PUTTING RESEARCH INTO PRACTICE: EXPLORING THE INHERENT CHALLENGES OF RESEARCH UPTAKE IN THE BUILT ENVIRONMENT FACULTIES IN GHANA

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Existing literature on Research Uptake (RU) have focused on exploring communication gaps between researchers and the audience. Unfortunately, the review of literature points to the dearth of research studies on Research Uptake within the Built Environment (BE). Recent studies have concentrated on improving uptake strategies neglecting the challenges of RU. The resolution of such challenges will inevitably facilitate the uptake of research. This paper aims to explore the inherent challenges of research uptake in the Built Environment faculties. A structured questionnaire survey was used to elicit perceptions of Researchers on the challenges identified from literature and the preliminary survey. The data were analysed using descriptive statistics (mean score ranking) to examine the severity of the challenges. The findings of the study revealed that *lack of resources, policymakers' perception about research and lack of collaborative research* are the main challenges to research uptake in the Built Environment faculties in Ghana. Subsequently, the Kruskal-Wallis Test was used to compare the scores on the main challenges across the various department. It revealed that there is a difference in the challenge pertaining to *policymakers' perception about research.* However, the difference in the other main challenges proved to be statistically insignificant. The challenges presented indicate that research in the Built Environment needs intense management and resources intervention to facilitate its uptake with demonstrated outcome benefits. This study provides rich insights of the challenges to the uptake of research in the Built Environment. Little study in the literature has provided such insights that link the challenges to the uptake of research in the Built Environment. The findings from the research would be of significance to both researchers, policymakers, advocates and potential policy beneficiaries, among others. Further research is recommended to examine the challenges from the perspective of policymakers.

Keywords: built environment, challenge, faculty, research, strategy, uptake

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INTRODUCTION

The significant contributions of research to the development of countries, both developed and developing, cannot be overemphasized (University Relations Office, URO, 2013; Department for International Development, DFID, 2012; Stephenson and Hennink, 2002). Scientific and technical research play eminent role for evolution of a knowledge based and innovation driven economy (Tufail and Ehsan, 2012). Performance in research provides particular importance, especially in gaining competitive advantage over other countries across the globe. According to Salter and Martin (2001) the linkage between research and economic performance is important against the background of the governments fund spent on such basic research. Despite the considerable government resources expended on such basic research in universities, institutes and elsewhere (Salter and Martin, 2001), a consistent finding is that the utilization of such research can be slow and haphazard (Eccles *et al.*, 2005). Also, the continuing trend towards evidence-based policy formation dictates that research outputs need to be clear and should provide concise policy-relevant findings (Sumner *et al.*, 2011; WHO, 2000 as cited in Stephenson and Hennink, 2002).

Generally, Higher Education is the progenitor of research imperative to development (Pastor et al., 2014). That is the sustainable approaches that harness the resources of a country in order to momentously transform the economy to improve the living standards of its citizenry aforementioned are only arrived at through the conduct of research works. Unfortunately, Roberts (2013) opined that many of the world's largest donors too often perceived Higher Education as something less worthy of international support in comparison with pressing development challenges. The good thing is that this perception has changed over time. It is now widely recognised that the capacity to create knowledge with development potentials is the way forward in resolving development challenges (Banzi et al., 2011), especially as countries are moving into the 'knowledge-based economy' (Martin and Etzkowitz, 2000). In consequence, universities have been identified as indispensable in the creation of knowledge with development potentials (Senaratne *et al.*, 2005; Martin and Etzkowitz, 2000). Roberts (2013) further argued that universities are central to developing sustainable approaches to agriculture, to enterprise, to governance and to improving living standards of the citizenry.

