Dissemination Process as a Determinant of the Utilization of Universities' Research Outputs by Social Service NGOs in Nakuru, Kenya

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Abstract: The universities are rich with research outputs due to their nature of teaching, research and development through the transfer of knowledge to the society, but the extent to which the research outputs are translated into socio-economic outcomes that benefit the society concerns the industry players. Of particular interest is the research dissemination process. The central question in this paper, therefore, is how does the dissemination process determine the utilization of universities' research outputs by social service NGOs in Nakuru Town of Kenya? In order to answer this question, the study applied the Triple Helix Theory and the Diffusion of Innovation Theory. It utilized the descriptive survey design where data was collected from 30 managers from 30 social services Non-Governmental Organizations within Nakuru Town. Managers were selected from a list of social services NGOs provided by the National Council of NGOs Rift Valley Office using the simple random sampling technique. The questionnaire comprised of both open-ended and close-ended questions that were administered by the researcher. The data collected was analyzed mainly using the qualitative methods and minimal quantitative methods and presented using tables and graphs. The study results show that Journal and conferences are the main channels that these organization use to access research findings and that both had a positive influence on universities research utilization by the organizations. The study recommends that Universities encourage their researchers to disseminate their findings in open access online journal as they are cost effective.

Keywords: Dissemination Process, Utilization of Research Outputs, Social Service.

INTRODUCTION

Universities have become agents of innovation in the developed countries. The universities are rich with research outputs due to their nature of teaching, research and development through the transfer of knowledge to the society [1]. In most of these countries, universities conduct research and transfer it to the industry in the form of new companies, products and services, and policies and procedures. Consequently, university research results in direct benefits to members of the public. However, the extent to which the research outputs are translated into socio-economic outcomes that benefit the society concerns the industry players. In Kenya, the rich universities research work is available but has little impact on the development of the general population. Findings of studies are rarely utilized by the industry to inform action and practices. It is in this regard that this study sought to investigate determinants of utilization of universities' research outputs by social services NGOs.

Of particular interest in the translation of research are the social services NGOs who play a vital role in creating social value by promoting the fulfillment of social, economic and cultural rights of the citizens as espoused in the Constitution of Kenya [2]. Lairumbi *et al.*, [3] confirm the minimal contribution of academic research towards creating social value in service provision. The major gap in the research – to – policy – to practice pathway is noted as a limitation to the potential social value of university research. Despite this situation, few studies have been conducted to examine factors that hinder the utilization of research outputs by industry players particularly the social service organizations. This study therefore aimed at investigating determinants of utilization of research outputs from universities by social services NGOs in Nakuru Town.

LITERATURE REVIEW
Dissemination Process and Research Output Utilization

One of the determinants linked to universities abilities to transform research discoveries into innovation that benefit the members of the public is the process used to disseminate research findings. Dissemination is the communication of research results to specific audiences [4]. According to Wilson et al. [5], dissemination is not a haphazard activity but a planned process that require consideration of the target

audiences and the setting where the research finding is to be received.

Dissemination helps the general society inform decisions and actions. As the Diffusion of Innovation theory contends, ideas need to be communicated in order for them to be adopted by members of the target population [6]. No matter how outstanding the research carried out is, if results are not communicated to the intended audience properly, the research becomes worthless. The channels used to communicate the ideas have a significant implication of the rate at which the ideas will be transferred to the intended audience.

The study by Tinkle et al. [7] established that 10% U.S. institutions involved in health research utilize passive approaches of disseminating findings such as publication in professional journals, untargeted presentation to heterogeneous groups, and mass mailing. About 78% of the institutions utilized active and targeted strategies such as replication guides, hands-on technical assistance, point-of-decision prompts, and training workshops with hands-on experience [7]. The remaining 12% employed a combination of passive and active dissemination strategies. Findings showed that the active and targeted approaches to disseminating evidence were more effective in achieving significant uptake of discoveries and promoting practice change.

In his study, Siddiqui [8] found that the most common dissemination activities employed by universities in Finland were publishing in local journals and newspapers, social media and other networking platforms, and fairs. The study noted that dissemination was mainly done after the research is complete and patents obtained because most researchers fear that disseminating too early may lead to loss of their research. The timing of dissemination creates friction with industry players who often expect the quicker transfer of ideas and innovations. The issue of timing of dissemination is also highlighted in Tinkle *et al.*, [7] where it was found that in the United States, it takes an average of 17 years to translate 14% of original health research into benefit for patients and 9 years for recommended interventions to be fully adopted.

