of research methodological issues, thereby increasing their understanding of the course taught.

Qualitative Results

One cannot run away from the fact that the research-teaching has some significant impact on teaching and learning in higher education despite the different conceptions held by many stakeholders about the link. This impact is made clear in the themes and sub-themes as follows based on the adoption of the *reflective thematic analysis*:

Research-teaching integration approximates abstract knowledge

The research-teaching nexus assists in facilitating teaching and learning. Commenting on the impact of the nexus on teaching and learning, one of the lecturers intimated that:

> *I believe the integration of research into teaching practicalises the teaching and learning process by promoting concrete and meaningful teaching and learning* **(L2)**.

Research-teaching nexus ensures creativity

In engaging students in the nexus, they are likely to learn creative skills relevant for life. This is emphasised in the words of one of the lecturers':

> *I believe the link serves as an opportunity to instil creativity skills in students. It also sensitises the younger learners and prepares them for the future for both post-graduate studies and employment"* **(L4)**.

Research-teaching nexus fosters collaboration

Elaborating on the role of research in teaching in higher education, research is more likely to foster such one-on-one collaboration among key players in education. The interview captured one of the lecturers saying:

> *I agree it fosters partnership and closer academic relationship among faculty and their students. My working with some of the students I supervise helped fostered a closer relationship which led to us publishing together and even discuss other personal life issues* **(L7).**

Complexity of the research-teaching nexus

It would be a great ruse for anyone to think that the research-teaching nexus bestows only positive consequences on teaching and learning. However, the nexus has some adverse repercussion on teaching and learning in higher education. These are captured in the sub-themes next.

The nexus creates confusion

The complex nature of research and teaching is not independent of students learning. However, it permeates into the difficulty students encounter in their learning. Students' involvement in the process is likely to create much difficulties for them if well guidelines are not given to them. This was confirmed by one of the students when he indicated that

> *when the lecturer introduces complex research in teaching some of the courses, it makes things so complicated that confuse us. Research matters should be reserved for Research methods as a course for postgraduate studies* (**UGD 1)**.

Intensive research limits teaching time

The balance between research and teaching seems to create problems for academics. This is because one is not likely to engage in intensive research and have adequate time for

classwork. To buttress the negative effect of the nexus on teaching and learning, another student participant reiterated that

> *research-active lecturers don't have time for us because they are constantly engaged in their research than teaching us* **(RM 2)**.

This scenario suggests that in as much as some scholars indicate that faculty's active engagement in research is likely to culminate into teaching effectiveness, others believe research is likely to take more of faculty's time likely to adversely affect their teaching and academically-related activities. Most faculty members find it very difficult to balance their two core mandates (research and teaching). Only few are able to balance the two activities to derive the utmost benefit. To reinforce this notion, one of the students signposted that

> *…This is likely to lead to diversion of attention since both activities are so demanding. There is likely to be a trade-off between research and teaching in terms of the time required to undertake those activities* (**PHD 1)**.

However, there is the possibility for getting the two activities balanced through high perseverance. This is based on efforts and strategies employed by individual academics. One of the lecturers revealed that

> *though, there are both benefits and drawbacks, it all boils down to how the individual academic balances these activities to promote students' learning outcomes. The link will either be beneficial or soar depending on so many factors* **(L6)**.

Conclusively, several impact have been espoused by several stakeholders through both the quantitative and qualitative modes of the data collected.

Discussion

Prominent among the impact of research-led teaching on the curriculum as espoused by both lecturers and students to include highly differentiated university. This implies that the research-teaching nexus highly distinguishes one university from the other by giving it a unique identity to its curriculum and pedagogical practices. No wonder some universities claim they are research-intensive, while others are hybrid. The impression created here is that the manner in which the research-teaching nexus is implemented is a true reflection of teaching and learning in the university. The way the nexus is manifested tells whether it is a research-intensive university or not. No wonder research-intensive universities are normally ranked higher than others when it comes to international universities' rankings. This enhances the image of these universities.

The impact of the nexus is also made manifest through the intellectual development of students. This impact could be described as the situation whereby the link between research and teaching that promotes and supports learning and teaching as a process of intellectual enquiry, as well as, helps students learn techniques adopted to undertake research within their area of specialisation. The intellectual development impact also creates an experience sharing avenue among students and faculty members coupled with deepening teachers' knowledge of the subject matter (Giller, 2011).

