

Dissemination of Research Findings in Tanzania: Are Researchers in Compliance with Best Practices?

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Abstract

Despite the critical role of research in development, a gap between research and practice has been reported in literatures. Poor research dissemination has been identified as one of the key factors perpetuating the gap. Thus, this study seeks to find out whether the problem exists in Tanzania too. We carried out a cross-sectional descriptive survey in six selected research institutions in Tanzania to examine their research dissemination practices. The study employed convenience or accidental sampling to select 151 respondents who were handed questionnaires to fill in, whereby only 86 were returned. Semi-structured interviews were also conducted with key informants from each study institutions. The information was supplemented with documentary review. The findings showed that dissemination of research findings in the selected research institution was far from satisfactory. Most researchers did not plan for dissemination properly; there was a serious under-budgeting for research dissemination; there were no special communication cadre (intermediaries) to assist with research dissemination; researchers used limited dissemination—and sometimes inappropriate—channels to reach their target audiences; and a significant number of researchers did not evaluate their dissemination strategies. The study recommends that researchers should include a plan to disseminate research findings in research proposals. Also, research funders should demand an extensive scheme showing how researchers intend to conduct their research and provide more resources and incentives for research dissemination beyond the usual academic channels. In addition, research institutions should consider employing special research communication experts to assist in research dissemination.

Introduction

There are several reasons that push researchers and research institutions to carry out research. At a basic level, research is undertaken to extend frontiers of knowledge (Oduwaiye et al., 2009). The development of theories and methodologies is a part of the role played by pure scientist working at this level. There are also personal development opportunities that attract people to do research, including educational attainment or career advancement (Bradley et al., 2010). Beyond the basic level, applied research is undertaken to solve specific practical problems (Newman & Robson, 2009). At this level, research plays a very crucial role in the socio-economic development of society (URT, 2010; Mwakyusa, 2007). Human development research is usually undertaken with the goal of generating evidence to guide improvements in policies and practices (Court & Young, 2003; Barnard et al., 2007).

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Increasingly, there are growing demands that policy choices, organisational management and professional practice should be underpinned by the best research evidence (Davies et al., 2005). This linking of policies and professional practice on sound research is called 'evidence-based policy or practice'. According to Fox et al. (2007), evidence-based approaches are applied on the basis of three major assumptions: (i) research should provide evidence on which policies or practices it is based; (ii) policies or service delivery should be changed based on available research evidence; and (iii) through evaluation of policies or services, policy makers or practitioners can monitor the effects of their interventions. In response to the development of an evidence-based culture, policy makers or practitioners are encouraged—and sometimes coerced—to engage more actively in research.

The findings of a research need to be widely and properly disseminated to realize the benefits that it can offer. In other words, a research cannot make any difference in policies and/or practices unless it is effectively disseminated (Fernández-Peña et al., 2013). Effective dissemination encompasses more than the distribution and diffusion of information. It involves the process by which target groups become aware of, receive, accept, and utilize information (Freemantle & Watt, 1994). Carrying out a good research and publishing the results in academic journals is no longer enough if the findings from research are to influence policy and practice (South, 2011). While researchers are required to disseminate the full account of their findings as broadly as possible, research funders, on the other hand, are asking researchers to provide evidence of policy impacts. This in turn has placed greater importance on ensuring that research outputs are effectively communicated to the relevant audiences (Hennink & Stephenson, 2005).

Problem Statement

Despite the critical role of research, several literatures report a large gap that often exists between a research evidence and its widespread use in development policies and practices (Turale, 2011; Hennink & Stephenson, 2005; Wilson et al., 2010b). The impact of research activities on development policies and practices is said to be far from satisfactory (Barnard et al., 2007; Turale, 2011; Namanji & Ssekyewa, 2012; URT, 2010). Poor research dissemination has been identified as one of the key reasons perpetuating the research-practice gap (Crew & Young, 2002; Hemsley-Brown & Sharp, 2003; Turale, 2011). Findings from a multitude of research projects are said to gather dust on shelves due to the lack of, or feeble, attempt to disseminate them (Keen & Todres, 2007; Barnard et al., 2007). Poor research dissemination has a negative implication not only on wasted efforts by researchers; but also to the large financial investment that has been put in carrying out researches (Holmes & Savgård, 2009; Grimshaw et al., 2012). Though there are studies that have been carried out to explore this problem, many have been done in developed countries, and in most cases they are biased to specific fields like health and education. Therefore, we carried out this study to examine dissemination practices in Tanzania to identify factors that create the existing communication gap between research findings and their dissemination.

2. Literature Review

The conceptual framework for this study is derived from its theoretical perspective. The study was framed according to McGuire's communication/persuasion model matrix (McGuire, 1989), which hypothesizes that dissemination efforts must address a range of factors related to the input elements of the model for it to be effective. The factors include: *source, receiver (audiences), message, channels, and destination factors*. For the purpose of this study, research dissemination practices that address the named communication input factors were derived. The practices include: working through intermediaries, engaging audiences with research agenda, communicating effectively, and the use of appropriate and a variety of media/channels. Additional practices—namely, dissemination planning, resourcing for dissemination, and dissemination evaluation—were identified from literatures. A thorough examination of the conceptualized dissemination practices is done in the following brief literature review.