The link between dissemination and research utilization is demonstrated in Gruer *et al.*, [9] where it was found findings of the Scottish Health and Ethnicity Linkage Study had little impact on health care policies and services because members of the public, policymakers, and healthcare practitioners had little knowledge of the findings. The study recommended that the use of concise briefings in order to improve communication of key research findings to stakeholders. The study by Baylor *et al.*, [4] found that dissemination of HIV research findings to research participants in rural Uganda was hindered by numerous challenges including low literacy levels, language barriers, and logistical and confidentiality issues. It was noted that most of the HIV research sought to promote behavioral change among locals; hence, disseminating findings to this audience was of critical importance.

In Kenya, Lairumbi *et al.*, [3] found that research findings are mainly disseminated through journal publications and presentation in workshops/ conferences/ seminars/ teaching universities. Most researchers use general dissemination strategies without consideration of the potential users of the research findings. Academic researchers have a little network with policymakers and industry practitioners. They just put the information out there and hope that someone will find it. Mutwiri [10] found that only 20.9% and 27.5% of lecturers in Kenya were prolific contributors to open access journals and institutional repositories. Most lecturers prefer to publish their research article in a subscription journal that is associated with limited accessibility, high cost, and delays in publishing. The limited use of open access platform hindered the reach of information generated through research.

The problem involving the use of subscription journal is also noted by Oronje [11], who found that neither the Ministry of Health nor parliament (which is the top-most policy-making organ) had invested in journal subscriptions. The lack of subscription limits access to health research consequently limiting the utilization of findings in policy making and service delivery. Oronje [10] also found that the utilization of health research was limited by the lack of an integrated platform through which research findings are disseminated. Health research articles are scattered in different journals and reports making it difficult for practitioners and policymakers to find and utilize.

RESEARCH METHODOLOGY
This study employed a descriptive survey research design. This research design helped the researcher to describe the issue of utilization of universities' research output as it exists within the operations of the social services NGOs within Nakuru Town. The target population comprised of managers of NGOs within Nakuru Town. These NGOs are active in a cross section of sectors including: agriculture, water, education, environment, health, human rights, gender and development, children's rights, poverty alleviation, peace, population, training, counseling, small scale enterprises, disability and many others. Based on the sampling frame of 50 NGOs provided by the National Council of NGOs, Rift Valley Region, the researcher employed simple random sampling technique to select 30 of social services NGOS.

The study made use of semi-structured questionnaires as the main tool for collecting primary

data. The questionnaire comprised of open and closed ended questions organized in five sections arranged according to the variables identified in the research proposal. The first section of the questionnaire focused gathering background information of the Managers of the social services Non-Governmental Organizations. Validity of the questionnaire was improved by discussing the questions with research supervisors at St. Paul's University to ensure that they capture what the study intended to investigate.

A pilot study was carried out to examine the reliability of the questionnaire. The study involved 5 respondents from 3 social services NGOs in Nakuru County which were left out during the actual research. The split half method was used to examine the pilot test data. The questions in the questionnaire were split into sets (odd number and even number), and which were compared using the Spearman Correlation Test [12]. The correlation between the first set and second set of question was .672, which indicates that the questionnaire was fairly reliable. Responses to the close-ended questions were analyzed using descriptive and the ANOVA method while responses to the open-ended questions were analyzed using the thematic technique.

RESULTS AND DISCUSSION
Dissemination Process and Research Output Utilization

The process used by universities to disseminate research outputs is one of the determinants that were being investigated in the study. To examine this issue, the study first sought to determine the channels that the sampled organizations use to obtain research outputs from universities. Respondents were presented with various options and asked to indicate channels that are used in their organizations. Results are presented in Table-1 below

Table-1: Channels that the Organizations use to Obtain Universities Research Output

Dissemination Channel	Frequency	Percent of Sample
Radio	6	20.0
TV	7	23.3
Government Communication	8	26.7
Websites	11	36.7
Journals	24	80.0
Professional magazines	11	36.7
University libraries	5	16.7
External collaborators	16	53.3
Organizational database	7	23.3
Conferences	24	80.0
Total	**119**	**NA**

As shown in the Table, journals and conferences are the most popular channels that the organizations use to obtain research output from the universities with 80% of the respondents indicating that they make use of these two channels. These findings are consistent with Lairumbi *et al*., [3] findings that research findings in Kenya are mainly disseminated through journal publications and presentation in workshops or conferences. The total figure is 119 rather than 30 because respondents were free to select more than one option. The use of journals as channel for accessing research output is also documented by Moorhead *et al*., [14] who found that the utilization of research by NGOs in the U.S. public health sector had increased after the implementation of open access publication policy which required all learning institution receiving government funding to publish their research findings in journals that freely available online.

