Review Article

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Global Journal of Research and Review
ISSN 2393-8854

2022
Vol.9 No.5:016

Analysis of Postgraduate Students' Research Findings Utilization Determinants and Challenges at the University of Dar es Salaam, Tanzania

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Received date: March 14, 2022, Manuscript No. IPGJRR-22-12320; **Editor assigned date:** March 17, 2022, PreQC No. IPGJRR-22-12320 (PQ); **Reviewed date:** March 31, 2022, QC No. IPGJRR-22-12320; **Revised date:** May 11, 2022, Manuscript No. IPGJRR-22-12320 (R); **Published date:** May 18, 2022, DOI: 10.36648/2393-8854/22.9.016

Citation: Kotoroi G, Joseph MK (2022) Analysis of Postgraduate Students' Research Findings Utilization Determinants and Challenges at the University of Dar es Salaam, Tanzania. Glob J Res Rev Vol:9 No:5

Abstract

This study analyzed the postgraduate student's research findings utilization determinants and challenges at the University of Dar es Salaam (UDSM) in Tanzania. Specifically, the study aimed at identifying factors influencing utilization of postgraduate students' research findings and establishing challenges of utilizing postgraduate students' research findings. The study used a descriptive design whereby a multi-stage method was used to select a sample of 115 respondents from a population of 1043 Masters' degree students. A mixed research design (questioner and review of relevant literature) was employed to collect data. Primary data were collected by using self-administered questionnaires and secondary data were collected through reading relevant and current literature (online and printed). Quantitative data were analyzed by using the Statistical Package for Social Sciences software (SPSS Version 25) and content analysis was applied on qualitative data from open-ended questions and observation. The study findings indicated various issues, particularly accessibility, reliability, students' readiness to disseminate reach findings, and policy makers' willingness to consume research findings as the key determinants for students' research findings utilization. The findings further indicated that students' lack of awareness about the dissemination of research findings, lack of policy that requires students to submit research findings for sharing, and poor recognition of students' research findings by policy makers and research institutions are the main challenges for students' findings utilization. As a result, the study recommends all challenges addressed as the challenges for the utilization of postgraduate students should be well addressed to improve the usage of students' research findings.

Keywords: Research outputs; Research findings utilization; Research and development; Research linkages; Knowledge innovation; Economic development; Technological development; Tanzania

Introduction

The core function of universities is to conduct training, consultancy and research and to make the research findings available for use. Universities' research findings are crucial and basic resources for development. Every state over the universe can sustainably achieve its economic development through substantial investment in human capital through knowledge development and research works [1]. The 21st Century of globalization and intense competition keep organizations striving hard to compete and be on the path of sustainable development. The survival of most organizations to a large extent is hinged on the technological dynamics and their capacity to nurture innovative knowledge established from the universities [2]. Research findings from the universities contribute to research and development and have emerged as a fundamental factor in fostering national economic development, promoting organizational sustainability, and ultimately establishing a close relationship and collaboration with various institutions, organizations and industries [3]. In the business computing environment, various and new products and services are coming into being following investment in research and development. Universities and other research centers are crucial in providing research findings from which its usage is reflected on innovations emanated from various organizations, industries, factories, policymakers, and enterprises. The university community and particularly postgraduate students and faculty members are crucial in research works from which their findings form a major development component when integrated into economic strategies.

The University of Dar es Salaam

The University of Dar es Salaam (the UDSM) as a major training and research institution for postgraduate programs in Tanzania was initially established in 1961 as an affiliated college of the University of London and later became an affiliate of the University of East Africa (UEA) in 1963 soon after Tanzania gained its independence from the United Kingdom [4]. Thereafter, in 1970 the University of East Africa (UEA) split into three independent Universities, namely, Makerere University in Uganda, the University of Nairobi in Kenya, and the University

of Dar es Salaam in Tanzania. The UDSM as a public university has thus become one of the oldest public universities in East Africa. At present, the UDSM offers more than 94 postgraduate degree programs that are trained in different disciplines and fields. The UDSM is considered as a unique university from its inception that has charted the distinct pathways to academic excellence, aptly described as the 'first and oldest, comprehensive in scope with core functions of training and knowledge innovation through research works and publications. Like many other universities around the globe, at the UDSM, most postgraduate students' research findings are often kept in the thesis collection (East Africana Collection) without clear distribution to designated end users for knowledge sharing and administrative decision making for further developments. Most of the theses reports are however accessed by succeeding students to be used as references on the empirical studies to enrich their research proposals and theses report writings as partial fulfillment of their degree programs requirements. For postgraduate students' research impacts to be realized there should be a process of transferring the acquired research-based knowledge into practice.

Objectives of the study

The main objective of this study was to analyze the postgraduate students' research findings utilization determinants and challenges at the University of Dar es Salaam (UDSM) in Tanzania. Specifically, the study intended to determine the utilization of postgraduate students' research findings at the UDSM and to analyze challenges of utilizing postgraduate research findings at the UDSM. The study was guided by two main research questions:

What factors influence postgraduate students' research findings utilization at the UDSM?

What are the challenges of utilizing postgraduate students' research findings at the UDSM?