These recent trends invariably demand that researchers have to explore appropriate research strategies for the effective dissemination and the uptake of their research findings (DFID, 2012; Stephenson and Hennink, 2002; Waddell, 2001). However, effective communication between researchers and end users provides a continual challenge (Hennink and Stephenson, 2004). The review of literature points to the dearth of research studies on Research Uptake (RU) within the BE, and most of the existing literature have focused on exploring the communication gaps between researchers and users in the health sector (e.g. Hennink and Stephenson, 2004; Landry et al., 2001; Wright et al., 1996; Walt 1994;

1994b). Little is known of the challenges in the Built Environment. The Built Environment (BE) falls under vocational and applied science discipline (Senaratne *et al.*, 2005). As aptly postulated by Srinivasan *et al.* (2003), the BE encompasses all buildings, spaces and products that are created or modified by people. BE impacts indoor and outdoor environments and subsequently health and quality of life as already observed. Jackson (2003) examined the impact of the Built Environment on health of people. Also, Leyden (2003) explored the relationship between the Built Environment and social capital. In both studies, the authors concluded on the essentials of the BE. Essentially, the performance of an economy is only as good as the health of its citizenry.

With these gaps identified, this study sought to explore the inherent challenges of research uptake in the built environment faculties. In achieving this aim, the research question – what are the challenges of Research Uptake in the Built Environment faculties in Ghana? – was asked. It is essential to study this issue since the resolution of the challenges would inevitably drive the uptake of research (Dunne, 2011) in the BE. This paper presents an initial exploration of disentangling the technical term of RU, and provides insight into the challenges of RU in order to effectively and efficiently manage RU in the BE.

EXPLAINING RESEARCH UPTAKE

In recent years, much have been written by academics on the concept of research uptake, but its definition still eludes people even those who are familiar with it (Cilliers, 2013). The name may be relatively new, but the concept has deep roots in intermediary field and development of earlier models of handling research (Cilliers, 2013; DFID, 2012). Traditionally, research uptake is taken to mean getting research to the audience regardless of its impact. For instance, Development Research Uptake in Sub-Saharan Africa (DRUSSA) (2013) defines research uptake as a process whereby research findings enter the domain of intended but also unintended audiences. This definition is flawed with the general perception that research uptake has been unilateral or one-way flow of information into the awaiting hands of the audience or policymakers (Landry *et al.*, 2001). Research is supposed to have an impact; and it is clear that the impact of research evidence on policy and practice has been gathering momentum (Sumner *et al.*, 2011), hence, its uptake must not end with the mere reception of research by the potential user (Landry *et al.*, 2001). It is also worth pointing out that researchers are not the only group interested in research uptake and evidence-based policy making (Sumner *et al.*, 2011). To elaborate on this point, research uptake is supposed to engage all stakeholders; and in lower- and middle-income countries, the resolution of development challenges is in the collective interest, and so therefore all (stakeholders) share an interest in research with development impact (Roberts, 2013).

Schillinger (2010) also defines research uptake as the acquisition and the review of research knowledge and its utilization, including incorporation into decision-making. Conversely, Cilliers (2013) asserted that sharing of this information does not always follow the upward trajectory into the awaiting hands of decision-makers. However, a more elaborative definition was given by Roberts (2013) as a cooperative, informed, non-didactic approach to the management of research, directly involving a host of external stakeholders who have an interest in research impact. According to DFID (2012), this includes all the activities which facilitate and contribute to the evidence use of research by audience. Here the emphasis lies on research uptake not being unilateral knowledge transfer.

In this study, Research Uptake is defined as the non-unilateral sharing and facilitation of research to enable its utilization.

RESEARCH UPTAKE: WHAT WENT WRONG?

Despite the importance of RU, it is not being done very well and this dominant theme runs through scholarship on science communication (Treise and Weigold, 2002). According to Waddell (2001), getting good research into practice or access to such published research still remains a herculean task. Many interacting factors account for these barriers from research to practice, including economic and social policy as well as scientific factors (Morris *et al.*, 2013; Schillinger, 2010). These barriers to the uptake of research is a widespread problem (Stephenson and Hennink, 2002) and can be looked at from three perspectives; the researcher, the audience and mutual barriers. Consequently, researchers and policymakers argue differently on how best to get research into use (Wooding *et al.*, 2007). To date, most theoretical developments and empirical research on RU challenges has been from the perspective of the audience (policymakers) and has treated the researchers as a black box. Indeed, little or no empirical studies exist that explore these problems from the perspective of the researchers (*cf.* Treise and Weigold, 2002). In this study, the authors endeavour to open the black box that is the Researchers and examine the inherent challenges of RU inside. How these challenges influence the uptake of research in the BE is further investigated.