2.1 Dissemination Planning

Many scholars have identified planning as a critical factor for successful research dissemination (Holmes & Savgård, 2008; Wilson et al, 2010; McBride et al., 2008). They argue that there is a need for a dedicated dissemination plan or strategy, and a more theoretical consideration of the place of dissemination in the research process; rather than treating it on an ad hoc basis (South, 2011; Lawrence, 2006). Dissemination planning involves looking at where and when research findings should be disseminated, what should be communicated, and how it should be presented (Wallace et al., 2013; Apre, 2010). It also looks at who are the main audiences of the research output, and what impact should the dissemination effort achieve (Apre, 2010). Grimshaw and Eccles (2008) further suggest that the choice of a dissemination strategy should be informed by an assessment of the likely barriers and facilitators to the research uptake. In other words, dissemination planning provides an opportunity for dissemination goals, strategies, and activities to be conceptualized and carefully considered.

2.2 Working with Intermediaries

Researchers do not have to work on their own in the task of disseminating their research findings (Harmsworth & Turpin, 2000). Where researchers are constrained with time, scholars argue that it is only appropriate to give the task of disseminating research findings to other non-scientist users to specialist communicators with the requisite skills and experience in dedicated information sections within universities, research institutions, extension agencies or in the mass media (South, 2011; Ghai, 1972; Lavis et al., 2003; Garforth, 1998). With special dedicated resources and staff time to disseminate, a researcher's role will then be to help speed up dissemination by ensuring their outputs are brought to the attention of communicators and presented in a form that can readily be used (Garforth, 1998; Saywell & Cotton, 1999; McBride et al, 2008).

2.3 Engaging Audiences in Framing Research Agenda

The current dissemination scholarship emphasizes an interactive exchange between researchers and those they are intending to influence for effective dissemination (Scullion, 2001; Scott, 2000). Several literatures emphasize the need to integrally involve targeted potential audiences in the planning, implementing, and evaluating research designs (Harmsworth & Turpin, 2000; McBride et al., 2008). Terms like *collaboration* (Nutley et al., 2009; Lawrence, 2006; Hennink & Stephenson, 2005), *interactivity* (Scott, 2000; Saywell & Cotton, 1999), *interactive model* (Hennink & Stephenson, 2005), *links/linkage* (Bradley et al., 2010; Nutley et al., 2009), *participatory research* (Drury & Hart, 2013), just to mention a few, connote the concept of interactive exchange of knowledge between producers and users of research knowledge.

On the other hand, literatures criticize the overly reliance on traditional unidirectional messenger-receiver model (Wilson et al., 2010; Gonzales et al., 2012; Scott, 2000) that conceptualizes dissemination as a one-way process; a downstream transfer from a group who produce knowledge to a group who implement programmes (King et al., 1998). The model is blamed for not drawing upon other aspects of communication theories (Wilson et al., 2010), and hence they lack credibility (Saywell & Cotton, 1999). It is said to be an ineffective strategy in encouraging sharing and subsequent adoption and implementation of new research results (Landry et al. 2001). According to Lawrence (2006), the model is not an option in today's world.

2.4 Communicating Effectively

One of the principles of effective communication is knowing information that end-users identify as important and are likely to need, and packaging it in forms and languages they prefer (Hennink & Stephenson, 2005; Bradley et al., 2010). Despite the popularity of this principle, literatures report the problem of communication failure among researchers. Lomas (1997) argues that researchers rarely discriminate between—and address uniquely—the different needs of potential non-academic audiences of their research. He observed that the failure of researchers to distinguish between these audiences lead them to an inappropriate approach of 'one-size-fits-all' in disseminating research findings.

Another problem with effective communication of research messages lies around languages used by researchers. The use of high-powered trade terms in communicating to other groups, say policymakers, is said to make such reports of little value to them (Gachuhi, 1972). Macoubrie and Harrison (2013) make a similar observation: that a common research dissemination tactic by researchers is distribution in journals and at conferences. They point out that abundant language and format issues are identified with these tactics as far as standards and requirements of audiences are concerned.

2.5 The Use of Variety and Appropriate Media

The selection of the most appropriate dissemination media for a particular content and audience is also a complex and challenging task (NCDDR, 1996). The media and formats available for dissemination are increasing rapidly with new technological developments. The National Centre for Dissemination of Disability Research (1996b) offers three recommendations concerning the medium to use in effective dissemination. First, is the need to match the medium to the user. Here, the Centre argues that it is critical to know and use channels that are accessible to the intended users as they cannot attend to a message that they do not receive. Second, is the emphasis on the primacy of personal interaction. The argument here is that direct contact is critical to the success of dissemination, especially for more complex and challenging research outcomes that require changing behaviour or belief. The Centre observes that the frequency of contact is important; that is, there should be ongoing personal interaction. Third, is the use of multiple media. It was observed that a combination of media and interpersonal strategies is most effective in promoting knowledge use. Researchers are advised to choose a mix of channels and formats as they make their dissemination plan.

