

An Investigative Study of Research Productivity of the Academic Staff in Public Universities in Uganda

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Research Paper

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This study examined the level and the correlates of research productivity of the Academic Staff in Public Universities in Uganda. The findings of the study established that the total research productivity was moderate (Mean=3.12, SD=1.43.) Research productivity was however high in co-authored textbooks (Mean=4.49, SD=1.71), journal articles (Mean=4.39, SD=1.63), and book chapters (mean=4.35, SD=1.39). Research productivity was high among Professors (Mean=4.5, SD=1.22), Associate Professors (Mean=4.11, SD=1.24) and Senior Lecturers (Mean=3.66, SD=1.4). The major correlates of research productivity in this case were environmental (Mean=3.71,

SD=1.21), and Personal career development (Mean=3.51; SD=1.23), while institutional (Mean =3.39, SD=1.21) and demographic factors (Mean=3.17, SD=1.24) were found to have a moderate effect on research productivity. It was recommended that focus to improve research productivity should be put on environmental, career and development factors first and later on institutional and demographic factors.

Key words: Research Productivity, Public Universities, Academic Staff, Uganda.

INTRODUCTION

Research is regarded as the pillar or engine of growth and development in any country since it unearths ideas that can be turned into technologies, products and services (Bako, 2005). Higher education institutions and universities in particular perform a leading role as the stewards of public knowledge through research productivity. Universities are regarded as important part of the modern overall advancement and are recognized as generators of public scientific and technological knowledge (Ndege et al., 2011). However, there have been significant changes in the research productivity of academic institutions in Uganda due to environmental factors. It is therefore, important to critically study research productivity and influencing factors among the teaching staff in Public Universities in Uganda.

The world over, universities have three cardinal mandates: to transmit advanced knowledge from one generation to another, to carry out research and to

provide community service. Any university which ignores any of the three mandates ceases to be a genuine university (World Bank, 2002). In Uganda, the Universities and other Tertiary Institutions Act (2001) stipulates that a university worthy of its name must provide the facilities and the opportunities for the highest intellectual inquiry. It must encourage and challenge its faculty and students to develop their powers of constructive thinking. It must encourage its academic staff to do original research and to participate fully in promoting intelligent discussion of issues of human concern and endeavors'. Universities across the world are considered as producers of new knowledge, as modern entrepreneurial engines and generators of knowledge through research.

Modern topmost research universities such as Harvard University, Massachusetts Institute of Technology, Stanford University, Oxford University and Cambridge

University are rated as the best universities in the world (World University Rankings, 2014) because they possess dynamic research units, departments or institutes equipped with the state-of-the-art research facilities (Williams 2003). Such universities support basic and applied research through the transparent and competitive process of evaluation that rewards the most meritorious proposals not from faculty only but also from students. This means that what distinguishes a university from a high school is the fact that the university creates its own knowledge through research done mostly by faculty and the results disseminated to the students.

In Ugandan public universities, research productivity by faculty is a benchmark for professional growth and promotion. It is traditional for universities to promote teaching staff members on the basis of their research productivity and publishing worldwide. Ayodeji, (2002) and Sawyerr, (2004) note that academic staff members in any Higher Education Institution (HEI), especially universities, are provided the opportunity to focus on an area of inquiry, develop a research program and later share the knowledge with students and contribute to the world body of knowledge thus stimulating future research to fill knowledge gaps. In Ugandan public universities most of the research productivity of academics is disseminated via publications in terms of research articles in journals, technical reports books, book chapters and conference papers and in seminars and conferences.

Currently there is a lot of criticism about Research Productivity of the Academic Staff in Public universities in Uganda according to scholars such as Kasozi, (2003), Sanyal and Varghese, (2006) and Mamdani, (2007). The research function in Ugandan Public Universities seems to have not been given enough consideration and appears to be overlooked and research policy implementation at national and university levels appears to be flawed. Therefore, the published findings in books, peer-reviewed scholarly journals, chapters in books, conference academic papers and abstracts or on the internet are reportedly scanty, poor and far between. This is in tandem with the reports of the Visitation Committee to Public Universities, (2007) and NCHE, 2014). Public Universities which should be centres of knowledge creation appear not to have maintained their full savour and can largely be described as teaching centres or glorified high schools. Therefore the study was critical, relevant and timely. The purpose of this study was to ascertain the level of research productivity and examine factors that affect this level in Public Universities in Uganda with a view of suggesting recommendations for improving research productivity in Public Universities and other Higher Education Institutions (HEIs) in the country.