Policymakers' perception about research

Lack of strong evidence-based culture in policy development is a major setback to the uptake of research (Stephenson and Hennink, 2002). Consequently, the impact of research is too little and policymakers seem not to fully appreciate its contribution to policy formation (Stephenson and Hennink, 2002). Moreover, policymakers' limited understanding of researchers' work settings deepens this barrier (Lomas, 1997; as cited from Waddell, 2001). Furthermore, audiences are least likely to use research if they have to spend greater amount in trying to overcome the difficulties of reading and understanding the research findings (Von Grebmer, 2005; Landry *et al.*, 2003). Evidently, research is given low priority by

policymakers in developing countries and as such research is not valued in policy formation (Hennink and Stephenson, 2004). Also, research is perceived as an unnecessary expenditure in developing countries (Hennink and Stephenson, 2004) given the scarcity of resources. All these perceptions prevent the uptake of research.

Lack of dissemination skills and access to policymakers
Lack of dissemination and poor dissemination skills have been identified as a significant barrier to research uptake (Oliver *et al.,* 2014). This is echoed by the study conducted by Stephenson and Hennink (2002), where it was observed that most researchers lack the skill of disseminating research outside the academic circles. According to Dunne (2011), the most significant barriers to the uptake of research are issues associated with communication. Landry *et al.* (2003) noted that recent works do not only focus on the variables relating to the characteristics of research products but also other explanatory factors – the relationship or links between researchers and the users of research. Accordingly, ignorance can only best be reduced via effective communication about research or science and without sufficient knowledge, people might turn against it (Von Grebmer, 2005; Weigold, 2001). The frequent change of government portfolios in Africa means difficulty in developing and maintaining links with policymakers (Stephenson and Hennink, 2002). Researchers often expressed difficulties at identifying and accessing policymakers to communicate research findings (Stephenson and Hennink, 2002). This challenge is summarised by Neal Lane[5] in his broad statement:

We do not know how to communicate with the public. We do not understand our audience – we have not taken the time to put ourselves in the shoes of a neighbour – to understand why it's difficult to hear us speak. We don't know the language and we haven't practiced it enough (Cited in Treise and Weigold, 2002).

Lack of resources
The issue of research funding have had an evolving past, dating back as far as post –World War II. There has been a wide-ranging debate on the advantages and drawbacks of the rational of resource allocation to university research (Geuna, 2001). Whereas public and industrial spending on research increased in European Union (EU) countries (Geuna, 2001), the same cannot be said of developing countries particularly African countries. Indeed, Stephenson and Hennink (2002) identified lack of resources as a fundamental barrier to research uptake in developing countries where funds are not available to conduct research and dissemination activities. Chan and Costa (2005) narrowed the challenge to the weak infrastructure and capacity needed to absorb research findings and information, thus leading to low levels of scientific output. This lack of resources often hinder researchers' presentation of findings to the audience (Stephenson and Hennink, 2002). Hennink and Stephenson (2004) further opined that there is no national research fund available for

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the conduct of research in Malawi and Tanzania. This situation is similar across many developing countries, including Ghana. These situations cripple and constrain the conduct of research and consequently its uptake.

Practical difficulties

The failure of researchers to communicate with the audience is not merely a matter of lack of dissemination skills as aforementioned, but researchers have also been heavily criticised for unwilling to present or communicate their work in easily understood ways (Treise and Weigold, 2002). As a result the need to produce research in alternative formats and invoicing serve as disincentives to researchers (Saywell *et al.*, 2013). A number of studies have been conducted on the importance of research findings, and in each of them clarity of the findings was reported as an important factor affecting RU (Oliver et al., 2013). Stressing on the reason for the practical difficulties, Saywell *et al.* (2013) opined that time constraint is also an additional constraint, especially when competing against production of academic papers which have perceived intellectual credibility making it difficult to translate the findings from scientific to basic understanding. Moreover, the expectation in the educational settings is that research works will be published in academic channels – peer reviewed papers, journals, conference proceedings, etc. without working directly with practitioners in utilising the research findings (Wooding *et al.*, 2007; Alberta Association of Registered Nurses (AARN), 1997). Hence the practice of the fundamental breakdown of research findings that has the tendency to distort the research findings is usually not done.