Other literatures suggest the same strategies. Saywell and Cotton (1999) expressed the need to match a medium to the user as '*media appropriateness*.' Citing Snowsill (1995), they argued that the media chosen for dissemination should always meet the needs of the specific audience targeted; and that the language should be unambiguous, clear, and accessible in the medium selected. They further observed that many authors would write papers for journals at the end of a research project as their first dissemination action, probably due to strong incentives for this. Unfortunately, the role of journals in providing broad-based dissemination is limited. This is because most of journals are written in obscure languages (technical jargons and mathematical statistics) that can only be understood within a small circle of subject specialists (Barnard et al., 2007; Drury & Hart, 2013). Harmsworth and Turpin (2000) observed that most non-academic audiences are interested in understanding how particular pieces of work fit into a particular context, and the extent to which adopting the new information might have other implications, for example, on future policy or practice. The selection of appropriate media for specific audience is, therefore, important if research findings are to be adopted.

2.6 Resourcing for Dissemination

Dissemination activities consume considerable time and resources (Hennink & Stephenson, 2005; Holmes & Savgård, 2008; Barnard et al., 2007). Apart from financial investment, the employment of specialist skills (intermediaries) is one of the forms of resource needs in contemporary research dissemination that researchers should also plan for and include in their research proposals (McBride et al, 2008; Barnard et al., 2007). There are cases where researchers have ignored budgeting for the dissemination of research findings (Masato, 2010), or overlooked the costs associated with dissemination (Harmsworth & Turpin, 2000). Hennink and Stephenson (2005) advocate that researchers should explicitly include a

comprehensive plan in the allocation of resources and time needed for dissemination activities in research proposals, especially those that go to donor agencies.

2.7 Evaluation of Dissemination Processes

As researchers or intermediaries prepare dissemination plan, they probably need to set the goal they want to achieve, that is, what impact should the research project bring about (Apre, 2010). Evaluation should be done as a way of checking the effectiveness of existing practices and adapting future dissemination tasks accordingly (Fisher et al., 2003). An additional benefit is the potential for continuance of projects, where appropriate, if funders are made aware of the returns on their investment. McConnell (1999), cited by Fisher et al. (2003), argues that dissemination impact is an issue that warrants attention for three reasons: (i) potential information users may make greater use of their information resources if the benefits can be demonstrated clearly; (ii) information system design could incorporate what is learned about inputs, outputs and outcomes; and (iii) sustainability of projects is increased by an appreciation of the returns on investment. However, Holmes & Savgård (2008) observed that the evaluation of research impact and of the effectiveness of dissemination processes is recognized as important but is, overall, a neglected area. Saywell and Cotton (1999), citing Lewando-Hundt and Al Zaroo (1999), argue that despite the increased importance laid on dissemination, there is still relatively few evaluative studies of dissemination conducted. Therefore, they called for both process and outcome evaluations of dissemination; the former focusing on tracing how dissemination transactions occur, while the latter measure the extent to which these changes are achieved. They observed that further research on the key area of evaluation remains a priority if effective dissemination is to be achieved.

3. Research Methodology

The study was conducted in six research institutions in Dar es Salaam, Tanzania. These comprised of three universities and three research institutions located in Dar es Salaam, namely the Ardhi University (ARU), Muhimbili University of Health and Allied Sciences (MUHAS), University of Dar es Salaam (UDSM), Research on Poverty Alleviation (REPOA), Economic and Social Research Foundation (ESRF), and the National Institute of Medical Research (NIMR). The research design for this study was *descriptive cross-sectional survey*. The use of survey design was prompted by the descriptive purpose of the study. The study population included all researchers with doctoral degrees undertaking applied research from the selected research institutions. The possession of a doctoral degree was an important inclusion criterion for the study because it implied the developed research competence and skills that would attract more engagement in research activities, while undertaking applied research was an important criterion as it implied the research category that can be consumed beyond the research community. Purposive sampling was then used to select the six research institutions and the study units within large research institutions (universities). The selection was influenced by the trend in the literature review, whereby most

dissemination studies were undertaken in the fields of health, education, and social sciences. These fields seem to generate applied researches of pressing issues in the society, which in turn merit wider dissemination.

The key informants in this study were also purposively selected. These were individuals with the responsibility to manage research matters within the selected research institutions. Finally, convenience or accidental sampling was used to select individual researchers from the units in the selected research institutions due to difficulties in obtaining sampling frame from most of research institutions. Only 151 members were available for the study, and 86 out of these were able to give back the filled in questionnaires (57% response rate). Questionnaires and semi-structured interviews were tools used to collect data. Secondary data were also searched to corroborate the questionnaire and interview data. To ensure validity in this study care was made to ensure that questionnaire items match with research objectives. A pilot study for testing questionnaire was conducted whereby a sample questionnaire was administered to a set of 10 researchers attending a research communication workshop. Data derived from the survey questionnaires were then analysed in SPSS version 16.0 (SPSS Inc, Chicago, IL.). Computation of descriptive statistics was done whereby frequency distribution tables were used to show patterns of relationships that existed among data groups (Kothari, 2004). To analyse free text derived from the open-ended questions, thematic analysis was undertaken whereby data were coded, grouped, and themes identified. In this study, research ethics were strictly adhered to whereby the participants were asked to sign a consent form. In addition, the permission to collect data from researchers was obtained from the research institutions where the study was conducted.