The nexus also heightens research and employability skills. This is attributed to the fact that the nexus develops, in students, important graduate characteristics, for example, research abilities, data gathering skills and information synthesis skills. This impact also portrays the idea that the link between research and teaching instils in students a sense of innovation and creativity, thereby, enhancing their chances of employability which is incorporated as part of the curriculum (Healey, Flint, & Harrington, 2014).

In furtherance, the respondents indicated that the research-teaching nexus promotes relevant and functional curriculum. This impact means that the nexus bridges the gap between theory and practice and expands the 'opportunity for inquiry and critique. The impact of the nexus is also realised through the enhancement of students' interest and

knowledge development by way of enhancing the curriculum (Ozay, 2012). This impact is described as a situation where the research-teaching nexus is perceived as stimulating the interest and enthusiasm of the students for a course where the nexus is applied. The nexus also increases students' awareness of research methodological issues, thereby, increasing their understanding of the course taught. Therefore, some of the lecturers indicated that they believe the integration of research into teaching practicalises the teaching and learning process by promoting concrete and meaningful teaching and learning, and also believe that the link serves as an opportunity to instil in students, creativity skills (Dekker, 2016).

It is deceptive to think of the impact of the link between research and teaching as limited to the life of the student in school. This is because the repercussion the nexus has on students transcends beyond the years spent in school through to the lifetime of the student in all his or her life endeavour. The finding resonates with a study by a group of research-inclined universities in the UK called the Russell Group (2009). The group endeavoured to set up expressly while their research-excellent climate is gainful to undergraduate learning. The group revealed that the expected advantages of concentrating in a research dynamic climate incorporate, not just making provisions for research resources and encountering renowned researchers, yet additionally sending standards and ideals of systematic inquiry by drawing in students in an assortment of research-based exercises, and applying diverse pedagogical orientations for more insightful learning (Brew, 2010). Caution should, however, be observed as it is valuable to establish that possessing active researchers is a guarantee for the presence of an effective research-based teaching. The link is, therefore, intentionally and explicitly created to optimise educational outcomes. Reinforcing the argument, Healey (2014) emphasised that teachers and students should be allies and collaborate closely in validating this result, not just in the testing component of teaching, as well as in the other aspects of teaching. This helps to provide students the ability to form their own learning environments and improve them. Students are sure to voluntarily participate in such a relationship, and hope to benefit from the opportunity of operating in collaboration with their lecturers.

Also, Ozay (2012) intimated that students appreciate that their lecturers are also researchers and "believe that faculty members' engagement in research deepens students' understanding, increases enthusiasm for learning and teaching, encourages postgraduate study, develops skills useful for employment and enhances undergraduate research activities" (p. 644). That notwithstanding, my reservation is that it is by no means certain that good researchers are also good teachers since similar, but specialised skills are needed to execute the two major task of a faculty member.

Moreover, regarding the enhancement of students' interest and knowledge development through the research-teaching nexus, it is clearly seen that the research-teaching nexus is perceived as stimulating the interest and enthusiasm of the students for a course where the nexus is applied. The nexus also increases students' awareness of research methodological issues, thereby increasing their understanding of the course taught. Neumann (1994) concurs with this finding by showing that the nexus offers students the passion for their discipline that certain faculty members show when relating to their own practice and affects their motivation to learn positively. Students may also obtain specific experience in the scientific environment and are authorized to participate in research study in certain disciplines (Healey, Flint, & Harrington, 2014). In addition, students see significant gains from the research of workers, such as staff motivation and the reputation of employees and their organization. In my opinion, though, if faculty fails to undertake research, they are clearly not at the pinnacle of their field. The learners are, thus, disadvantaged. Students pursuing university education do so and, to guarantee significant impartation, they anticipate to see academics that have reached above the average standard of experience (Kyvik & Vagan, 2014).

One of the most essential impacts is widening the argument regarding the advantages of the research-teaching nexus, enhancing the motivation of students and developing awareness. In verifying this, Breen and Lindsay (1999) identified potential beneficial impacts of teaching research as teachers remained up-to-date on emerging methodological methods and on recent trends in their discipline. They observed two beneficial impacts of research on teaching, namely research that creates and retains knowledge of the curriculum of students as a whole, helping them to conceptualise narrower research subjects, and researchers were also inspired by the curiosity and concerns of new students, thereby enhancing their passion for the practice of teaching and learning (Mayson & Schapper, 2012).