The use of external collaborators is another popular channel with 53.3% of the respondents indicating that they use this channel to access universities' research. This strategy is also noted by Bodison *et al*., [14] who found that university researchers act as marketers of the knowledge generated by universities. They establish networks with industry players which they use to transfer the innovations generated by universities. About 36.7% of the respondents reported that they use websites as channels for obtaining research output.

Extent to which Research Obtained Matches Organizational Needs

Respondents were asked to rate the extent to which the research output they obtain from the channels matches the needs of their organization on a three-point scale (1= no extent, 2= little extent, and 3= great extent). Their responses are presented in Table-2:

Table-2: Extent to which Research Output meets Organizational Needs

| The Extent to which Information Match needs	Frequency	Percent
Little extent	17	63.0
Great extent	10	37.0
Total	**27**	**100.0**

The majority of the respondents (63%) were of the view that the information they access from the various channels matches the organizations' needs to a little extent. About 37% said that the information matches their needs to a great extent. Three of respondents did not respond to the question because they indicated that their organizations do not make use of university research citing reasons of its theoretical nature and little relevance for the industry. This finding is consistent with Panda and Gupta [15] who found that academic research in India mainly emphasized on the rigor of the research process rather than the relevance of the research. The study recommended that to enhance utilization of research by industry players, universities should bridge the gap between rigor and relevance.

Respondents were asked to suggest any other channels that they think universities can effectively use to disseminate their research output. Their views could be summarized into the following themes in order of preference: email, social media (Facebook and blogs), stakeholders' forums, exhibition and research fairs, brochures and posters, and DVDs. A common feature in most of these suggested channels is that they provide an avenue for industry players to interact directly with the researchers. This implies that industry players are more interested in dissemination platforms that are more engaging and facilitate two-way communication between them and researchers. The finding agrees with Tinkle *et al*., [7] where it was found that engaging and interactive methods of disseminating findings were more effective in promoting research utilization as opposed to passive methods.

Factors Considered when Choosing a Channel for Obtaining Research Outputs

Respondents were asked to state factors that their organizations consider when choosing channels for obtaining research outputs from the universities. Figure 4.4 presents the major themes that were captured in their responses.
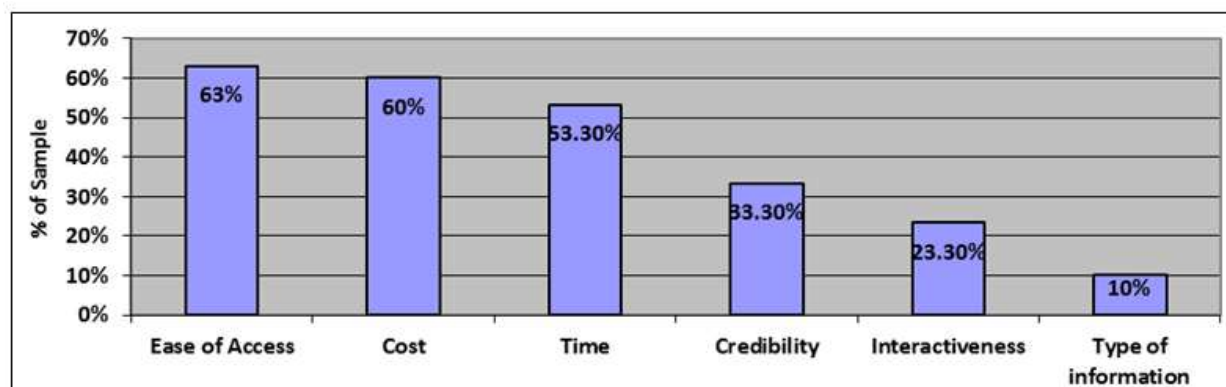
Fig-1: Factors that Organization Consider when Selecting Channels for Accessing Research

About 63% of the respondents reported that ease of access is one of the factors considered within their organization. These respondents expressed that they prefer channels that place information at the fingertips rather than requiring them to go out of their way to get it. This finding is consistent with Moorhead *et al*., [12] who found that the development of the open access publication policy was followed by an increase in utilization of research by NGOs in the U.S. These online channels have made it more convenient for organizations to access research evidence.