4. Findings and Discussion

4.1 Socio-Demographic Characteristics of Respondents

Most respondents (35%) were from the University of Dar es Salaam (UDSM); the oldest and largest of all selected research institutions (UDSM, 2008). The university is recognized as one of the most capable research institutions in the country with highly skilled personnel, specialized equipment, and the mandate to generate new understanding through research. The other two Universities were the Ardhi University (ARU) and the Muhimbili University of Health and Allied Sciences (MUHAS). These were originally constituent colleges of the UDSM, and thus had an established track of experience from their former structure. Fewer respondents came from non-university research institutions that usually specialize in particular research areas, and employ a limited number of staff.

It is important to note that all participants in this study were researchers with doctoral degrees. This was an important inclusion criterion because, traditionally, a doctoral degree is seen as a measure that certifies one's ability to carry out independent and original research (Melin & Janson, 2006). Doctoral studies are said to offer a unique opportunity for an individual to conduct an intensive and prolonged research on a very particular topic. This not only builds the competence

of an individual to carry out research, but also gives him/her the ability to attract research funding. Most of the respondents were aged between 36 to 55 years, with a majority (50%) falling within the age group of 36–45. This age correlates with the time investment needed to attain a doctoral degree in Tanzania.

On the other hand, less than half of the respondents had a working experience of not more than 15 years. This explains why most had not yet attained senior positions. Gender-wise, male dominance was evident: only 29% of the total participants were females. This gender inequality in the research sector is not a unique phenomenon in this study. In the fourth issue of 'European Commission She Figures', first published in 2003, it was observed that women are still under-represented in both the public and private research sectors, whereby only one-third of European researchers are women (European Commission, 2012). This under-representation of women deprives them of the opportunity to contribute towards research and innovation on an equal footing with men. In turn, given the different perspectives that women bring into research, the quality of research and innovation suffers as well.

4.2 Dissemination Practices

This study made enquiries as to whether researchers prepare formal dissemination plan or strategy, allocate resources for dissemination, or get support with the dissemination task (i.e., working with intermediaries). Other important practices that we examined included researchers' engagement with their audiences, the use of varieties and appropriate dissemination media, and the evaluation of dissemination plan/strategy.

4.2.1 Planning for Research Dissemination

Most respondents (70%; n=60) admitted to have a formal plan to disseminate their research findings. This high score response contradicts the findings by Lutkamu et al. (2004) who explored the research and communication processes, barriers, and efficacy of various communication methods in Tanzania. The study findings reported that most research projects do not have communication plans for ensuring uptake of findings by other stakeholders such as policy makers, input suppliers, traders, and manufacturers (ibid.). Wilson et al. (2010) reported a similar observation in a study on how researchers working in public health and health services across the UK disseminate the findings of their research, whereby only 20% of the respondents indicated that their units or departments had a formal communication/dissemination strategy.

We further made an enquiry on the time that dissemination plans/strategies are prepared from those who admitted having them in place; giving them a predetermined list of options for different timings. Table 1 summarizes the responses.

Table 1: Dissemination Planning Timing

Planning timing	Frequency (N=60)	Percent
At the proposal stage	30	50
During the research process	8	14
At the report writing stage	15	25
Other	7	11
Total	60	100

Many dissemination literatures suggest that dissemination planning should be undertaken at the earliest stage of a research project (McBride et al., 2008; Lawrence, 2006; Wallace et al., 2013). The essence of doing so is to give researchers sufficient ‘lead time’ to affiliate with other organizations, associations, and institutions with whom they can partner; organize and develop information-sharing opportunities with key target audiences; involve key expertise with the project; and allocate budget relevant to dissemination activities.

A half of the respondents who admitted to have dissemination plans reported to do dissemination planning at the proposal stage. This requirement has also been observed in policy documents of two study institutions, which state:

... encourage the incorporation of a specific section on dissemination of research results in the research proposals. In the proposal, the plan for dissemination of research results shall be included. (MUHAS, 2011; UDSM, 2008)

However, there was a good proportion of respondents who seemed to lack knowledge of this concept as they suggested other timings like planning research dissemination during the research process (14%), or at the report-writing stage (25%). For those who opted for other explanations (7%), some suggested undertaking planning during all stages of a research, which is also a commendable practice (Wallace et al., 2013; Saywell & Cotton, 1999; Harmsworth & Turpin, 2000); while those who undertake commissioned researches thought this question was irrelevant.