Literature Review

Determinants of utilizing postgraduate students' research indings

Various factors can determine usage of postgraduate student's research findings including but not limited to accessibility of the findings usability and reliability. Suggested that research findings usage is the process of transforming research knowledge into practice that can be viewed into research knowledge regarding the products of research and knowledge regarding the process of research. That is the use of research as a set of products and the use of research as a set of processes [5-6]. Proposed that research products and research-as-a-process focus are in the use of research findings. This implies that research findings use refers to the process by which specific research-based knowledge (science) is implemented in practice. It is the application of evidence to policies programs and practices to improve outcomes and involves various strategies that link the current research with opportunities to inform policy, programs and practice.

In an economic logic, for the product/service to be consumed it must first be available and accessible to the targeted client/ user. As specified by Christian [7]. Carrying out an investigation or research study whose yields remain exclusively within the minds of an investigator or researcher is meaningless. In this regard, postgraduate students' research findings have to be disseminated to allow knowledge sharing at large. Postgraduate students' research findings utilization like other scholars' can be influenced by various factors including the accessibility of the findings to the targeted audience, students' willingness to disseminate their findings for sharing, and policy makers readiness to use that particular new knowledge [8]. Cited in Landry commented that many dimensions such as efficiency, compatibility, validity, reliability and applicability can influence research findings utilization. In this view, the most determinant factors for research findings utilization are subjected to their reliability, accessibility, the applicability of those findings in addressing the gap. Another study by Albert [9]. Suggested that the utilization of research findings is much influenced by various factors including availability and accessibility of those particular findings, the relevance and applicability of the research findings. Further affirmed that not only the stated determinants but also the trustworthiness of the researcher, authority of those who presented their views, competency in research methods as well as the priority, influence utilization of research findings. This proposes that research findings should have undergone various factors for them to be utilized. Another study by Fecher [10]. Remarked that the accessibility of research findings has a vast potential for scientific progress as it facilitates the replication of research results and allows the application of old data in new contexts.

Challenges of Utilizing postgraduate students' research findings

The use of postgraduate students' research findings for strategic economic growth began in the 19th Century with the application of science and technology in the development of new products and more efficiently on the production methods. This endeavour was initially observed in Great Britain, then, progressively in other countries [11]. However, later on, the Middle East countries similarly indicated high levels of research findings utilization for the economic development [12]. On the other hand, many of the developed countries including the United States of America (USA), China, Japan and Korea for so long have seriously utilized postgraduate research findings and considered as among the panacea for economic and industrial development and have established a strong relationship with universities on the area of research and development [3]. In Asia, reports indicate that industrial and economic development is contributed by the postgraduate students and faculty members research findings utilization which have influenced the production of human capital with high intellectual ability, knowledge and research works which have potentially powered economic development, innovations and technologies [13-14]. Furthermore, pointed that, in Australia, about 27-57% of the nation's income is contributed by the utilization of postgraduate research findings into economic and industrial development. It is foreseen that the Australian economy is expected to gradually

improve following the initiatives of utilizing research findings from the Austrarian universities.

In Africa, the utilization of postgraduate research findings is not significantly realized in most of the countries and thus low contribution in economic and technological development [15]. Postgraduate research findings have to be used and integrated into economic and social services for development. The postgraduate research findings should be shared and utilized by the industrial sector as in a long run can support the region and national economic development [16]. The experience in African universities shows that most of the research outputs are controlled by faculties, directorates and departments and in the end deposited in the libraries for reference and thus their value for economic and technological development is undermined [17]. Empirically, the literature exposes facts on underutilization of university research findings for economic and technological development. Among others, factors are not limited to scarce financial support in research and development, lack of political will, and low nations' Gross Domestic Product (GDP) to invest for research work and utilization of the available research findings from the African universities [3,13]. For instance, the sub-Saharan African countries invest less of their GDP for research and development which is central to other advanced regions over the world. The majority of the African countries' GDP is always less than 7% and thus this has resulted into uneven distribution.

On this, Turale identified other major challenges regarding postgraduate students' research findings usage as it originates from a lack of propagation of new knowledge from research for use in practice. In the Least Developed Countries (LDCs), there exists inadequate research fundings and low government investments in research activities for postgraduate students. Similarly, other challenges are lack of morale to conduct research, inadequate motivation to disseminate findings, and inability to digest research outcomes in the policy development process. Moreover, low scientific understanding among policy makers, as a result, little research is done with less dissemination of findings for use [18,19].