Limited access to research outputs

The quality of decision-making, be it scientific or democratic debate is enhanced by access to accurate information (Head *et al.,* 2014). The advances in information and communication technologies suggest that global dissemination of research findings seem effortless (Edejer, 2000). However, this seems not to be the case. As aptly postulated by Stephenson and Hennink (2002), accessing research outputs is one of the greatest difficulties faced by audiences (policymakers) in utilising research. Ten years afterwards it seems the situation has not improved and consequently, Oliver *et al.* (2014) observed lack of access to research as a highly reported factor affecting the use of research. It is imperative that research be easily accessible in the practice setting (AARN, 1997). Policymakers and users are often somewhat prevented from access to research outputs since research is mainly disseminated in academic circles which are seldom accessed by policymakers (Lang, 2003; Stephenson and Hennink, 2002).

Organisational setting

The similarity between the settings of the sender and recipient of message is crucial in the effectiveness of communication (Lang, 2003). Landry *et al.* (2003) opined that policymakers or managers of government agencies are reluctant to use university research mainly because of difference in organisational culture – that is to say they do not share the norms and values of researchers. These settings not only influence the way people

think but also the kind of research evidence needed, preferred or used (Waddell, 2001). The political will and the resources to implement or uptake resources also influence decision-makers in translating research into practice (Schillinger, 2010). In consequence, the focus of recent scholarship on research uptake has been to understand how and under what circumstances policy-makers and other practitioners access and use academic research (Head et al., 2014). Bridging the gap between the very seemingly different organisational cultures is indispensable to the uptake of research (Head et al., 2014). Existing literature have tended to promote solutions that focus on developing better communication and interaction between these organisations. Others, also examined structural and cultural factors that allow organisations to be more receptive to externally generated knowledge (Howlett and Welstead, 2011; Meagher et al., 2008).

Lack of central source of research outputs
Central depository is imperative to the utilisation of research particularly in less developed countries where means of communicating research outputs are less developed. This offers opportunity for the audience to identify a source whereby findings of research can be located. This assertion is in line with the findings of Antelman (2004) that freely available research have a greater research impact. Unfortunately, Policymakers often find it difficult locating research findings – mostly unpublished works, because of lack of central depository of research outputs (Stephenson and Hennink, 2002). This barrier is pervasive in many developing countries (Willinsky, 2006).

Quality of research
The characteristics of research evidence and its impact on RU has been extensively studied (Oliver *et al.,* 2014). The relevance and reliability of research findings are identified by Oliver *et al.* (2014) to affect the uptake of research. According to Stephenson and Hennink (2002), the quality of local research discouraged some policymakers from using local research work and thus resort to research works from international agencies. Adding to this, Waddell (2001) argued that the quality of research evidence published annually to actually inform decisions by policymakers is still uncertain and debatable.

RESEARCH METHODS

The paper utilised the survey questionnaire approach to elicit the views of Researchers in various departments under the Built Environment faculties in Kumasi. The survey research offered the scope for large representative sampling of researchers in the Built Environment from where reliable information were extracted about the challenges to the uptake of research in Ghana. Survey was preferred to interview because it allows a wider scope (Fisher, 2007). Also, this methodology is considered as cost effective and time saving in order to achieve better results in shorter duration (Warris et al., 2014). The traditional techniques for collecting responses from the targeted respondents are postal mails, fax and

electronic mails. However, for this research work, questionnaires were administered in person for getting feedbacks from the respondents. This section discusses the method employed for the study and particularly explains the development and administration of the questionnaires.

Questionnaire design

The need to develop, adapt and customise available instruments for the specific environment targeted by a research study is imperative to a local study (Carless and De Paola, 2000). Thus, to customise the data collection tool for the BE context, the basic instrument was presented to 10 Researchers with more than 10 years of experience in the conduct of research. The questionnaire was approved by the researchers, with their suggestion that the term Research Uptake should be fully explained. As a result central definition was added to the questionnaire to further make the objectives clear for potential respondents. Sending the questionnaires to the Researchers was supported by conventional thinking which states that 'industry experts' should be involved in the pre-testing of the questionnaire (e.g. Carless and De Paola, 2000).