To further illustrate, a professor of English wrote once indicated that "students who engage in undergraduate research receive numerous benefits. They improve and refine their research, writing, revision, and collaboration skills. Undergraduate research promotes creativity and alternative ways of thinking and sharpens students' ability to analyse, interpret, and synthesise, and gives them the opportunity to understand research ethics, particularly in the context of their disciplinary community" (Kinkead, 2011, p. 21-22). Assessments of research-based teaching and learning by students are often generally favourable. Microbiology students illustratively claim that the consistency of the experience in an investigative laboratory was much higher than all of their prior experiences in the laboratory (Healey, Flint, & Harrington, 2014). In another survey, students established prospects to structure their own research lines and research experiences with a "open-ended orientation, knowledge-building, as especially empowering in their intellectual and personal development" (Levy & Petrulis, 2012, p. 85).

It is important to indicate that the research-teaching nexus has its own infirmities. This is induced by the fact that some of the students postulated that when their lecturers introduce complex research in teaching some of the courses, it makes things so complicated that confuse them. And that research-active lecturers do not have time for them. The study of Healey, Flint, and Harrington (2014) resonates with this finding by revealing that funding mechanisms and the inequality of rewards instituted by universities for research and teaching have caused tensions among academics, making them research-focused than teaching-focused because of the unequal reward allocated to these two important activities of an academic. To further argue, Kyvik and Aamodt (2015) supported this assertion by arguing that finding incentives, grants, and career advancement has enabled academics concentrate increasingly on research at the cost of teaching, hence affecting the quality of delivery of education.

In addition to the contested nature of the research-teaching nexus, most faculty members find it very difficult to balance their two core mandates (research and teaching). Neumann's work (1994) reaffirmed this observation that students viewed drawbacks from the presence of research as alien in teaching. Breen and Lindsay (1999) have noted that research behaviour distracts focus from teaching responsibilities, like student contact. This contrasts against Dekker (2016) findings, who denied the traditional argument that there is not sufficient time to be a successful researcher and a successful teacher. They stated that successful research can be achieved without greatly detracting from the time and effort committed to teaching, and they proposed that coordinating or handling time efficiently is the secret to reconciling the requirements of the two core mandate of the academic, thus, research and teaching.

Arguably, the researcher believes time is a critical factor among the factors here. Dekker (2016) therefore concluded that two opposing points of view exist, namely either a trade-off or a synergistic partnership between research and teaching. It is important to indicate that implementing the research-teaching nexus right from the "scratch", especially, with undergraduate students leads to high impact practices in higher education leading to meaningful learning outcomes. This coincides with Hoskins and Mitchell's view (2015) who

indicated that there is a likely congruence between research and teaching, especially, climbing higher the academic ladder. All of these 'high-impact activities' is undergraduate research. According to the paper, student-faculty research has a good association with many university educational priorities and with deeper learning (rather than surface-level learning). The aim of undergraduate research is to engage students with vigorously debated questions, scientific evaluation, cutting-edge technology, and the feeling of enthusiasm that emerges from attempting to address relevant questions (Association, 2009, p. 20).

Therefore, it is instructive and imperative to point out that research-related teaching supporters point to its numerous advantages (Healey, Flint, & Harrington, 2014). From an idealistic view, the importance of university study for its own good is the universal pursuit of understanding, and involvement in research is therefore validated on moral grounds. Very commonly, however, according to Breen and Lindsay (1999) a practical explanation accompanies the argument for research-related teaching. Relevant capabilities, such as potential for independent thought, critical thinking, and comprehension of the mechanism of knowledge formation, are necessary for a learning society and knowledge economy, and all this assumes some exposure to the research process. Education is also strengthened where the program is structured to include students in a range of evidence-based practices and/or introduce them into the research culture (Brew, 2010).