Research productivity has been defined as the relationship between the outputs generated by a system and the inputs provided to create those outputs. It is an outcome measurement of scholarly effort (Jacobs et al., 2006) and has two components that are; (i) knowledge

creation (research) and (ii) knowledge distribution (productivity). For the most part, the 'product' of academic lecturers' research is scholarly publication (Mulumba et al., 2008). In this study, research productivity is defined as ratio of input to output of both the quantity and quality of research output in terms of numerical publication count or the journal article count over a certain time period, both formal and informal, number of graduate students that a staff member is advising and proposals submitted for funding for the former. This definition also considers the number of editorial duties, conference deliveries, licenses, patents, monographs, books, experimental designs and works of an artistic or creative nature, public debates and commentaries. The basic measurements of quality of research productivity in this definition are peer review rating and citation analysis.

According to Clark, (2006) and Creswell, (2009), the most frequently used measure of the quantity or amount of research productivity is a numerical publication count or the journal article count over a certain time period. The activities included in measuring productivity range from a narrow perspective of 'number of research articles published' to a broad interpretation which consists of presentations, both formal and informal, number of graduate students that a staff member is advising, publications of any type and proposals submitted for funding. Moreover, it also includes counts of the number of editorial duties, conference deliveries, licenses, patents, monographs, books, experimental designs, and works of an artistic or creative nature, public debates and commentaries. Collins (2003) and Ondari-Okemwa (2007) contend that a common approach to measuring research productivity is to count the number of books, articles, technical reports, bulletins, and book reviews published, as well as presentations given and grants received through reviewing curriculum vitae or other print materials.

For examination of quality, peer review rating and citation analysis are emerging as relatively new tools to assess the value of the contributions of research to the discipline. Upali et al.(2011) define peer review as a process whereby one or more qualified persons professionally peer review a person's work, generally for publication in a scholarly journal or book. External reviewers for academic journals typically do not know the names of the authors of manuscripts that they are asked to review. Sanyal and Varghese (2006) found a statistically significant positive correlation between individual peer rating and measures based on article counts and citation counts. However, peer ratings are not without their limitations, for example, it can be influenced by the personality of the scholar being judged and/or by the prestige of the institution of affiliation (Folger et al.,2000). Similarly, Nelson et al., (2003) argue that peer review has several other limitations; (i) the quality of the personal work is not being measured in peer reviews, (ii) journals differ in scope of articles published because

some journals may concentrate on contribution to knowledge while others may focus on more creative contributions, and (iii) peer rating is affected by rapid changes of editorial staff and publishing policies.

Braskamp and Ory (2014) shows that citation measurements have been used to measure faculty the quality of research productivity. Indeed, Collins (2003), claimed that citation data better reflects the impact of faculty work. One way of gathering citation data is by obtaining curriculum vitae from faculty and verifying listed citations via citation abstracts and databases (Brocato, 2011). According to Creswell (2009), published works are cited as building blocks for ideas, concepts, findings, methods or information on instrumentation. Furthermore, Bailey (2012) notes some publications are cited for negative purposes or for perfunctory reasons. Creswell (2009) concludes that nevertheless, in a cited article, not everything is read and found useful.

Mugimu et al. (2007) state that demographic factors relate to the personal characteristics of academic members such as age, gender, marital status and education level. Many studies about productivity have indicated that the relationship between career publication and age is not linear, although the overall rate of publication generally declines with age. Levin and Stephan (2011) reported in a longitudinal study that the 'life cycle' effect varies significantly by field. Furthermore, Levin and Stephan (2011) that the human life-cycle is related to publishing productivity and normally scientists become less productive as they age. Clark (2006) in his study established that a person's age at first publication affects consequent research productivity and that if academic lecturers submit research for their first publication at a young age, then it is more likely that they will produce more at future points in time.