About 60% of the respondents expressed that they prefer channels that are cost-effective due to a tight budget. This may also explain why the open access online journal is becoming popular. The time within which the information is needed is a critical consideration in 53.3% organizations. Some channels such as online journal enable organizations to access information within the shortest time while others such as conference may require a bit of time. 33.3% of the respondents said that the ability of the channel to guarantee that the information provided is accurate is also essential. This finding is consistent with Wicherts [16] who found that channels such as journals are

preferred because they usually have a peer-review mechanism that acts as a quality control. The interactiveness of the channel and type of information needed are key considerations in 23.3% and 10% of the organizations respectively.

Factors that Universities should Consider when Choosing a Dissemination Channel

Respondents were also asked to suggest factors that universities should consider when disseminating research findings. Several themes were brought out as shown in Figure-2.
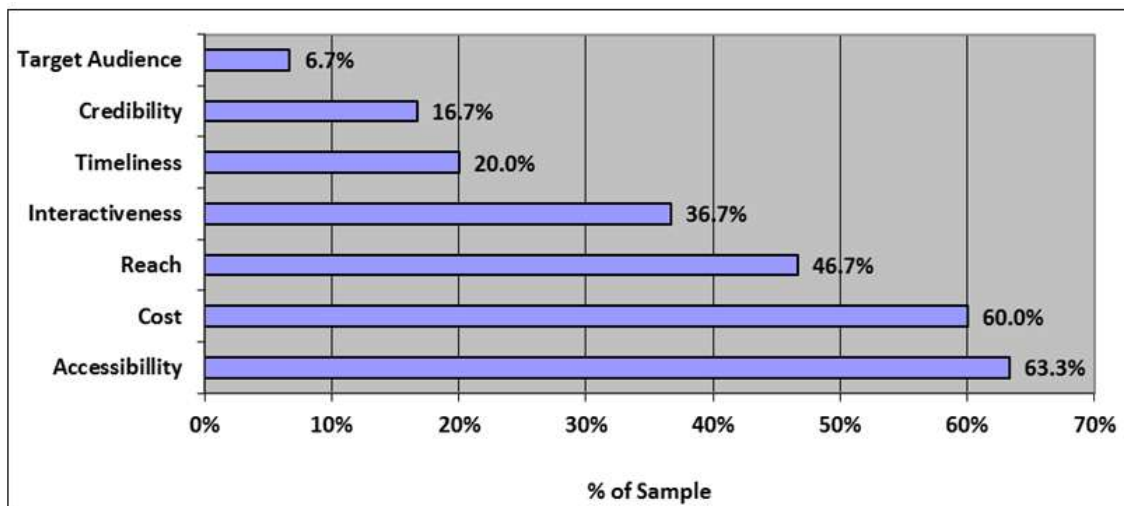

Fig-2: Respondents views on Factors that University should consider when selecting a Dissemination Channel

Again accessibility was the most popular factor with 63.3% of the respondents suggesting that universities should consider how accessible a given channel is to industry players. This finding is consistent with Bodison *et al*., [14] who found that one of the main barriers to the real-world application of research is that most researchers use channels that are not easily accessible to the knowledge end-users to disseminate their findings. About 60% of the respondents were of the view that universities should also consider the cost implication of the dissemination channels. According to these respondents, universities should select channels that are cost-effective in order to encourage industry player to receive the output.

About 46.7% of the respondents mentioned that universities should consider using channels that reach a wide audience. These respondents proposed online channels such as journals and websites, as well as, the mass media. About 36.7% respondents felt that universities should use channels that are interactive. These respondents expressed that they often have queries about the research findings provided but most of the channels used to disseminate does not facilitate immediate feedback. This concern is also captured in the study by Lafreniere *et al*., [17] who noted that the use of dissemination channels that are active and interactive tend to encourage the application of research findings that when passive dissemination channels are used. The ability of the channels to deliver information in a timely manner and ability to guarantee the credibility of the information was also suggested by 20% and 16.7% of the respondents respectively. 6.7% of the respondents felt that the channel of dissemination should be determined by the characteristic of the target audience.

Appropriate Time within which Research Findings should be disseminated

Regarding the time of dissemination, respondents were asked to indicate the appropriate time within which the university should disseminate research findings after the conclusion of the study. Respondents were provided with four options: less than one month, 1-3 months, 3-12 months, and more than 1 year. Results are presented in Table-3:

Table-3: Respondents views on Appropriate Time for Disseminating Findings

Time	Frequency	Percent
Less than 1 month	6	20.0
1 – 3 months	16	53.3
4- 12 months	6	20.0
More than 1 year	2	6.7
Total	**30**	**100.0**

The majority of the respondents (53.3%) were of the view that research findings should be disseminated with 1-3 months after the conclusion of the study. About 20% felts that the findings should be disseminated within one month. Only 6.7% of the respondents selected the more than 1-year option indicating that over 93% felts that the dissemination process should not take longer than 1 year. The issue of time is also noted in the study by Veugelers and Rey [1] where it was found that the large time lag between the production of research output by universities and access of this research by industry player limits utilization as some of the knowledge being disseminated tend to be overtaken by events.

