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Conceptualization of Knowledge Translation: Implications for Knowledge Translation Strategy and Practice in Universities

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Abstract:
Knowledge translation (KT) has gained traction across disciplines and sectors as common vocabulary used to refer to the process of making research-generated knowledge impactful in society. As a concept, the scope and boundary of the domain of KT are not clearly defined. We explored the conceptualization of KT using key informant interviews with senior academic researchers and administrators in a research-led university. Thematic analysis of data revealed perceptible conceptual confusion on the scope and boundary of the domain of KT. One category of participants understood KT narrowly as a way of simplification and transformation to enhance reach of knowledge, the other category understood KT broadly as a pathway to attaining both reach and relevance of research-generated knowledge. We argue that how KT is conceptualized determines the choice of KT strategy and practice and therefore the consequent range of outcomes. We conclude that the lack of conceptual clarity on KT presents a barrier and partly accounts for the apparent academic research-policy-practice disjunction. We affirm the need for universities to institutionalize learning around KT to optimize KT endeavours.

Keywords: Knowledge Translation, Conceptualization, Barrier, Research-led University

1. Introduction

The notion that academic research should yield the widest possible benefits to society beyond the academia has gained traction among governments, funding bodies and the society at large (Benneworth & Jongbloed, 2010; Metcalfe, 2010; Silander & Haake, 2016).Knowledge translation unlocks the potential of academic research to yield benefits to society. However, conceptual confusion on the scope and boundary of the domain of KT is a central enduring challenge in the field of KT across disciplines and sectors. There is disagreement over terminology and definition of terms used in KT. At the same time, there is lack of clarity around the use of conceptual frameworks, theories and models that put boundaries around KT. As such, there have been persistent calls to construct boundaries around KT conceptually, theoretically, and methodologically (Eastabrooks, Thompson, Lovely & Hofmeyer, 2006; McKibbon et al., 2010; Kitson & Bisby, 2008). Despite persistent calls for clarity on the scope and boundary of the domain of KT, the concept is still fluid.

There is a growing body of literature exploring the conceptualization of KT and the related concepts in the health disciplines in the context of the developed world such as Eastabrooks et al. (2006), McKibbon et al. (2010),Strauss, Tetroe and Graham (2009), Visram, Goodall and Stein (2014). These studies reveal multiple interpretations and paradigm perspectives on KT across a range of contexts and call for conceptual clarity on KT. In other disciplines, particularly in the context of the developing world, such studies are hard to come by. Studies outside health disciplines on KT have mainly focused on delineating causes of the apparent knowledge-practice disjunction in the developed world using a myriad of terminologies. Among several others, Cherney, Head, Povey, Boreham and Ferguson (2015; 2013),Landry, Lamari and Amara (2003) used the term "utilization", Edelstein (2015), Phipps, Cummings, Pepler, Craig and Cardinal (2016)used the term "knowledge mobilization". The need for studies exploring the conceptualization of KT outside health disciplines particularly in the context of the developing world is evident.

Much as the need for clarity on the concept of KT spans across conceptual, theoretical and methodological issues, we focused on the conceptual issue. This paper presents empirical perspectives on the conceptualization of KT drawing on thematic analysis of data from semi-structured interviews with six administrators and eight senior academic researchers in Makerere University, the research-led flagship university in Uganda. In the first part, we present a review of literature on the conceptualization of KT. We then explain methods under which we executed the study. This is followed by presentation of the findings and a discussion of the implications of key findings for KT strategy and practice. We end with conclusion and recommendations.

2. The Knowledge Gap

There are a myriad of interchangeable terms around the concept of moving research to impact in different research fields and disciplines (Shantz, 2012). In the body of health literature alone, Mckibbon et al.(2010) established 100 terms being used to describe KT. They argue that the use of multiple terms across disciplines could pose barriers to the communication and application of research findings. They highlighted the need for consolidation and consistent use of fewer terms in the field of KT.