The departments within the BE faculties differ in size, their mode of conduct of research is different and likewise the research principles. Moreover, the research philosophy or principle of the various institutions under study may be different, likewise their size of operation. Hence, the study adopted clustered sampling technique since there is the tendency for the respondents to be influenced by the aforementioned factors.

In Ghana, Kumasi is noted to be a major hub of BE education with various institutions of Higher Education on BE (i.e. Universities, Research Establishment and a Polytechnic) and usually engage in research activities. In consequence, researchers in the BE faculties in the Kumasi Metropolis were targeted. The survey questionnaire comprised two sections. The first section covered the demographic variables of respondents; the other section was anchored on RU and tailored to elucidate perceived challenges to RU in the BE.

Data collection

The lists of researchers were collected from the registry of the various faculties. Kumasi Polytechnic (K'Poly) –19, Building and Road Research Institute (BRRI), Kumasi–42, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi -58, University of Education, Winneba – Kumasi (UEW-K) - 11. Thus giving an approximate total population of one hundred and thirty (130). Sample in the various clusters were randomly selected from the list giving a total of seventy (70). Samples per cluster were as follows: K'Poly – 11; UEW-K – 5; BRRI – 22; and KNUST – 32. This was done to provide the elements equal chances of being included in the sample (Fisher, 2007). Out of the 70 questionnaires distributed, 53 questionnaires representing 75.71 percent were completed and retrieved. The analyses of the results is based on these number of questionnaires retrieved and consequently formed the basis of the findings of this research. Although the sample may seem small, it actually represents

researchers in the BE effective in research activities. Researchers in the faculties were chosen because it was assumed that their engagement would place them near or at the forefront of research uptake and thus the challenges encountered are relevant to research uptake.

Data analysis

The five-point Likert scale was employed to measure the respondents views on the challenges to RU (where 1= Not severe; 2= Not very severe; 3=Neutral; 4=Severe; and 5=Very severe). In evaluating the result for the challenges to research uptake in the BE faculties in Ghana, this endeavour was interested in the extent of each challenge to research uptake in the BE faculties. Hence, in establishing the extent of the challenges, descriptive statistics (i.e. Mean score Ranking) was used.

Agreement analysis

The Kruskal-Wallis Test was used to compare the scores on the challenges across the departments. The Kruskal-Wallis Test is a nonparametric test. Non-parametric tests are also referred to as distribution-free tests. These tests do not require the assumption of normality or the assumption of homogeneity of variance. They compare medians rather than means and, as a result, if the data include one or two outliers, their influence is excluded.

Significance test

In the Table 1 presented above the significance level were .004, .074, .082, .059 and .073 for Policy makers' perception about research, lack of resources, organisational setting, quality of research and lack of collaborative research respectively. Except Policy makers' perception about research, the other had significance level above the alpha level of .05, so these results suggest that there is no difference in the challenges across the different departments. Conversely, the significant value of the challenge - Policy makers' perception about research is less than the alpha level of .05, so these results suggest that there is a difference in the challenge across the different age groups.

Table 1: Test Statistics[a,b]

	Policy makers' perception about research	lack of resources	organisational setting	quality of research	lack of collaborative research
Chi-Square	17.211	10.027	9.755	10.620	10.065
df	5	5	5	5	5
Asymp. Sig.	.004	.074	.082	.059	.073

a. Kruskal Wallis Test
b. Grouping Variable: Department within the Built Environment of respondents

RESULTS AND DISCUSSION OF RU CHALLENGES IN THE BE FACULTIES

Table 2: Respondents contextual information

S/N	Variables	Frequency	Percentage
A	Respondent Department		
	Architecture	05	9.43%
	Building Technology	20	37.74%
	Civil Engineering	09	16.98%
	Land Economy	03	5.66%
	Planning	11	20.75%
	Geodetic Engineering	05	9.43%
B	Academic Qualification		
	PhD	14	26%
	MPhil/MSc	39	74%
C	Respondent Experience		
	less than 5 years	07	13%
	From 5 to 10 years	20	38%
	more than 10 years	26	49%
D	Number of Research Works undertaken		
	less than 10	22	42%
	From 10 to 20	17	32%
	More than 20	14	26%