Blackburn et al. (2011), postulate that the relationship between gender and research productivity has been addressed in many studies. Again, these findings are sometimes contradictory and sometimes show correlation. Many researchers insist that males have had higher levels of research productivity than women (Bailey 2012 and Vasil, 2012). Billard (2013) and Gottlieb (2014) further found that women produce fewer publications, they generally hold lower degrees, and they are employed in inferior graduate schools and other places of work, and have lower rank and fewer tenured places. Teoderescu (2000) confirmed results that suggested that women and especially married ones tend to produce less research than men across disciplines and they tend to devote most of their time on family issues. Olatokunbo, (2013) established that the higher the level of education the more the research productivity, holding other factors constant

The academic environments and cultures or climates generally provide both socializing and reinforcing organizational messages about norms, values and expectations concerning research (Harrington and Levine, 2006). The culture of the academic profession

includes a series of primary academic values such as intellectual inquiry and understanding, social commitment, academic honesty, academic integrity, academic freedom and faculty collaboration toward a community of scholars (Middaugh, 2001). According to Teferra and Altbach, (2004), collegial commitment is one of the outstanding influences on research productivity.

They state that collegial commitment is a factor that demonstrates the perceived strength of faculty commitment in the institution as a whole and within the member's department. In this line, Basse et al. (2007) found no relationship between a faculty member's institutional loyalty and productivity.

Ei-Khawas, (2011) reported there are lower research productivity rates for Academic Staff members especially those without PhDs. Bako (2005) found that publication productivity is likely to be higher in doctorate-granting universities.

Prior research has shown that faculty staff behaviour is less likely to be controlled by formal bureaucratic rules in research universities than in comprehensive universities (Clark 2006). In research universities, faculty members are treated like professionals, in that they can set their own agendas and they can bargain agreements and contribute to standardization of faculty work.

This is in contrast to comprehensive universities, where faculty members are treated like employees and consequently, the comprehensive university's faculty members may find fewer opportunities than research university faculty staff to integrate research into their work practices (Williams, 2003).

Generally, the amount of time a faculty member chooses to spend in research activity affects their research productivity (Cohen and Gutek 2011; Vasil 2012). Financial support, that is remuneration and allowances motivate academic staff members encourages them to reallocate their time to do research (Teferra and Altbach, 2004; Slaughter and Rhoades, 2010).

Personal career development factors are those factors that come from the academic and personal qualifications of Academic Staff themselves. These factors include such items as an individual's ability and interest, attitude towards conducting research, academic origin, and the type of advanced degree earned, research experience, skills and training, rank and tenure status (Pfeffer and Langton, 2013).

In a similar way, a staff member's attitudes and commitment to scholarly work relates closely to their research productivity. Researchers are productive because they value their research role and share, in common with colleagues, a deeply embedded normative structure that guides the way to create and communicate new knowledge (Gottlieb, 2014; Beehr et al., 2006) indicate that role stresses can interfere with the way in which a person interprets the notion that working hard and effectively will bring about the satisfaction of higher order needs.

Objectives of the Study

- 1) To ascertain the level of research productivity among academic the staff in Public Universities in Uganda.
 - 2) To explore the effect of demographic factors on research productivity of academic staff in Public Universities in Uganda.
 - 3) To examine the effect of environmental factors on research productivity of the faculty teaching staff in Public Universities in Uganda.
 - 4) To ascertain the effect of institutional factors on research productivity of academic staff in public Universities in Uganda.
 - 5) To examine the effect of personal and career development factors on research productivity of the academic staff in Public Universities in Uganda.
- The study was conducted for the four year period from 2011-2014. This was ideal for measuring the research productivity as this time is adequate for one to produce a standard research material (Creswell, 2014).

METHODOLOGY

The study adopted a Cross-Sectional survey design because only the representative sample elements of the cross section of the population were chosen and studied at a point in time. The advantage of this design was because the study was conducted across participants over a specific period of time and the data collected from a sample was later extrapolated to the whole population. The cross-sectional survey design was also chosen because it allowed the in-depth study of the correlates of research output in Public Universities in Uganda using individually selected respondents who had ability to provide details. Both qualitative and quantitative methods of data collection were adopted. The quantitative design was used to quantify the relationship between variables and qualitative methods were used to provide in- depth answers from beliefs, attitudes and feelings of informants.