4.2.2 Resourcing for Research Dissemination

Respondents were asked whether they budget for research dissemination. A majority (67%; n=58) had a positive response to the question. This is almost equal to the percentage of respondents who acknowledged having a formal dissemination plan. Indeed, one of the very important elements in the formal dissemination plan is the allocation of resources (budgeting).

A further enquiry on the percentage of the total research budget that goes to dissemination revealed the findings summarized in Table 2. Though there is no fixed formula as to the right percentage that should be allocated for dissemination, there are some pointers in literatures. For example, Huberman (1990), cited in Scullion (2001), recommended that at least 12% of project resources and time should be channelled into dissemination. However, he

Table 2: Percentage of Budget Allocated for Dissemination

Budget Per Cent	Frequency (N=58)	Per cent
Less than 1 percent	6	10
1-5 percent	36	63
6-10 percent	12	21
11-20 percent	2	3
Above 20 percent	2	3
Total	58	100

acknowledged the limitations that non-commissioned researchers might have. Another pointer is from DFID’s new research guidelines that specify a minimum of 10% of research grants to be spent on communication (Barnard et al., 2007; South, 2011; Vincent, 2005). Comparing these propositions with the findings of this study, only about 24% (the sum of responses that fall between 6% and 20% of the responses) are in line with them. Most of the respondents (63%) allocated 1–5% of their total research budget to dissemination; while 10% allocated less than 1 per cent. This is a serious underestimation of financial resources required for research dissemination, which is likely to undermine the effectiveness of dissemination activities.

4.2.3 Special Unit or Personnel (Intermediaries) for Dissemination

The study also enquired whether there were special units/personnel responsible for disseminating research findings in the institutions. The essence of this question was to check whether the respondents work with intermediaries to disseminate their research findings. Only 42% (n=36) of the total respondents acknowledged the existence of such units/personnel. An equal percent of respondents (n=36) gave a negative response to the question; while the remaining 16% (n=14) were uncertain if there were such units/personnel.

As noted in the literature review, scholars of research dissemination suggests that the task of disseminating research findings among non-scientist users should be given to specialist communicators in dedicated information sections within universities, research institutions, extension agencies, or in the mass media; especially when researchers are constrained with time, skills, and experience needed to disseminate research knowledge (South, 2011; Lavis et al., 2003; Garforth, 1998). In this study, these specialist communicators are referred to as intermediaries. Among the various roles that intermediaries play include: acting as messengers of research messages by designing and coordinating a communication strategy (Barnard et al., 2007; South, 2011; Lavis et al., 2003); tailoring and amplifying researchers’ message to users (i.e., re-writing research findings and presenting them to relevant users in an appropriate form (Carpenter et al., 2005; Saywell & Cotton, 1999; Holmes & Savgård, 2008); mitigating against misunderstandings between researchers and users by helping users draw out implications for policy and practice from research findings (Holmes & Savgård, 2008; Fisher et al., 2003; Lawrence, 2006); and promoting the use of research results by synthesizing research and policy perspectives (Lawrence, 2006;

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Saywell & Cotton, 1999). They also help to keep researchers up-to-date on relevant policy issues, and build ongoing relationships between them and research users (South, 2011). Generally, the intermediaries are responsible for, and feel the ownership of, communicating research findings.

Comparing the findings obtained in this study with the literatures above, it seems research communication experts (intermediaries) are non-existent in the study institutions. Though some of the respondents acknowledged the availability of special units/personnel responsible to carry out the role of disseminating research findings in their institutions, the role of the various named units fell short when compared to those of intermediaries or brokers. Even the institutional research policy documents stipulated different roles for some of the identified units. This explains why a good percentage (42%) answered that there were no special units/personnel responsible for supporting research dissemination, while others (16%) showed uncertainty whether there was such units.

4.2.4 Audience Related Practices

Targeting research audiences and involving them in a research agenda throughout a research process are two aspects that have been placed under audience-related dissemination practices. Applied researchers are expected to target a diversity of audiences to maximize the impact of their research. Likewise, researchers need to involve their audience in their research agendas since the essence of effective dissemination should be an interactive exchange between researchers and those they are intending to influence (Scullion, 2001; Scott, 2000).

1. Targeting Wider Audience

We asked researchers to identify the categories of audiences they consider to be relevant to most of their research projects from a predetermined list of audiences, with multiple responses being allowed. Table 3 provides a summary of the responses.

Table 3: Frequency Distribution of Target Audiences

Audience Categories	Frequency (N = 86)	Percent
Peer researchers	72	84
Practitioners	64	75
Policy makers	60	70
Funders	46	53
Advocacy groups	35	41
Research participants	37	43
Local communities	48	56
Media professionals	25	30
General public	41	48
Other audiences	7	8

Peer researchers is an audience category that won the interest of many researchers (84%), followed by practitioners (75%), policy makers (70%), local communities (56%), and funders (53%). These findings seem to conform to observations made

by Ghai (1972): that most researchers include their academic colleagues at the top of their list of principal audiences for their work, followed by (perhaps vague) reference to 'society' or 'decision-makers'. One of the major reasons for such inclinations has been explained by Moody (2000), cited in Lang (2002), who argues that "... the primary motivation for academics to conduct research is personal survival; which necessarily means impressing those "buyers" who have the greatest potential influence on their academic career prospects." The 'buyers' here are their 'peer researchers'; who have scored the highest percentage in this study too.