Therefore, there is a need for more measures to address the challenges through evidence-based practice. However, postgraduate students' research findings in African countries, often receive insignificant awareness and remain exclusively by the students and faculty members themselves and their immediate supervisors with fewer impacts to targeted research beneficiaries. Since knowledge acquired from research alone cannot on its own bring a solution for the problem sought, more actions are needed for the effective dissemination and to be used in practice. Postgraduate students' research findings thus need not be ignored and remain merely as partial fulfillment of their degree programs' requirements [7]. Put it, carrying out a research study whose yields remain exclusively within the minds of the investigators is meaningless. A comparative study conducted by Mutula in Kenya and Malawi [20]. Titled 'Barriers to research use in the public health sector' indicated that there is a wide range of factors that are hindering policy makers within the Ministry of Health (MoH) and parliament from using research evidence in their works including difficulties of accessing postgraduate students research findings and lack of technical skills among policy makers on how to implement the research evidence for economic and industrial development. In Tanzania, initiatives for utilizing postgraduate students' research findings emanated from the government efforts toward investment in research and development for the long-term achievement of the middle-income nation by 2025 [21]. It is regarded that, postgraduate students' research findings form a pertinent research center with other research agencies, including the Research on Poverty Alleviation (REPOA), Tanzania Industrial Research and Development Organisation (TIRDO), Economic and Social Research Foundation (ESRF) and Tanzania Commission for Science and Technology (COSTECH). COSTECH has a major role of coordinating and promoting research and development, innovation and technology transfer for industrial and economic development in Tanzania. It advises the government on all matters related to Science, Technology and Innovation (STI). Likewise, as a government agency, it collaborates with higher learning institutions in respect of financing for research and development. However, the postgraduate students' research findings from these institutions are not well articulated for economic and technological development [22]. It is similarly important that the government through COSTECH ensures the postgraduate students' research findings are featured in the government strategic plan and policy for the implementation. On this, there is a possibility that the postgraduate students' research findings are characterized with low inputs in respect of science, technology and innovation for economic and technological development [23]. The key functions of the university as a learning and training center are to generate new knowledge through research works with an emphasis to develop systematic investigation skills for knowledge extension and innovations [20]. Most students in postgraduate programs are therefore required to carry out research works as preconditions for enrollment. As a result, this has led to greater needs for them to undertake research activities. Postgraduate research works are often made up of basic research aspects that are potential sources of information to be used for development although their findings' utilization is not given attention by many scholars [24].

Study design and methods

The study used descriptive design as it was undertaken to describe the characteristics of a phenomenon of interest, provided possibilities for describing observable facts as they occur in detail, allowed non-numeric data collection, and analyzed while interpreting the meaning. This was done by providing respondents several attributes to respond to establish what prompt them to Research Information Seeking (RIS). The study was carried out at the University of Dar es Salaam (UDSM). The UDSM was considered an appropriate area to provide rich information for this study as it is one of the leading universities in East Africa which offers postgraduate degree programs and with high students' enrollment. Furthermore, out of 94 master's degree programs offered at the UDSM, 80 (85.1%) programs are done by coursework whereas 14 (14.9%) programs are conducted by thesis (See Table 1).

Table 1: Master's degree programmes At Udsm As Of 2019/2020 academic year.

S/N	Program Title	Programmed Mode	Duration in Months	College/School/ Institute
1	MSc. in Climate Change and Sustainable Development	By Coursework and Dissertation	18	Centre for Climate Change Studies (CCCS)
2	MSc. in Agricultural Economics and Business	By Thesis	24	College of Agricultural Sciences and Fisheries Technologies (CoAF)
3	MSc. in Agricultural Engineering	By Thesis	24	College of Agricultural Sciences and Fisheries Technologies (CoAF)
4	MSc. in Aquatic Sciences	By Thesis	24	College of Agricultural Sciences and Fisheries Technologies (CoAF)
5	MSc. in Beekeeping Science and Technology	By Thesis	24	College of Agricultural Sciences and Fisheries Technologies (CoAF)
6	MSc. in Fisheries and Aquaculture	By Coursework and Dissertation	24	College of Agricultural Sciences and Fisheries Technologies (CoAF)
7	MSc. in Food Science and Technology	By Thesis	24	College of Agricultural Sciences and Fisheries Technologies (CoAF)
8	Master of Engineering Management	By Coursework and Dissertation	18	College of Engineering and Technology (CoET)
9	Master of Integrated Sanitation Management	By Coursework and Dissertation	18	College of Engineering and Technology (CoET)
10	Master of Integrated Water Resources Management	By Coursework and Dissertation	18	College of Engineering and Technology (CoET)
11	MSc. in Construction Management,	By Coursework and Dissertation	18	College of Engineering and Technology (CoET)
12	MSc. in Energy Engineering,	By Coursework and Dissertation	18	College of Engineering and Technology (CoET)
13	MSc. in Highway Engineering,	By Coursework and Dissertation	18	College of Engineering and Technology (CoET)
14	MSc. in Power Electronics and Electrical Drives,	By Coursework and Dissertation	18	College of Engineering and Technology (CoET)
15	MSc. in Power Systems and High Voltages,	By Coursework and Dissertation	18	College of Engineering and Technology (CoET)
16	MSc. in Production Engineering,	By Coursework and Dissertation	18	College of Engineering and Technology (CoET)