Brew (2010) similarly postulated that teaching must lead to research. The approach of teaching a discipline's subject matter requires faculty members to explain the big picture that falls into their unique specialty in research. Disparities in the institutional information base can be elucidated by the planning of instructional materials. In a classroom setting, communicating the effects of one's research to students lets researchers explain their research. Consequently, feedback, comments, questions, and critiques from students will explain new avenues for research. Sharing with a supportive audience the effects of one's research activities offers encouragement for having completed the research and undertaking more analysis (Kyvik & Aamodt, 2015).

As demonstrated by higher student fulfilment (Jenkins, 2004) and increased motivation, learning in a research-active atmosphere seems to directly support students (Durning & Jenkins, 2005; Healey, 2005). Validating the aforementioned observations, Malcolm (2014) observed that students show better quality learning experience in a research-led environment and are mostly likely to follow a deep instead of a shallow approach to their learning. The central conclusion of their analysis confirmed the results of this study, which showed a favourable association among teaching and research. Their findings suggest that the involvement of staff research was critical to the comprehension of material by students, had an effect on their passion for studying and teaching, inspired postgraduate study, played a significant role in undergraduate research and had an influence on the growth of skills relevant to work. There have also been related outcomes seen elsewhere. Healey and Jenkins (2011), for example, summarized current studies and concluded that students show significant benefits of participation in staff research.

In Activity-based learning (ABL) teaching method, in the words of Anderson (2012) exclaiming that "students actively participate in the learning experience, rather than sit as passive listeners" (p. 42). Therefore, learning exercises allow students to translate awareness or facts into their individual knowledge, centered on practical life experiences, which they may implement in various contexts (Healey, Flint, & Harrington, 2014). Also, Churchill (2003) alluded to the fact that research-based teaching helps learners to "construct mental models that allow for 'higher-order' performance such as applied problem solving and transfer of information and skills" (p. 11). Therefore, all stakeholders see the research-teaching nexus to be valuable to students' learning outcomes.

Rounding up the discussion, it is important to reiterate that the research-teaching nexus promotes intellectual development, heightens research skills and improves university image. It also promotes relevant and functional curriculum, ensures a highly differentiated university, and finally stimulates students' interest and knowledge development.

Conclusion

It is noteworthy that there is no clear-cut, simple and consistent linkage between research and teaching. Even where such a link exists, it may be found in varied, dynamic and complex ways. Therefore, it requires considerable amount of efforts to generate and maintain this linkage in order to ensure its successful implementation in relation to the higher education curriculum. In spite of the controversial and highly contested nature of the research-teaching nexus, a stronger link between research and teaching is still beneficial to both faculty members and students with its concomitant enhancement of the curriculum. This explains why faculty members and students seem to value and appreciate the link between research and teaching. Nevertheless, it is worthy to recognise that not every research-active faculty member would automatically integrate their research experience into their teaching activities. This implies that one does not need to be an active researcher in order to effectively integrate research into teaching. However, it is therefore, an intentional and conscious effort on the part of each faculty member to create a link between research and teaching in order to promote meaningful learning outcomes.

It could therefore, be inferred from this study that the link between research and teaching is also valued by both students and faculty because the nexus allows for easier dialogue that triggers students' development of the requisite skills to solve issues through critical evaluation, synthesis and reflection as a function of the curriculum developmental process. It is important to bear in mind that regardless of the level of study of students, the highest level of integration of the research-teaching nexus could be achieved. Also, irrespective of the rank of a faculty member, the highest level of implementation of the nexus could be achieved as far as the right mechanisms are put in place.

Implications for Policy and Practice

1. All stakeholders in higher education should ensure a stronger bond between research and teaching as part of encouraging and preparing both faculty members and students to embrace the smooth implementation of the nexus in order to enhance the curriculum.
2. Faculty members should embrace student-centred pedagogies including research-led, research-based and research-tutored teaching, as well as, problem-based teaching and learning approaches.
3. Universities should actively engage their external stakeholders such as employers as part of enhancing their curriculum to inculcate into students' employability skills. This external engagement will enable these stakeholders have a say in what universities impart in students.
4. University authorities should put all the necessary mechanisms in place to promote research-led teaching in higher education in order to optimise the benefits associated with the research-teaching nexus.
5. Faculty members should also make the effort to strike a balance between time devoted to teaching and time devoted for research in order to optimize the benefits derived from the research-teaching nexus.
6. Faculty should also be cautioned about the dangers associated with the impact of the nexus on the higher education curriculum, especially, within their discipline of practice.

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