The scores for practitioners and policy makers were also significant since these groups are usually the target when it comes to recommendations from many studies. It was also interesting to note that a good proportion of respondents consider local communities and funders as their target audiences.

On the other hand, low scores (8%) went to other audiences, which included students, media professionals, advocacy groups, research participants, and the general public. These are among the audiences that Silverman and Marvast (2008) termed 'lay audiences', which are the most neglected. Various other scholars have raised concern on the tendency to neglect such audiences. For example, Higgins (2001) criticizes researchers for regarding their research more highly than the general public. He also blames the tradition of researches distancing themselves from the 'subjects' of their study; a distance even greater for under-represented groups—those living in poverty, and from racial, ethnic, and cultural minority groups. Researchers and research institutions fail their duties if they confine their efforts to reaching only fellow researchers and policy makers in the government and forget the general public, which also has experts on complex development issues (Ghai, 1972). Regarding this, Lomas (1997) pointed out that the general public is an emerging potential for a powerful new audience for research, particularly health research. He observed that new information technologies such as the Internet, combined with the increasing scepticism about expert professional opinion and an awakened ethic on 'consumer choice', has made the public in its various roles to demand greater access to research findings.

Silverman and Marvast (2008) have also acknowledged the importance of reporting back to lay audiences. According to them, reporting back to lay audiences provide researchers with an opportunity to answer questions asked by their respondents; check provisional findings; provide feedback to organizations and relevant groups; and provide information for the media.

2. Audience Engagement

From an enquiry made to the respondents as to whether they involve their audience in their research agenda, 72% (n=62) acknowledged to do so. This was impressive as it implies that a significant percentage of respondents recognize the importance of engaging their audience in their research agenda. Among the benefits of doing this include: bringing an understanding of the needs and context of each other (researchers and audiences) so that they can come into realistic expectations

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(Gonzales et al., 2012); enabling the research audience to develop interest in the findings while promoting subsequent assimilation (Mwakyusa, 2007); improving the relevance of a research (Higgins, 2001; McBride et al., 2008); and building a mutual trust between all partners as a result of the process of drawing up a joint strategy (Barnard et al., 2007; Holmes & Savgård, 2008). Other benefits include: creating a sense of ownership of a research among users (Hennink & Stephenson, 2005); and opportunity for further linkages beyond a research's lifetime (Huberman, 1990; Holmes & Savgård, 2008).

Furthermore, the study enquired on the timing of audience engagement, whereby a predetermined list of options was given. Table 4 summarizes the findings.

Table 4: Audience Involvement

Audience involvement	Frequency (N=62)	Percent
Early stages (concept note and proposal)	11	18
During research process	6	10
At the end of research	31	50
At all stages of research	8	13
Others	6	9
Total	62	100

Proper timing is an important aspect when it comes to involving a research audience in a research agenda. While some literatures suggests that involvement should occur early in the research process (Walter et al., 2003; Tyden & Nordfors, 2000), others suggest an ongoing involvement of relevant audiences throughout the research process—from conceptualization to dissemination and utilization (Holmes & Savgård, 2008; South, 2011; Hennink & Stephenson, 2005; Huberman, 1990; Lawrence, 2006). Lomas (1997) argues that the most effective instances when research is translated into practice occur when decision-makers are involved in the study process from the very beginning. Similarly, South (2011), citing Walter et al. (2003), argues that "... partnerships are most effective when research users are involved in all stages of the research process, rather than simply being co-opted during dissemination."

Comparing the findings presented in Table 4 with the recommendations from dissemination scholars, only 13% had it right by suggesting that they involve their audiences at all stages of a research. Half of the respondents (50%; n=31) indicated that they involved their audiences in the research agenda at the end of the research. This practice has been condemned to be ineffective as it construes research audiences as passive 'targets', rather than as people weighing new information against the constructs and experiences they have built up throughout their lives. Experiences from past research projects have shown that the approach of leaving dissemination until the end of a project does not work as it fails to allow time for actively engaging users and finding ways of inculcating a feeling of ownership, which is important if a research has to make an impact (Hennink & Stephenson,

2005). As Tydén and Nordfors (2000) noted, the bulk of the information produced at the end of a research is likely to be questioned or ignored by its audience; making no significant impact.

4.2.5 Dissemination Channels/Media

Here, we discuss two practices related to dissemination channels/media. The first is the use of multiple media. We learned from the review of literature that researchers must use a mix of channels and formats when planning their dissemination strategies to ensure that they reach a broad range of audiences and beneficiaries (Fisher et al., 2003). The second practice is the need to match the medium of communication to the user, also known as media-appropriateness. Researchers need to know and use channels that are accessible to their intended users.