Literature reveals lack of agreement on conceptual vocabulary and overlap in the meanings of the manyterms used (Hugman, 2012; Sofoulis, Hugman, Collin & Third, 2012; Visram et al., 2014). A number of the terms used fall short in highlighting the complexity inherent in the process of putting research to use (Cherney & McGee 2010). Some of the terms currently in use across disciplines include: knowledge intermediation, interaction, valorisation, integration, brokering, exchange, transfer, utilization, uptake, mobilization, sharing, diffusion, research implementation, engaged research among others (Graham et al., 2006; Hugman, 2012; Levin, 2008; Mckibbon et al., 2010).

Barwick (2008-2013), Hugman (2012), and Strauss et al.(2009) infer possible differences in the meanings of some of the terms used to describe KT but donot set clear boundaries on the scopeof KT. Clarity on the scope and boundary of the domain of KT has continued to be elusive in literature. Thus, calls for working operational definitions that reflect the scope and boundary of the domain of KT in particular contexts have been persistent in literature (Graham et al., 2006; Kitson & Bisby, 2008; Mckibbon et al., 2010).

The term KT is relatively new in the discourse on knowledge and originates from the health science disciplines. It was first coined by the Canadian Institutes of Health Research (CIHR) in 2000 (CIHR, 2004). The CIHR defined knowledge translation as:

> the exchange, synthesis and ethically-sound application of knowledge within a complex system of interactions among researchers and users to accelerate the capture of the benefits of research for Canadians through improved health, more effective services and products, and a strengthened health care system. (p. 2)

The CIHR definition highlights the iterative and complex nature of KT. By this definition knowledge translation encompasses the sharing of knowledge (exchange), integration and simplification of knowledge (synthesis), and use of knowledge (ethically-sound application). Although the CIHR definition is more specific to health disciplines in the context of Canada, it influenced subsequent definitions of KT.

Drawing from CIHR, the World Health Organization (WHO) (2005) defined KT as "the synthesis, exchange, and application of knowledge by relevant stakeholders to accelerate the benefits of global and local innovation in strengthening health systems and improving people's health" (p. 5.). Influenced by the earlier two definitions by CIHR and WHO, the National Centre for the Dissemination of Disability Research (NCDDR) (2005) defined KT as "the collaborative and systematic review, assessment, identification, aggregation and practical application of high quality [disability and rehabilitation] research by key stakeholders (i.e. consumers, researchers, practitioners, policy makers) for the purpose of improving the lives of individuals [with disabilities]" (p. 4.).

Scholars mainly in health disciplines from Canada, Europe and Australia have since then published numerous articles on KT using adapted versions of these three prominent definitions of KT by the CIHR, WHO and NCDDR. Thus, use of the term KT is more established in the health disciplines (Hugman, 2012; Heiden, 2014). Nonetheless, use of the term KT in the health disciplines has been contended as a misrepresentation of the tasks involved. Davies, Nutley & Walter (2008) suggest the use of "knowledge interaction" as a more appropriate term to describe as they put it "the messy engagement" of multiple stake holders. They propose use of the term "knowledge intermediation" to articulate some of the managed processes by which knowledge interaction can be promoted. Such debates are a pointer to the lack of agreement on a sound conceptual model to underpin what is entailed in moving research to impact alongside contention on appropriate terminology to use (Hugman, 2012; Mckibon et al., 2010).

Scholars from outside health disciplines and fields have defined KT variedly. Among others, according to Shantz (2012) KT is the process of making research relevant, accessible and available to end users and partners. Hugman (2012) defines KT as the act of weaving together the processes of research and practice. Bennet and Jessani (2011) frame KT as the meeting ground between two fundamentally different processes of research and action by knitting the two with communicative relationships. These definitions point toward the iterative, integrative and transformative and communicative role KT plays in the processes of knowledge production, uptake and use but fail to clearly articulate the scope and boundary of the domain of KT.