The study population included the seven (7) Public Universities in Uganda and two institutions in the same category namely: Busitema University (BU), Gulu University (GU), Kyambogo University (KYU), Makerere University (MAK), Mbarara University of Science and Technology (MUST), Muni University (MU), Soroti University of Science and Technology (SUST), Makerere University Business School (MUBS) which is semi-autonomous and the government degree-awarding Uganda Management Institute (UMI).

Systematic multistage sampling was adopted to select a sample of 939 respondents from a sample of five universities namely; Makerere University (MAK) and Kyambogo University (KYU) from the Central Region, Mbarara University of Science and Technology (MUST) from Western Region, Busitema University (BU) from the Eastern Region and Gulu University (GU) from the

Northern Region. This constituted 56% of the public universities which is above the recommended 50% according to Creswell (2009). The study sample was derived from Sample Estimation Table by Krejcie and Morgan (1970) Sample Estimation Table as presented in (Tables 1,2 3).

Data from the above sample was collected using Self-Administered Structured Questionnaire. This was aimed at capturing quantitative data in short time period (Amin, 2005). The survey was tested for both Validity and Reliability using Content Validity Index whose value was 0.79. And to measure the Reliability, Cronbach Co-efficient Alpha (α) Reliability Index was computed and the value was 0.81. The questionnaire had the five point Likert Scale where: 1=strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree and thematically discussed based on the study objectives to draw relevant conclusions and recommendations.

Table 1.Population and Sample size

Universities	Population	Sample
Busitema	120	92
Gulu	235	148
Makerere	1400	302
Mbarara	400	196
Kyambogo	420	201
Total	2,575	939

Source: Uganda National Council for Higher Education, 2014.

RESULTS AND DISCUSSION

The level of research productivity among faculty members in Public universities in Uganda

The level of research productivity was measured for a 3 year period (2011-2014) using ten (10) productivity measures for which their average score was computed. Table 4 shows that 542 (62.7%) of the respondents had co-authored textbooks, 533 (61.7%) had Journal articles, 522(60.4%) had books chapters, while 512 (59.3%) of the respondents had working papers. Results further show that 512 (59.3%) had occasional papers, 331(38.3%) of the respondents had conference papers, 302 (35.0%) had scientific peer reviewed bulletins, 221(25.6%) had textbooks, 219 (25.3%) had technical reports, while 128 (14.8%) had monographs. The quality of research productivity as measured by peer reviewed bulletins was relatively low as only 35.0% had such publications. Results suggest that research productivity among the faculty members in public universities in Uganda is above average in co- authored text books, journal articles, book chapters, working papers, and occasional papers, but below average in the rest of research output measures as portrayed in (Table 4).

Table 2. Distribution of Questionnaire and Response Rate.

Universities	Distributed questionnaires	Returned Questionnaires	Response Rate
Busitema	92	81	88.0
Gulu	148	133	89.9
Makerere	302	288	95.4
Mbarara	196	179	91.3
Kyambogo	201	183	91.0
Total	939	864	92.0

Table 3. Ranks of Academic Staff Members

Rank	No. of Respondents	Percentage
Professor	101	11.7
Associate Professor	122	14.1
Senior Lecturer	249	28.8
Lecturer	312	36.1
Assistant lecturer	80	9.3
Total	864	100.0

Table 4. The level of research Productivity of the Academic Staff in Public Universities in Uganda within a 3-Year Period to 2011-2014

Productivity Measures	Frequency	Mean	SD
Books	221 (25.6%)	2.39	1.25
Book chapters	522(60.4%)	4.35	1.39
Co-authored textbooks	542(62.7%)	4.49	1.71
Monographs	128 (14.8%)	2.03	1.63
Occasional papers	512 (59.3%)	4.11	1.44
Journal articles	533(61.7%)	4.39	1.65
Technical reports	219(25.3%)	2.09	1.11
Conference papers	331(38.3%)	2.19	1.70
Working papers	514(59.5%)	3.32	1.14
Scientific peer-reviewed bulletins	302(35.0%)	2.88	1.24

Overall Mean Score: =3.12; SD = 1.43.

Results generally show a moderate level of research productivity as indicated by an overall mean of 3.12. The distribution of research productivity among the ranks of academic staff was as presented in (Table 5).