5.1 Background and general information

Demographic information is imperative to a meaningful quantitative analysis (cf Warris et al., 2014). Hence, during the empirical survey background and general information of the respondents were sought. As the aim of the research is focused on the challenges of RU in the BE so it was envisaged to get on board the researchers in the BE having satisfactory experience in research in the BE. Out of the 70 questionnaires distributed, 53 questionnaires representing 75.71 percent were completed and retrieved. Table 1 shows the summary of respondent's demographic information. Analysis of the feedback shows that respondents are researchers in the BE and have satisfactory research experience. Among them, 49% of the respondents have more than 20 years of research experience, 38% have research experience in the range of 5 to 10 years, while 13% of the respondents have less than 5 years in the field of research. The result of the survey shows that 74% have completed their Master's education (MPhil/MSc). Some of the respondents have also acquired additional postgraduate qualification i.e. PhD with a percentage of 26%. Demographic data also show the number of research work

undertaken. Forty-two (42%) have less than ten research works, 32% have from 10 − 20 research works and 26% have undertaken more than 20 number of research works. The respondent's demographic information reveals that they have good academic background and satisfactory knowledge for providing sufficient details and inputs for the outcome of this research work. The statistics represent that the questionnaires are mostly filled by the experienced researchers having vast experience in research in the BE. Their opinions and views are quite important and valuable in order to establish the findings.

5.2 Challenges of Research Uptake in the Built Environment

From Table 3 most challenges had a standard deviation greater than one indicating there was varied consistency in respondent's agreement to these challenges. However, the remaining challenges had a standard deviation less than one indicating otherwise. Notwithstanding, Table 2 shows that, the standard error had 0.1103 (min. value) and 0.21014 (max. value). These are quite close to 0.0 indicating that the sample chosen is a probable reflection of the population (e.g. Ahadzie, 2007). Table 4 presents the results of the challenges to research uptake strategies against the mean score 3.0

Lack of resources

In an interactive workshop involving the ACU during an International Network of Research Management Societies (INORMS, 2014) held in Washington DC, the message was that resources and time need to be invested for research to make impact (Falk, 2014). The participants, particularly those from Africa highlighted lack of resources as a major challenge of research uptake in Africa. The results from the survey also show that research uptake in the BE is inundated with challenges that impede the successful communication of research findings to facilitate their practice. Research is financed and undertaken to contribute progressively to humanity. This can only be achieved if resources are made available to researchers at the right time and in the right amounts (von Grebmer, 2005). Indeed, Crivello and Murray (2012) noted that in their consultation in both Ethiopia and India; even where research is relevant to the policy environment and is well communicated, it is not a foregone conclusion or automatic that it will be used. One practical reason for this is a lack of resources. Prior to this observation by Crivello and Murray in 2012, Stephenson and Hennink (2002) some decade back argued that the fundamental barrier to the uptake of research in developing economies is ***Lack of resources***; especially where funds are not available to conduct effective research and dissemination activities. It was therefore not surprising that Lack of resources was ranked first with a mean score of 4.3208 and a standard deviation of 0.803 amongst the challenges to the uptake of research in the BE faculties in Ghana (see Table 4). Moreover, time is also an issue to contend with. The end users which include policymakers have a variety of information and issues to deal with. Thus the increasingly scarce resource of time makes competition for their

attention even stiffer (von Grebmer, 2005). In Ghana, the issue of lack of resources is compounded by the government's attempt to cut-off research and book allowance available to faculty researchers.

Policymakers' perception about research

Also, *policymakers' perception about research* was ranked the second most challenging barrier to research uptake by respondents (see Table 4). It is understandable that the variable is a major challenge to research uptake; since policy development is not strongly premised on evidence-based culture in developing countries including Ghana (Stephenson and Hennink, 2002). Seemingly, policymakers do not appreciate the benefits of research. This is confirmed by a large body of research that has explored the extent to which policymakers use research findings (Ouimet et al., 2010, 2009; Landry et al., 2003; Landry et al., 2001). The findings of the various studies point to the apparent disregard of research by policymakers. Correspondingly, Head et al (2014) noted a widespread disappointment concerning the apparently low uptake by government agencies of research knowledge generated by the university sector. Researchers and Academic institutions may not be concerned about policy impact but can be satisfied with the publication of research reports (von Grebmer, 2005), but for the policymakers the challenge does not end with the published research. Eventually, policymakers believe that research is a drain on the state resources especially when the desired impacts of research are not easily identified and quantified. These may be the probable reasons for the historically neglect of research in policymaking.