17	MSc. in Renewable Energy,	By Coursework and Dissertation	18	College of Engineering and Technology (CoET)
18	MSc. in Structural Engineering,	By Coursework and Dissertation	18	College of Engineering and Technology (CoET)
19	MSc. in Water Resources Engineering,	By Coursework and Dissertation	18	College of E ngineering and Technology (CoET)
20	Master of Arts in Archaeology	By Coursework and Dissertation	18	College of Humanities (CoHu)
21	Master of Arts in Ethics of Governance and Public Service	By Coursework and Dissertation	18	College of Humanities (CoHu)
23	Master of Arts in Fine Arts	By Coursework and Dissertation	18	College of Humanities (CoHu)
24	Master of Arts in Heritage Management	By Coursework and Dissertation	18	College of Humanities (CoHu)
25	Master of Arts in History	By Coursework and Dissertation	18	College of Humanities (CoHu)
26	Master of Arts in Linguistics	By Coursework and Dissertation	18	College of Humanities (CoHu)
27	Master of Arts in Literature	By Coursework and Dissertation	18	College of Humanities (CoHu)
28	Master of Arts in Music	By Coursework and Dissertation	18	College of Humanities (CoHu)
29	Master of Arts in Theatre	By Coursework and Dissertation	18	College of Humanities (CoHu)
30	MSc. in Computer Science Evening	By Coursework and Dissertation	24	College of Information and Communication Technologies (CoICT)
31	MSc. in Electronics Engineering and Information Technology)	By Coursework and Dissertation	24	College of Information and Communication Technologies (CoICT)
32	MSc. in Electronics Science and Communication	By Coursework and Dissertation	24	College of Information and Communication Technologies (CoICT)
33	MSc. in Health Informatics	By Coursework and Dissertation	24	College of Information and Communication Technologies (CoICT)
34	MSc. in Telecommunication Engineering	By Coursework and Dissertation	24	College of Information and Communication Technologies (CoICT)
35	Master of Integrated Environmental Management	By Coursework and Dissertation	18	College of Natural and Applied Sciences (CoNAS)

36	MSc. in Applied Botany	By Thesis	24	College of Natural and Applied Sciences (CoNAS)
37	MSc. in Applied Science of Materials	By Thesis	24	College of Natural and Applied Sciences (CoNAS)
38	MSc. in Applied Zoology	By Coursework and Dissertation	24	College of Natural and Applied Sciences (CoNAS)
39	MSc. in Biochemistry	By Coursework and Dissertation	24	College of Natural and Applied Sciences (CoNAS)
40	MSc. in Biodiversity Conservation	By Coursework and Dissertation	24	College of Natural and Applied Sciences (CoNAS)
41	MSc. in Biotechnology	By Thesis	24	College of Natural and Applied Sciences (CoNAS)
42	MSc. in Chemistry	By Coursework and Dissertation	24	College of Natural and Applied Sciences (CoNAS)
43	MSc. in Geology	By Thesis	24	College of Natural and Applied Sciences (CoNAS)
44	MSc. in Human Nutrition and Food Security	By Thesis	24	College of Natural and Applied Sciences (CoNAS)
45	MSc. in Mathematical Modelling	By Coursework and Dissertation	24	College of Natural and Applied Sciences (CoNAS)
46	MSc. in Mathematics	By Coursework and Dissertation	24	College of Natural and Applied Sciences (CoNAS)
47	MSc. in Molecular Biology	By Thesis	24	College of Natural and Applied Sciences (CoNAS)
48	MSc. in Petroleum Geology	By Coursework and Dissertation	24	College of Natural and Applied Sciences (CoNAS)
49	MSc. in Physics	By Coursework and Dissertation	24	College of Natural and Applied Sciences (CoNAS)
50	MSc. with Education	By Coursework and Dissertation	24	College of Natural and Applied Sciences (CoNAS)

51	MA. in Applied Economics	By Coursework and Dissertation	24	College of Social Sciences (CoSS)
52	MA. in Demography	By Coursework and Dissertation	18	College of Social Sciences (CoSS)
53	MA. in Economics	By Coursework and Dissertation	18	College of Social Sciences (CoSS)
54	MA. in Geography and Environmental Management	By Coursework and Dissertation	18	College of Social Sciences (CoSS)
55	Master of Arts in Information Studies	By Coursework and Dissertation	18	College of Social Sciences (CoSS)
56	MA. in Political Science	By Coursework and Dissertation	18	College of Social Sciences (CoSS)
57	MA. in Project Planning and Management	By Coursework and Dissertation	18	College of Social Sciences (CoSS)
58	MA. in Public Administration)	By Coursework and Dissertation	18	College of Social Sciences (CoSS)
59	MA. in Records and Archives Management	By Coursework and Dissertation	18	College of Social Sciences (CoSS)
60	MA. in Records and Archives Management	By Coursework and Dissertation	18	College of Social Sciences (CoSS)
61	MA. in Sociology	By Coursework and Dissertation	18	College of Social Sciences (CoSS)
62	MA. in Statistics	By Coursework and Dissertation	18	College of Social Sciences (CoSS)
63	MA. in Strategic and Peace Studies	By Coursework and Dissertation	18	College of Social Sciences (CoSS)
64	Master of Public Health (MPH)	By Coursework and Dissertation	15	College of Social Sciences (CoSS)
65	Master of Research and Public Policy (MRPP)	By Coursework and Dissertation	24	College of Social Sciences (CoSS)
66	MSc. in Geographical Information Systems	By Coursework and Dissertation	18	College of Social Sciences (CoSS)
67	MA. in Development Management	By Coursework and Dissertation	15	Institute of Development Studies (IDS)
68	MA. in Development Studies	By Coursework and Dissertation	15	Institute of Development Studies (IDS)
69	MA. in Development Studies	By Thesis	24	Institute of Development Studies (IDS)
70	MA. in Gender Studies	By Coursework and Dissertation	15	Institute of Development Studies (IDS)