1. Media Varieties

The study also enquired about the channels that the respondents (researchers) use to reach their target audiences. Again, a predetermined list of options was given in a questionnaire, whereby multiple responses were allowed. Table 5 summarizes the findings.

Table 5: Media Varieties

Channels categories	Frequency (N=86)	Percent
Academic journals	78	91
Monographs	30	35
Professional journals	23	27
Full research report	57	66
Summary report	25	30
Newsletter	21	24
Policy briefs	35	41
Press release	10	12
Conference (s)	74	86
Seminars	57	66
Workshops	62	72
Networking (face to face meeting)	28	33
Online communication	9	11
Mass media	22	26
Internet based resources	23	27
Posters	25	30
Brochures or flyers	10	11
Fact sheets	2	2
Other channels	0	0

The highest scores were indicated in academic journals (91%) and conferences (86%); the *conventional* or *traditional* means (Ghai, 1972; Fernández-Peña et al., 2008; Barnard et al., 2007; McBride et al, 2008). They area also termed as *academic* channels (Lang, 2002; Barnard et al., 2007). The possible explanations for the highest scores obtained for these channels is the fact that they are the most popular

and desirable medium of dissemination among researchers/scientific communities. These channels are linked to rewards for academics such as promotion and tenure decisions (Stapleton, 2012; Onyeka, 2014; Lang, 2000). On top of that, publishing in peer reviewed journals or attending scientific conference help researchers to increase the potential for funding opportunities (Stapleton, 2012); establish their professional reputation and that of their institutions (Barnard et al., 2007; Holmes & Savgård, 2008); as well as their visibility (Onyeka, 2014).

Workshops (72%), seminars (66%) and full reports (66%) are other channels with significant scores. Many projects and programmes use workshops and seminars to disseminate and discuss research results (Holmes & Savgård, 2008). Workshops and seminars differ from conferences in that they target smaller groups of participants, and involve a much higher and more active level of engagement (Harmsworth & Turpin, 2000). The relative high scores of workshops and seminars in this study can also be explained by the institutional policies and guideline of some of the study institutions, which suggest workshops and seminars among the methods or media that should be used by their researchers to disseminate research results. For example, the 2011 ARU Operational Policies and Procedures states that: *“The researchers should be required to give a seminar/conference at the conclusion of their research work and should also be encouraged to give periodic seminars during the research work.”* Likewise, the importance of workshops is also mentioned in the 2008 UDSM Operational Policies and Procedures, which states that *“... each faculty/bureau/academic centre/institute shall conduct at least one research workshop annually, which will review research plans, progress and outputs.”*

Research reports had also a significant score because a report is a primary document that serves as a source of information and insight for various kinds of additional products. A research report records the aims of a research project, research methods and results, while presenting the research findings in the context of policy and regulatory agendas. Some aspects of a research report may not appear in peer reviewed scientific publications (Holmes & Savgård, 2008). This is also acknowledged in one institutional policy, which states:

... research reports are currently the preferred means for disseminating research results for many researchers. Since most research reports are finally produced and circulated in the hard copy format, their availability is limited to libraries, the researchers themselves, and funding agencies of the relevant research projects (ARU, 2011)

Apart from recording the prominence of research report as means of disseminating research findings, the document also records the limitations of research reports in terms of visibility, convenience, and accessibility.

The least scores were recorded in channels like fact sheets (2%), brochures or flyers (11%), online communications (11%), press releases (12%), newsletters (24%), mass media (26%), internet-based resources (27%), summary reports (30%), posters (30%), and policy briefs (41%). All these falls under the category of non-academic channels.

The low scores for these channels can be explained by their irrelevance to an academic audience, the preferred audience by most researchers. Most of these channels are suitable for different categories of lay audience that are said to be neglected by many researchers (Silverman & Marvast, 2008; Ghai, 1972; Lomas, 1997). For example, brochures or flyers are meant for broad audiences (YCCI, 2010), while newsletters are suitable at institutional or programme level (Fisher et al., 2003; Holmes & Savgård, 2008). While press releases are said to be the most efficient and effective ways of disseminating information to the media, as well as to other organizations (YCCI, 2010), mass media are said to be suitable methods of disseminating research findings to the general public (Harmsworth & Turpin, 2000; Holmes & Savgård, 2008; Mwakyusa, 2007; Turale, 2011; Onyeka, 2014). Generally, the low scores obtained by these channels imply that it is only a small percentage of researchers who pay attention to other categories of audiences. This reflects ineffective dissemination strategies to audiences beyond the academic community.

There are three unusual scenarios to note in these findings. First, are the scores obtained for monographs (35%) and posters (30%). Though these channels are meant for the most preferred audience—academic or scientific community—their utilization is minimal. Second, are the scores of summary reports (30%) and policy briefs (41%). Again, though these channels are meant for policy makers, the low scores do not match with the percentage of researchers who targeted policy makers as their audience (see Table 3). Third, is the low score for professional journals that are meant for practitioners. This also does not match with the percentage of researchers who targeted practitioners as their audience (see Table 3). Though other channels might have been used to reach such audiences, these scenarios suggest researchers' weakness in using a variety of channels to reach their different target audiences.