Lack of Collaborative research

For research to have a pervasive effect and thus make an impact outside the academic circles, researchers and academic institutions have to leave their 'comfort zones'. This calls for a close collaboration between the audience and the researchers. The benefits of collaborative research has been widely acknowledged. It was widely signalled by Dearing and Garrick reports into higher education and by government, funding bodies and the research councils (Smith and Katz, 2000). The recognition of collaborative is further espoused by the Association of Universities and Colleges of Canada (2009). According to the Association, collaboration also plays a key role in the training and development of highly qualified personnel in the form of co-supervision of research students. At its basic form, collaboration occurs when researchers engage informally in consultations, provide advice, participate in site visits, conferences or create complementary research agendas. However, deeper forms of cooperation can occur in the form of joint research projects, sharing of research facilities and major infrastructure, allowing access to research data and discoveries, and the linking of research centres and virtual networks (Association of Universities and Colleges of Canada, 2009).

Collaboration is now actively promoted with a view to breaking down the barriers between universities and between universities, industry, commerce, government and the public services (Smith and Katz, 2000). This seems to be working in the developed world (Neresini and Bucchi,

2011) as the Association of Universities and Colleges of Canada (2009) observed that researchers often partner with colleagues abroad. Many factors are instrumental for this current trend including the growth of the knowledge economy and attempts to strengthen the economic and social contribution of research; a shift towards more applied research in collaboration with other knowledge creators and users, etc. This new approach seems to be trickling down to developing countries and as a result, although was identified a challenge in the literature; the findings proved that as not a significant challenge. The challenge – *lack of collaborative research* – obtained a mean value of 3.36.

Table 3: Descriptive Statistics of Challenges to Research Uptake

Challenges	N	Mean	Std. Deviation	Std. Error Mean
Policy makers' perception about research	53	3.9623	.89791*	.12334
Lack of dissemination skills and access to research	53	2.8491	1.08124	.14852
lack of resources	53	4.3208	.80320*	.11033
practical difficulties/format of research	53	2.9434	.88611*	.12172
organisational setting	53	3.2830	1.11592	.15328
quality of research	53	3.0943	.88283*	.12127
lack of formal channels of communication	53	2.3962	1.23007	.16896
lack of collaborative research	53	3.3585	1.19445	.16407
Political influences	53	2.9245	1.52982	.21014
lack of absorptive capacity of recipient	53	3.2642	1.12918	.15510

Practical difficulties/format of research
Much of the literature on the relationship between research and practice, especially policy points out that policymaking is a non-linear process, more often shaped by political circumstances than research evidence, and that research producers need to become better aware of policy contexts and processes (Porter 2010). Decision-making usually and in most cases arises from the need to select the best possible course of action from set of alternatives (Sanden and Meijman, 2012). These are usually based on data obtained from research and the findings as presented by the researcher. Thus research reports, albeit technical, have to be simplified and condensed in close cooperation with the researchers and presented in a way that is appealing to the end users (von Grebmer, 2005). However, generally the format of the presentation is usually not 'audience-friendly' since the condensation and simplification of the findings is perceived as a threat to the scientific appeal of their published work (von Grebmer, 2005). This is confirmed in a policy brief by Crivello and Murray (2012) that established that in India researchers are criticised for producing 'technically correct research' but failing to produce results to conform with

context. Accordingly, ***practical difficulties/format of research*** was identified as a challenge to the uptake of research in the BE faculties in Ghana. This results confirm the long existence critique of researchers unable to communicate their findings in simple terms (Crivello and Murray, 2012; von Grebmer, 2005). Although the challenge is not significant (Mean value= 2.92; Std. Dev. =0.89), however, its persistence and importance cannot be overlooked if meaningful impact is expected to be achieved outside the academic circles.