It can be observed from (Table 5) that research productivity increased with the level of education which concurs with findings by Blackburn and Lawrence (2011) who established that the higher the level of education the more the research productivity. This implies that an institution vying to increase research productivity of its Academic Staff should ensure that the same staff has attained higher education levels.

The effect of demographic factors on research productivity of the faculty teaching staff in Public Universities in Uganda

The demographic factors that were studied included age, gender, and marital status. The mean effect of

these variables on the research productivity was computed and results were as portrayed in (Table 5).

Table 6 shows that gender was the leading demographic factor that affects research productivity 693(80.2%), followed by marital status,667(77.2%) and lastly age 415(48.0%). Generally, demographic factors scored a mean of 3.17 and standard deviation of 1.21. These results suggest that demographic factors moderately affect research productivity of academic staff in public universities in Uganda.

Results are in concurrence with the findings by Levin and Stephan (2011) who reported a person's age at first publication affects consequent research productivity and that if academic lecturers submit research for their first publication at a young age, then it is more likely that they will produce more at future points in time. In the same context, previous research also established that males have higher levels of research productivity than women (Bailey 2012; Vasil 2012; Billard, 2013; Gottlieb 2014; Finkelstein et al. 2014). Blackburn

Table 5. Distribution of research productivity among Staff Academic Ranks.

Productivity measures	Professor	Associate Professor	Senior Lecturer	Lecturer	Assistant Lecturer	Total
Text Books	57(30.3%)	81(32.1%)	51(23.1%)	21(9.5%)	11(5.0%)	221(100%)
Book Chapters	105(31.5%)	87(26.1%)	76(22.8%)	42(12.6%)	23(6.9%)	333(100%)
Co-Authored Text Books	77(19.6%)	89(22.7%)	101(25.8%)	49(12.5%)	76(19.4%)	542(100%)
Monographs	29(22.7%)	27(21.1%)	24(18.8%)	25(19.5%)	26(18.0%)	128(100%)
Occasional papers	156(35.3%)	112(25.3%)	95(15.2%)	79(13.6%)	78(10.6%)	442(100%)
Journal articles	203(49.3%)	116(28.2%)	41(10.0%)	33(8.0%)	19(4.6%)	412(100%)
Technical reports	33(22.8%)	70(34.0%)	66(21.9%)	21(13.5%)	10(7.9%)	219(100%)
Conference papers	49(23.7%)	73(32.0%)	47(30.1%)	29(9.6%)	17(4.6%)	331(100%)
Working papers	109(34.7%)	99(31.5%)	67(21.3%)	28(8.9%)	11(3.5%)	314(100%)
Scientific Bulletins	119(39.4%)	97(32.1%)	51(16.9%)	21(7.0%)	14(4.6%)	302(100%)
	Mean=4.5,SD=1.22	Mean=4.11, SD=1.24	Mean=3.66, SD=1.40	Mean=3.31, SD=1.37	Mean=2.99,SD=1.08	Mean=2.73,SD=1.31

Table 6.The effect of demographic factors on research productivity.

Research	Frequency (%)	Mean	SD
Age	215(24.9%)	2.18	1.40
Gender	693 (80.2%)	4.09	1.11
Marital status	667 (77.2%)	3.23	1.21

Overall Mean Score: =3.17; SD = 1.24

and Lawrence (2011) found that married couples tend to produce less research than single men and women across disciplines and they tend to devote most of their time on family issues.

The effect of environmental factors on research productivity of the faculty teaching staff in Public Universities in Uganda

The environmental factors that were studied include organizational culture, collegial commitment, professional commitment, staff institutional loyalty and Working climate. Results were as summarised in (Table 7).Results in (Table 7) shows that all the environment factors

highly impacted on the research productivity as responses were above average. However, organizational culture was pointed out as having the largest impact 778(90.0%), followed by working climate 719 (83.2%), then professional commitment 683(77.7%), institutional staff loyalty 679(78.6%), and lastly 573(66.3%). Generally, environmental factors scored a mean of 3.71 and standard deviation of 1.21. These results suggest that environment factors highly affect research productivity of academic staff in public universities in Uganda. The findings are generally in concurrence with the assertion by Ondari-Okemwa (2007) that academic environments composed of cultures or climates generally provide both socializing and reinforcing

organizational messages for increased productivity.