71	MA. in Kiswahili	By Coursework and Dissertation	18	Institute of Kiswahili Studies (IKS)
72	MSc. in Marine Sciences	By Coursework and Dissertation	24	Institute of Marine Sciences (IMS)
73	MSc. in Marine Sciences	By Thesis	24	Institute of Marine Sciences (IMS)
74	MSc. in Natural Resources Assessment and Management	By Coursework and Dissertation	18	Institute of Resource Assessment (IRA)
75	MA. in Applied Social Psychology (MAASP)	By Coursework and Dissertation	18	School of Education (SoED)
76	MA. in Education (M.A. Education) Evening	By Coursework and Dissertation	24	School of Education (SoED)
77	Master of Education Science (M.Ed. Science)	By Coursework and Dissertation	18	School of Education (SoED)
78	Master of Educational Management and Administration (MEMA)	By Coursework and Dissertation	18	School of Education (SoED)
79	Master of Educational Management and Administration (MEMA)	By Coursework and Dissertation	24	School of Education (SoED)
80	MA. in Mass Communication	By Coursework and Dissertation	18	School of Journalism and Mass Communication (SJMC)
81	Master in Entrepreneurship and Enterprise Development (MEED)	By Coursework and Dissertation	18	University of Dar es Salaam Business School (UDBS)
82	Master of Business Administration (MBA)	By Coursework and Dissertation	24	University of Dar es Salaam Business School (UDBS)
83	Master of Finance and Accounting in Oil and Gas (Executive)	By Coursework and Dissertation	18	University of Dar es Salaam Business School (UDBS)
84	Master of International Business (MIB)	By Coursework and Dissertation	18	University of Dar es Salaam Business School (UDBS)
85	Master of International Trade (MIT)	By Coursework and Dissertation	18	University of Dar es Salaam Business School (UDBS)
86	MSc. in International Transport and Logistics	By Coursework and Dissertation	18	University of Dar es Salaam Business School (UDBS)

87	MA. in Revenue Law and Administration	By Coursework and Dissertation	18	University of Dar es Salaam School of Law (UDSoL)
88	Master of Laws (LL.M.)	By Thesis	24	University of Dar es Salaam School of Law (UDSoL)
89	Master of Laws (LL.M.)	By Coursework and Dissertation	24	University of Dar es Salaam School of Law (UDSoL)
90	Taught LL.M. in Commercial Law and Corporate Law	By Coursework and Dissertation	18	University of Dar es Salaam School of Law (UDSoL)
91	Taught LL.M. in Intellectual Property Law	By Coursework and Dissertation	18	University of Dar es Salaam School of Law (UDSoL)
92	Taught LL.M. in Migration and Refugee Law	By Coursework and Dissertation	18	University of Dar es Salaam School of Law (UDSoL)
93	Taught LL.M. in Procedural Law and International Legal Practice	By Coursework and Dissertation	18	University of Dar es Salaam School of Law (UDSoL)
94	Taught LL.M. in Taxation	By Coursework and Dissertation	18	University of Dar es Salaam School of Law (UDSoL)

A total of 94 master's programs 14 (14.9%) by thesis and 80 (85.15) by coursework and dissertation as indicated below.

Source: Adapted and Modified from the Directorate of Postgraduate Studies (2019)

Four schools were purposively selected based on the nature of their Masters' Degree Programs. These schools were: the University of Dar es Salaam School of Law (UDSL), School of Education (SoED), University of Dar es Salaam Business School (UDBS), and School of Journalism and Mass Communication (SJMC). The four schools had a population of 1034 Master's Degree students from which a sample of 115 respondents was selected through multi-stage stratified sampling techniques (Table 2).

Table 2: Population and Sample Size Distribution (n=115).

S. No	School Category	Postgraduate Students Population(Ni)	Population Percentage	Sample Size Computation (Ni/N) n	Sub –Sample (ni)	Sample Percentage (%)
1	UDSLW	107	10.5	(107/1034) 115	12	10.4
2	SoED	476	46	(476/1034) 115	53	46.1
3	UDBS	228	22	(228/1034) 115	26	22.6
4	SJMC	223	21.5	(223/1034) 115	24	20.9
	TOTAL	1034	100	-	115	100

Source: Study Findings (2021).

Key : UDSL: University of Dar es Salaam School of Law; UDBS: University of Dar es Salaam Business School; SJMC: School of Journalism and Mass Communication; SoED: School of Education; n: Stratum size required; Ni: Total number of students in each stratum; N: Total study population

Furthermore, the study used a combination of methods to collect both secondary and primary data. Secondary data were obtained through reading relevant and current documentary whereas primary data were collected through structured self-administered questionnaires (with both open and closed questions) and observation. A self-administered questionnaire was suitable due to the nature of busy students with less time for the interview and FGD arose from class assignments, tests, and examinations to be filled in by students' convenience; provided free and independent opinions with less influence from the researcher. Appropriate timing of data collection and effective follow-up led to a high response rate of 100%. The descriptive-analytical technique was used as it is capable to answer the 'what, how and why questions, representing opinions and depending on logic and sense-making. While quantitative data were analyzed using Statistical Package for Social Sciences (SPSS) Version 23, qualitative data were classified into broad themes and content was analyzed. Likert scale as measures of broad themes was analyzed and presented using tables, and figures.