Another interesting finding regarding dissemination media is the underutilization of internet-based resources (27%). At this age of globalization, where the development of information communication technology (ICT) is at its peak, one would expect extensive use of internet-based resources in research dissemination. Given their many advantages—like easy and wide accessibility (Fisher et al., 2003), high flexibility (Duffy, 2000), and cost-effectiveness (Gainsbury & Brown, 2006)—internet-based resources should be among the primary channels of disseminating research findings.

2. Media Appropriateness

Respondents were asked whether their choice of channel had a bearing on their target audiences. Most of them (72%, n=62) gave a positive response to the question. The respondents were then further asked to provide a match between their target audiences and the channels they use. There were very few responses to this question: only 40 respondents answered it. These represented total responses on the use of academic journals as a media for dissemination to other researchers. Surprisingly, the number does not tally with the percentage of those who acknowledged the use of academic journal for dissemination in the previous closed

question (see Table 5). Similar observation is made with other channels. One possible explanation for the low responses to the question is the tediousness of responding to the question. Another possible explanation is the inaccuracy of the responses to the question as to whether researchers' choice of channel had a bearing on their target audiences. Explaining the second scenario, literatures have recorded a tendency of some study subjects to respond according to what they think is right, and not what they actually do. This tendency is called 'social desirability', and is one of the major weakness of social survey (Singleton & Straits, 2005). If the second explanation is right, then the findings obtained suggest underutilization of academic journals as a channel for research dissemination.

It is also important to note that while the responses to the question are too few to record – e.g., the use of academic journals for donors (n=1), media (n=1), or public (n=1)—some mismatches were observed. Academic journals are meant for communication among scientific communities (researchers) (Bradley et al., 2010) and therefore irrelevant to other audiences mentioned above. Another example of mismatch is observed where full research report has been identified as a channel to be used for practitioners (n=10), policy makers (n=3) and research participants (n=2). Full research reports contain too much information for such audiences who seem to have limited time and interest on methodological issues.

4.3 Dissemination Evaluation

An enquiry as to whether respondents evaluate their dissemination strategy produced the responses summarized in Table 6.

Table 6: Dissemination Evaluation Tendency

How often do you evaluate your dissemination strategy?	Frequency	Percentage
Never	26	30
Rarely	31	38
Sometimes	23	25
Always	6	7
Total	86	100

Thirty per cent of the respondents acknowledged that they never evaluate their dissemination strategies. This percentage is equivalent to the respondents who had no formal dissemination strategy. Therefore, one possible explanation for this could be the absence of a dissemination plan in the first place. Thirty-eight per cent of the respondents rarely disseminate evaluation, which increases the total of respondents who do not care about evaluating dissemination strategies to 68%. These findings justify the observations made by Holmes and Savgård (2008) that though the evaluation of the effectiveness of dissemination processes is recognized as important, it is, overall, a neglected area.

The large number of respondents who did not commit to the evaluation of dissemination strategy explain why more than half of the total respondents rated their dissemination activities between poor (17%) and unsatisfactory (49%). Only 7% (equivalent to the percentage that would always evaluate their dissemination strategy) said that they were doing excellent with their dissemination activities, while 27% said that their dissemination was satisfactory. We learned from the literature review that researchers can only be able to review and measure the progress of their dissemination strategy if they have established clear targets at the outset (Harmsworth & Turpin, 2000). The failure by most of the respondents to articulate the outcome of their dissemination efforts is probably due to the absence of evaluation plan from the outset of their research projects.

5. Conclusion and Recommendations

Given the limitations observed in dissemination practices, one can conclude that dissemination of research findings in the selected research institutions is far from being effective. Therefore, one can state that poor research dissemination is one of the reasons behind the wide gap between research and practice in Tanzania; a problem that this study sought to examine. There are several recommendations that can address this problem. First and foremost, is the need to include a plan to disseminate research findings upfront in a research proposal. In this regard, funders of commissioned research should demand an extensive scheme showing how researchers intend to disseminate their research findings. Nevertheless, they should provide substantial resources and incentives for research dissemination beyond the usual academic channels.

Second, researchers must be equipped to communicate more effectively and regularly with their wider audiences. Universities, as well as other research institutions, should assist their researchers by strengthening their communication skills. Training and support for communications activities beyond the academic community (like working with policy groups, media, and communities) should be considered. Effective training in lay audience communication and engagement should also become a core goal of graduate education.

Third, research institutions should put in place clear policies on research dissemination. Such policies should encourage best dissemination practices like inclusion of comprehensive dissemination plan in a research proposal, enough resource allocation for dissemination, working with intermediaries, audience engagement, the use of various and appropriate media for target audiences, and regular evaluation of dissemination plans and impacts of research activities. Fourth, research institutions should consider creating research dissemination units and employing research communication experts (intermediaries) to assist researchers with research dissemination. Finally, dissemination of research findings beyond the academic community should be recognized and rewarded to provide incentive for researchers to go that extra mile.

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