Table 4: Mean Score Ranking of Challenges to Research Uptake

Challenges	Mean	Standard Deviation	Ranking
lack of resources			
Policy makers' perception about research	3.9623	.89791	2
lack of collaborative research	3.3585	1.19445	3
organisational setting	3.2830	1.11592	4
lack of absorptive capacity of recipient	3.2642	1.12918	5
quality of research	3.0943	.88283	6
practical difficulties/format of research	2.9434	.88611	7
Political influences	2.9245	1.52982	8
Lack of dissemination skills and access to research	2.8491	1.08124	9
lack of formal channels of communication	2.3962	1.23007	10

CONCLUSION AND RECOMMENDATION

Scientific research is indispensable in the development of a nation, especially towards the movement to a knowledge-based economy. However, as demonstrated throughout this study through the lens of extant literature research and its utilisation is saddled with challenges. The resolution of challenges of research uptake would inevitably facilitate the uptake of research. Also, there is a potential of improving services when research are utilised by government agencies. Nonetheless, RU in developing countries, particularly in the BE is saddled with a lot of challenges. The paper has made an attempt to analyse the challenges inherent in the uptake of Research in the BE. In fulfilling this, respondents were asked to indicate the severity of the challenges to the uptake of research. Hitherto, literature review was conducted to identify the various challenges to RU. However, the challenges appeared to be foreign. Throughout extant literature studies of this nature require contextual situation. As a result, preliminary investigation was undertaken and ten (10) challenges established. The study sought the views of researchers on the challenges of RU in the BE. The results showed that out of the ten (10) challenges the top (5) significant challenges arranged in descending order of severity are:

- lack of resources

- Policy makers' perception about research

- lack of collaborative research

- organisational setting

- lack of absorptive capacity of recipient

The other challenges appeared as not significant and surmountable. Also, the Kruskal-Wallis Test was used to compare the difference in the main challenges across the various department. It revealed that there is a difference in the challenge pertaining to *policymakers' perception about research*. Whereas the difference in the other main challenges proved to be statistically insignificant.

To make meaningful impact with research, a national research fund should be instituted by the government and other institutions. The aim for them is to provide resources, assistance and support to researchers particularly research with potential impact on humanity. Socially and economically, funding institutions are a strong base for the promotion of research in any country and consequently the institution of such bodies is indispensable in the uptake of research. The gap between research and uptake may be bridged if there is industry support for the research by the various faculties. In some parts of the world, especially in the developed economies such as Hong Kong industry provides research support in the form of funding of Ph.D. education.

It can be seen from the literature reviewed that research uptake was alien to researchers in the BE. Although the dearth of evidence suggest studies have been done in developed countries, there are no comparable studies in the literature from developing countries, particularly in the BE. Therefore, there must also be orientation and sensitization programmes about research uptake and the palpable contribution of such research.

Among the challenges identified, practical difficulties or format in producing the research is critical in the uptake of research. This is because the appreciation of the research findings is dependent on the format is presented in. In producing and communicating their work, researchers need to engage with contextual factors, including changing political and socio-economic circumstances. Most importantly the format of the research must be tailored to enhance the understanding of the users. Additionally, research findings must be relevant and targeted to address specific stakeholder objectives. Contextualising research findings help realise their potential meaning and relevance for practice.

Finally, group (collaborative) researching in particular fields of study must also be encouraged. As demonstrated from literature, the collaboration could be in the form of between faculties; and also making users of the research more of active than passive partakers of the research.

This paper has demonstrated epitome in the discipline of RU and also a ground-breaking study in the BE to spur future studies in the same

discipline. This study provides rich insights of the challenges to the uptake of research in the Built Environment. The research findings would be of utility to both researchers and policymakers. It is important to acknowledge the limitations of this study. The study was limited to only researchers in the faculties, and relative small sample size used for the study. Consequently, analyses of the dependent variables were constrained by the fact that those variables with mean less than the hypothesized mean is subjective; and the possibility that the mean scores may change when a larger sample size including end users is chosen. Notwithstanding, the demographic profile of the respondents suggest that they have reasonable experience in research which should generate some credibility in the responses received. However, further research is recommended to examine the challenges from the perspective of policymakers.

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