Results

Postgraduate students' research findings utilization (n=115)

The study aimed at finding out whether postgraduate students' research findings are visible for utilization. This is because one of the key determinants of the utilization of research findings is to ensure that the findings are accessible to that particular targeted audience/organization. In this view, students were requested first to indicate whether they do share/ disseminate their research findings to the institution where they collected their research data. Their findings are presented in the (Figure 1).

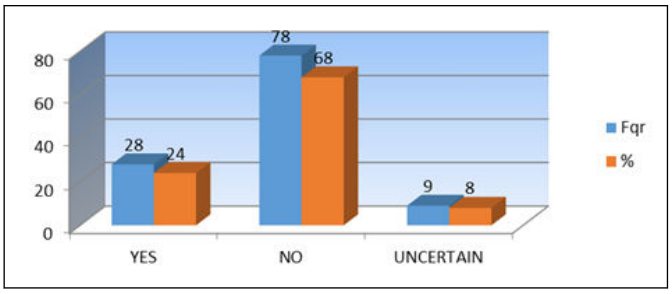

Figure 1: Postgraduate students' intention to disseminate research outputs source: field data (2021).

The results indicated that majority (68%) of the students will not disseminate their research findings at the end of their programs. This implies that their research findings cannot be shared by other researchers as they are not visible. It will rather remain exclusively known by the students and faculty members themselves and their immediate supervisors with fewer impacts to targeted research beneficiaries. Since knowledge acquired from research alone cannot on its own bring a solution for the problem sought, effective dissemination of the research output is necessary.

Similarly, 28% of students indicated to have an intention of disseminating their findings to the researched institutions. With this small number of students who have indicated to share their research findings it is evinced that postgraduates' research findings accessibility is very minimum.

Another category of 8% of students was uncertain. This response suggests that postgraduate students are not aware of the issues of sharing their research findings. The findings further indicate that students do not even realize the significant value of sharing the new knowledge with other researchers for economic and industrial development. Similar findings were found through open-ended questionnaires; one postgraduate student responded as follows:

We do not conduct our research for publication but just for the matter of accomplishing our master course requirement.

Another one representing majority commented: I don't see any reason for sharing or submitting our research findings as it was not our main intention initially. Another student commented that:

We are not aware that they are required to disseminate their research findings at the end of their program. Further, through open-ended questions administered to students, one responded said:

Dissemination of research findings is not our interest but rather to accomplishing our studies. To summarize all the responses given out by students at the UDSM through the open-ended questions, it can be viewed that students lack awareness about the significance of disseminating their research findings. It further concludes that there is no policy in place which guides students about sharing the new knowledge or if the policy is there it might be not active. Postgraduate students' research policy guideline is an important tool to be in place in all higher learning institutions. This is because it helps to guide students and reminds them that they are supposed to share their research findings with other scholars and development partners.

Research findings' submission policy

Based on the above response with the significant number of 68% who indicated that they would not disseminate their research findings, the researchers wanted to know if there were any policy guide students regarding dissemination of their research findings. The respondents were then requested to indicate if there was any policy that guided postgraduate students' research findings submissions at UDSM. Students were asked to indicate whether they were given any policy which

requests them to submit a (soft or hard) copy of their research findings to the researched institution at the end of their study. Students were asked to provide their answers in a form of 'YES', 'NO', or 'UNCERTAIN'. The researcher further used descriptive statistical techniques to analyze students' findings as indicated in (Table 3).

Table 3: Research findings submission policy at the UDSM.

S/n	variable	Frequency	Percent
1	YES	5	4.3
2	NO	89	77.4
3	Ucertain	21	18.3
Source: Field Data (2021)			

Findings in Table 3 indicated that the majority of students 89 (77.4%) said: "NO", 21 (18.3%) said, "YES" and 5 (4.3%) were "UNCERTAIN". This implies that no policy requires students to submit a copy of their research findings to the institution/ organization one collected his/her research data. A policy acts as the general understanding which guides decision-making to any course of action; it serves as a specific guide for people, philosophies, values, and drives principles upon which people are expected to act, maintain, follow and adhere. The specific policy is essential in facilitating a follow-up of any feedback of a certain performed action in life activities. Due to the absence of this tool at the UDSM, students are free to decide anyway. In these perspectives, it implies that postgraduate students' research findings sharing are limited as they are not accessible to other scholars or to that particular researched institution/ organization.

Determinants of postgraduate students research findings utilization

Further analysis was undertaken to establish whether students are aware of the determinants that can influence research findings utilization. Students' magnitude was captured using a 5-point Likert-type scale ranging from 1 to 5, with 1 being 'Strongly agree', 2–'Agree', 3–'Neutral', 4–'Disagree', 5–'Strongly disagreed'. The quantitative findings are presented in (Table 4).

Table 4: Determinants of students' research findings.

	SA	A	N	D	SD
	75 (65%)	10 9%	26 23%	10 9%	7 6%
2. Reliability and easy use of the research findings are the key determinants of postgraduate students' research findings.	42 36%	37 32%	26 23%	5 4%	8 6%
	49 43%	36 31%	13 11%	7 6%	10 9%
4. Policy makers' perception and readiness towards students' research findings are the key factors for the use of postgraduate research findings.	59 51%	26 23%	13 11%	10 9%	18 15%
Source: Field Data (2021)					
Key: SA=Strongly Agree; D=Disagree; N=Neutral; A=Agreed; SD=Strongly Disagree.					