Participants were also asked to respond to a set of statement regarding various issues related to the dissemination of universities' research output. Their responses are presented in Table-4:

Table-4: Respondents views on Various Aspects of Research Dissemination

Statement	Yes	No
Our organization has ready access to research articles that are relevant to our field of operation	63%	36%
The content of research articles are easy to understand and apply	50%	50%
Amount of research available is adequate and relevant to our organization's scope of work	26.7%	73.3%
Available research articles provide consistent findings on issues that are of concern to us	60%	40%

The first issue was whether their organization has ready access to research articles that are relevant to their field. Table 4 shows that 63% agreed with the statement suggesting that most of the organizations had ready access to research articles. This finding is consistent with Moorhead *et al.*, [12] who found that increased publishing of research in open access journal has made it easy for industry players to access them. The second statement was whether the content of the research articles provided by the universities is easy to understand and apply. Half of the respondents agreed while the remaining 50% disagreed with the statement. This finding is consistent with Koskei [18] who found that most of the technologies developed by an agricultural research institution in Kenya are not utilized by farmers because the farmers do not have an adequate understanding of these technologies.

Respondents also responded to whether the amount of research available in the various dissemination channels was adequate and relevant to their organizations' scope of work. Only 26.7% agreed with this statement. The remaining 73.3% were felt that the amount of research available is not adequate.

This finding is consistent with Gooding [19] who found that much of health research in developing countries does not fit local priorities, reducing its impact, leaving gaps in the information needed for policy and practice. The final statement was whether the research made available in the various dissemination channels provide consistent findings on issues that are of concern to their organizations. The majority of the respondents (60%) agreed with the statement.

Relationship between Dissemination Process and Research Output Utilization

To facilitate inferential analysis, respondents rating extent to which available dissemination channels meet their needs, access to research articles, whether available information is easy to understand and apply, amount of research available, and consistency of research information disseminated by university were combined to obtain an aggregate score for dissemination process. The analysis of variance (ANOVA) method was used to compare the aggregate score for dissemination process with data on frequency of research utilization as shown in Table-5:

Table-5: Analysis of Variance in Mean Dissemination Rating across Three Categories of Research Utilization

Utilization Frequency	N	Minimum	Maximum	Mean
Not at all	3	4	6	5.00
Sometimes	20	6	12	9.40
Very often	7	8	12	10.43
Total	**30**	**4**	**12**	**9.20**

F= 8.148, sig = .002

As illustrated in Table-5, the average rating of dissemination process in the overall sample was 9.20 out of a maximum possible rating of 12. The mean rating varied across the three categories of research utilization frequency. Respondents who reported that their organization does not utilize research utilization at all gave the universities' research dissemination process a rating of 5.00, which is the lowest across the three categories. Those who said that their organization utilizes research sometimes gave the dissemination process an average rating of 9.40 while those that said that their organization utilizes research very often had an averaging rating of 10.43. It is evident that the average rating of the dissemination process is

increasing as the level of research utilization increases. This implies that there is a positive relationship between the quality of the dissemination process and the level of research utilization among the NGOs. The ANOVA test gave a p-value of 0.002, which indicates that the relationship between dissemination process and research utilization is statistically significant.

CONCLUSION

The study concludes that the dissemination strategies used by the universities, in particular, the use of open access online journals and conference have had a positive influence on universities research utilization by the social service NGOs. However, research utilization by these organizations can be enhanced by making the dissemination process more engaging and improving the timeliness of the dissemination process. The quality of the dissemination process has a positive and statistically significant relationship with research utilization (F= 8.148, p= 0.002).

The study, therefore, recommends that Universities should encourage their researchers to disseminate their findings in open access online journal. The study has established that journals are among the widely utilized channels of information. It also recommends the use of dissemination channels that can easily be accessed by industry players and are cost effective. Results show that ease of access and cost are among the most important factors that the organizations consider searching for evidence. The Universities are also advised to shorten the time within which research findings are disseminated after the conclusion of the study. The study has established that the majority of the organization would like research outputs to be disseminated within 3 months after the study completion so as to ensure that the information presented is still up to date.

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