The effect of institutional factors on research productivity of the faculty teaching staff in Public Universities in Uganda

The institutional factors that were studied included; university mandate (Teaching, Research and Community Service), academic disciplines (for example, Sciences or Humanities), institutional support (salaries, allowances and donor funds) and administrative roles. Results in Table 8 shows that institutional support was stated as the leading institutional factor that

Table 7. Environmental factors and Research Productivity.

Environmental factors	Frequency (%)	Mean	SD
Organizational culture	778(90.0%)	4.33	1.12
Collegial commitment	573(66.3%)	2.01	1.31
Professional commitment	683(79.1%)	3.32	1.16
Staff institutional loyalty	679(78.6%)	2.99	1.24
Working climate	719(83.2%)	3.92	1.23

Overall Mean Score: =3.71; SD = 1.21

Table 8. Institutional factors and Research Productivity.

Environmental factors	Frequency (%)	Mean	SD
University mandate	714(82.6%)	4.51	1.20
Academic disciplines	255(29.5%)	2.14	1.17
Institutional support	810(93.8%)	4.88	1.09
Administrative roles	212(24.5%)	2.03	1.36

Overall Mean Score: =3.39; SD =1.21

Table 9. Personal and Career Development factors and Research Productivity.

Personal and Career Development factors	Frequency	Mean	SD
Individual's Interest and ability	616(71.3%)	3.77	1.31
Attitude towards conducting research	614(71.1%)	3.71	1.29
Academic origin	312(36.1%)	2.23	1.23
Type of advanced degree earned	316(36.6%)	2.46	1.22
Research experience	721(83.4%)	4.35	1.09
Skills and training	710(82.2%)	4.08	1.11
Rank and tenure status	623(72.1%)	3.94	1.27

Overall Mean Score: =3.51; SD =1.23

affects research productivity, 810(93.8%), followed by university mandate 714(82.6%), then academic disciplines 255(29.5%) and lastly administrative roles 212 (24.5%).

Generally, institutional factors scored a mean of 3.39 and standard deviation of 1.21 which suggests a higher effect of institutional factors on research productivity of academic staff in public universities in Uganda. The findings concur with the findings by Businge (2008) and Kasozi (2005) that university institutional support especially in terms of funding and university mandate are the basic institutional factors affecting research productivity.

The effect of personal and career development factors on research productivity of the faculty teaching staff in Public Universities in Uganda

The personal and career development factors that were studied include individual's ability and interest, attitude towards conducting research, academic origin, the type of advanced degree earned, research experience, skills and training, rank and tenure status.

Table 9 shows that research experience was the

stated as the leading factor among personal and career development factors that affect research productivity 721(83.4%), closely followed by skills and training 710(82.2%), then individual interest and ability 616(71.3%), that was closely followed by attitude towards conducting research 614(71.1%). The type of advanced degree earned and academic origin and were rated low at 316(36.6%) and 36.1%) respectively. Generally, personal and career development factors were scored at a mean of 3.51 and standard deviation of 1.23. These results suggest that personal and career development factors highly affect research productivity of teaching staff in Public Universities in Uganda.

In Summary, Results generally indicate a moderate level of research productivity by the Academic Staff in Public Universities in Uganda with the overall mean score of 3.04 and standard deviation of 1.43. In addition, results established that demographic factors also have a moderate effect on research productivity with a mean score of 3.17 and standard deviation of 1.24. Environmental factors were established to highly affect research productivity of the teaching staff with a reported mean score of 3.71 and Standard Deviation of 1.21 while institutional factors were found to have a moderate effect

on research productivity of the teaching staff in Public Universities in Uganda with a mean score of 3.39 and standard deviation of 1.21. Finally, personal and career development factors were found to highly affect research productivity of the teaching faculty staff in public universities in Uganda with mean score of 3.51 and standard deviation of 1.23. Results therefore suggest that environmental factors are the leading factors that influence research productivity of the faculty teaching staff members in Public Universities in Uganda, followed by personal and career development factors, then institutional factors and lastly demographic factors.

Conclusion

Results imply that in order to improve research productivity of the teaching faculty staff in public universities in Uganda emphasis should be put on environmental factors and personal and career development factors. For instance, institutional factors such as funding and mandate cannot improve research productivity when personal and career development factors such as interest and ability or environmental factors such as organizational culture and climate are absent.

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