The findings from Table 4 indicate that the majority 75 (65%) of students strongly agreed that accessibility of the research findings is among the determinant factors of the utilization of the research findings. This infers that students are very much aware that for research findings to be utilized the findings need to be accessible.

Minority of students 7 (6%) strongly disagreed with the statement that 'accessibility of the research findings is among of the determinant factors of the utilization of the research findings'. This response suggests that postgraduate students' research findings can be available and accessible yet they cannot be utilized.

From the same table many students 42 (36%) again strongly agreed and 32% agreed that the reliability and easy usage of the research findings are the key determinants of postgraduate students' research findings. This implies that students are very much aware of the criteria of the quality of the research findings. For research findings to be adopted and used by other researchers the reliability factor is very important. The information should come from reliable sources. Similarly, the majority 43%, and 31% strongly agreed that students' readiness and awareness of dissemination of their research findings determine the use of the research findings. Few (6%) students were on the opinion of disagreeing to the statement. The majority (51%) strongly agreed that policy makers' perception and readiness towards students' research findings values are the key factors for them to use postgraduate research findings. And few (15%) students strongly disagreed with the statement. Based on students' responses to the listed variables it implies that students are very much aware of the determinant factors for the research findings utilization.

Challenges hindering postgraduate research findings utilization

The availability of relevant research findings is not sufficient to solve the problems. What matters is how those findings are being used for economic and industrial development. Despite the known benefits associated with utilizing postgraduate students' research findings, some challenges are affecting the utilization of postgraduate students' research findings. In this perspective, respondents were therefore, first asked to indicate whether they have happened to have any idea about why postgraduate research findings are normally not consumed by a targeted audience. The students' perceptions were collected using a 5-point Likert scale ranging from 1 to 5 to capture students' perception of the challenges of utilization of research findings as presented in (Table 5).

Table: Perceived challenges of the utilization of postgraduate students' research findings.

Perceived Barrier	SA	A	N	D	SD
	FQ and %	FQ and %	FQ and %	FQ and %	FQ and %
1. Inadequate skills and knowledge to support the dissemination of research findings.	77 (67. %)	13 (11.3%)	5 (4.3%)	0 (0%)	30 (17%)
2. Students lack awareness concerning the importance of research findings sharing.	42 36%	37 32%	26 23%	5 4%	8 6%
3. Lack of policy that require students to submit research findings for sharing	69 (60%)	17 (15%)	10 (9%)	0 (0%)	19 (16%)
4. Poor recognition of students' research outputs by policymakers and research institutions.	54 (47%)	10 (9%)	5 (4%)	0 (0%)	46 (41%)
Source: Field Data (2021)					

From Table 5, majority 77 (67%) of students strongly agreed that inadequate skills and knowledge to support the dissemination of research findings is the challenge for them to disseminate research findings and 20 (26%) strongly disagreed with the statement. This implies that students need to be taught during the class session how to write a scientific paper. This calls for the master's program curriculum to be improved to ensure that each student who is finishing up his/her master's degree is in a position of developing a scientific work. However, knowledge and skill of writing a research report cannot be concluded because 20 (17%) students strongly disagreed with the statement. This implies that some other more factors affect the utilization of students' research findings.

It was also found out that the majority 96(83%) of the students were on the opinion to disagree that they lack awareness concerning the importance of research findings whereby no one was on the opinion to agree to the statement. Research findings from the universities contribute to research and development and have emerged as a fundamental factor in fostering national economic development, promoting organizational sustainability, and ultimately establishing a close relationship and collaboration with various institutions, organizations and industries. This suggests that postgraduate students are very much aware of the importance of knowledge sharing. In this interpretation, it means students need to be mentored from the very beginning on how to write a scientific paper that can be shared with all researchers.

On the same table, 69 (60%) students strongly agreed that lack of policy that requires students to submit research findings for sharing is one among the challenges hindering the utilization of their research findings. A policy acts as the general understanding which guides decision-making to any course of action, serves as specific guides for peoples, philosophies, values, and drives principles upon which people are expected to act, maintain, follow and adhere. The specific policy is essential in facilitating a follow-up of any feedback of a certain performed action in life activities. In this view, there is a need for the responsible Ministry to develop a policy that can be used by all higher learning institutions to guide students on the dissemination of their research findings for sharing.

On the same table, 54 (47%) students strongly agreed that lack of recognition of students' research outputs by policy makers and research institutions has become among the challenges of the utilization of postgraduate students' research findings. However, 46 (41%) respondents strongly disagreed with the statement. This implies that the issue of policy makers not recognizing and valuing students' research findings can be associated with various factors such as difficulty to access the findings, the relevance of the research, use of research perceived as a time-consuming process as well as poor research findings, as students may be incompetent in research writing. Additionally, policymakers lack skills to interpret students and put into practice students' findings.

Discussion

Determinant of postgraduate students' research findings utilization

The first objective of this study was to determine the utilization of postgraduate students' research findings. Several factors appeared to influence the utilization of research findings. They included access to information, the relevance of the research, use of research perceived as a time-consuming process, trust in the research, authority of those who presented their view, competency in research methods, the priority of research in the policy process, and accountability [9]. The purpose of undertaking research is to allow the findings of that particular research to be available and shared for economic and industrial development [3,12]. It is thus not worth doing research whose findings are not visible for sharing. To make use of research findings it should be first available, user friendly, and relevant to the targeted community.

The findings from Table 1 indicated that the majority (68%) of the postgraduate students commented that they will not disseminate their research findings to the researched institutions. This infers that the findings will exclusively remain in their minds as researchers and their immediate research supervisors. The findings concur with Chinelo who indicated that in Africa, the utilization of postgraduate research findings is not significantly realized in most of the countries and thus low contribution in economic and technological development. Research findings from the universities contributed to research and development and have emerged as a fundamental factor in fostering national economic development, promoting organizational sustainability, and ultimately establishing a close relationship and collaboration with various institutions, organizations, and industries [2].

In the business computing environment, various and new products and services are coming into being following investment in research and development. Thus, uuniversities and other research centers are crucial in providing research findings from which their usage is reflected on innovations emanated from various organizations, industries, factories, policymakers and enterpri. The idea of any scientific research is to facilitate the nation to solve various problems including economic and industrial development, political and social development.

It has been now a trend to most African academic universities including Tanzania at large to find volumes of valuable research reports done by postgraduate students which address the problems stacked away in departmental and faculty offices, without being widely disseminated. These could be appropriated in solving human problems and thus lifting African nations from extreme poverty to economic growth and modernization. Tanzanian government like other countries needs to develop a serious culture valuing utilizing postgraduate's research findings as to the factor that can support economic and industrial development. Similarly, the Tanzanian government needs to establish a strong relationship with universities in the area of research and developments

develop some strategies to support the utilization of postgraduate research findings like other countries for economic and industrial development. In this view, postgraduate research findings should be shared [16]. Carrying out an investigation or research study whose yields remains exclusively within the minds of an investigator or researcher is meaningless. In this regard, postgraduate students' research findings have to be disseminated to allow knowledge sharing at large. Their findings concur with those of who stated that most of the African universities' research outputs are controlled by faculties, directorates and departments and in the end, deposited in the library for reference and thus their value for economic and technological development is undermined. In this perspective, postgraduate students' research findings have to be used and integrated into economic and social services for development.

Challenges facing postgraduate research findings utilization

The second object of this study was to analyze challenges facing postgraduate research findings utilization. Regardless of the massive amplify in the amount of research being generated from various scholars of different disciplines, the integration of research findings into practice remains problematic and the actual utilization of research is still meager. Various researchers have identified several barriers for research findings utilization, to include lack of awareness of relevant research findings, lack of knowledge of the research process and the skills to access, inadequate support from the researched institution, and lack of autonomy and authority to change practices [25].

The findings in Table 3 also indicated that the majority (84.3%) of students strongly agreed that lack of awareness among postgraduate students regarding dissemination of their research findings is the challenge for dissemination of their research findings and (26%) strongly disagree with the statement. These findings agree with underutilization of postgraduate students' research findings' which indicated that it originates from inadequate dissemination of postgraduate students' new knowledge. This implies that students were not aware that they are supposed to disseminate their research findings for sharing. The university community and particularly postgraduate students and faculty members are crucial in research works from which their findings form a major development component when integrated into economic strategies. Students' lack of awareness could probably be due to the lack of policy to guide them to make their research findings accessible to other scholars for sharing [26].

Similarly, the majority (69%) of the students disagreed that they lack awareness concerning the importance of research findings' sharing and few (9.6%) strongly agreed that it is a challenge for research findings sharing. This means that postgraduate students are very much aware of the importance of knowledge sharing. On the same table, majority (60%) of the students strongly agreed that lack of policy that requires students to submit research findings for sharing is one among the challenges hindering the utilization of their research findings. A policy acts as the general understanding which guides decision-making to any course of action, serves as a specific guide for people, philosophies, values and drives principles upon which people are expected to act, maintain, follow and adhere. The specific policy is essential in facilitating a follow-up of any feedback of a certain performed action in life activities. In this view, there is a need for the responsible Ministry to develop a policy that can be used by all higher learning institutions to guide students on the dissemination of their research findings for sharing. Equally 47% of the students also strongly agreed that lack of recognition of students' research outputs by policy makers and research institutions has become among the challenges of the utilization of postgraduate students' research findings.

These findings concur with that the sub-Saharan African countries invest less of their GDP for research and development which is central to other advanced regions over the world. However, in the same statement, others strongly disagreed with the statement. This implies that the issue of policy makers of not recognizing and valueing students' research findings should be eliminated at large. It further agrees with [30-32]. Who indicated that the government of Tanzania does not provide enough funds to support postgraduate students to disseminate their research findings?

Recommendations

The study findings have shown that research findings from the universities contribute to research and development and have emerged as a fundamental factor in fostering national economic development, promoting organizational sustainability, and eventually establishing a close relationship and collaboration with various institutions, organizations, and industries. In this view, the UDSM postgraduate students' research findings should be made available for sharing with all responsible organs. The study further recommends that necessary measures should be taken to solve all the challenges which have been pointed out by students as the major factors affecting utilization of students' findings. Another study can be carried out to develop strategies that can be undertaken to enhance the utilization of postgraduate students' research findings.

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