The way KT is conceptualized may determine the consequent actions taken or not taken to make research-generated impactful in society (Davies et al., 2008; Harvey, Marshall, Jordan & Kitson, 2015). Two main paradigms currently inform KT work: the transfer paradigm and engagement paradigm (Bowen & Graham 2013). The knowledge transfer paradigm is rooted in the traditional linear process through which research is first conceptualized, executed and then passive dissemination takes place. The transfer paradigm is epitomized by producer-push and user-pull models of knowledge transfer (Lavis, Lomas, Hamid & Sewankambo, 2006). In the producer-push model, researchers are the main drivers of action, they plan and implement strategies to push knowledge to potential users, whereas, in the user-pull model, research users plan and implement strategies to pull knowledge from researchers (Bennet & Jessani, 2011).

The engagement paradigm rests on linkage, exchange and collaborative problem-solving between researchers and knowledge users (Bowen & Graham, 2013). This paradigm is epitomized by the exchange and integrated models of KT. In the exchange model, researchers and research users collaborate for mutual benefit through either short-term or long-term relationships that can be built at any point in the research process. Emphasis is on sharing knowledge and development of partnerships and fostering networks of stakeholders with common interests (Best & Holmes, 2010). Building of relationships may involve linkage through knowledge brokers. The integrated model rests on building KT platforms to link researchers and potential research users (Lavis et al., 2006).

Thus, paradigmatic orientations, conceptual and operational definitions of KT in particular contexts may influence choice of KT strategy and practice and the consequent range of outcomes (Bowen & Graham, 2013; Kitson & Bisby, 2008). Contemporary discourse on KT shows that the engagement paradigm has gained traction relative to the traditional linear knowledge transfer paradigm (Jansson, Benoit, Casey, Phillips & Burns, 2010; Nurius & Kemp, 2014; Rosli & Rossi, 2014). It is argued that traditional linear transfer models create risks that knowledge merely transferred to end users may be misinterpreted or misused, create challenges of attribution and reinforce academic and non-academic silos (Phipps et al., 2016). But clarity on what is encompassed in KT practice has continued to remain obscure.

The conceptual confusion that surrounds the field of KT was earlier acknowledged by Weiss (1979) in her seminal article "The Many Meanings of Research Utilization". Weiss noted that "much of the ambiguity in the discussion of research utilization and the conflicting interpretation of its prevalence and the routes by which it occurs derives from conceptual confusion" (pp.426-427).There is still loose language and terminology used in the field of KT. The challenge is to draw conceptual boundary around KT in a way that promotes good KT strategy and practice and to intertwine the knowing of KT and the doing of KT. Therefore, developing a definition of KT that specifies the range of activities encompassed in KT becomes imperative. It was against this backdrop that we explored how KT is conceptualized in Makerere University.

3. Methodology

We approached this study from a social constructivist philosophical stance that reality is created in the mind of individuals, thus, there can be multiple, apprehend able and equally valid realities. Epistemologically we believe that truth and meaning do not exist in some external world, but are created by the subjects interactions with the world hence, multiple, contradictory but equally valid accounts of the world can exist (Crotty, 1998; Gray, 2004). Thus, we focused on interpreting the different subjective accounts given by participants regarding their understanding of KT based on their individual lived experiences. Congruent with the interpretivist world view, we adopted qualitative research approach which is ideal for exploring and understanding meanings individuals ascribe to phenomena and gives voice to the participants (Cresswell, 2014).

We used single case study design. In a case study, a particular phenomenon is explored in depth, the case is bound by time and activity and detailed information is collected using multiple procedures over a sustained period of time (Creswell, 2014). In line with what Yin (2003), Baxter and Jack (2008) observe, case study design afforded us an excellent opportunity to gain insight into the complex phenomena of KT within the context of Makerere University. As Yin (1989) notes, case study design is fit to study an organization situated in a particular context and within a specific time frame. We studied Makerere University as a single entity and the academic disciplines as sub-units making the study an embedded case study. We aimed at converging data to gain holistic insight into the conceptualization of KT in the University as a whole. Yin (2003) observes that an embedded case study ensures that data are converged to understand the overall case.

To ensure holistic coverage of the University in the selection of participants, we stratified the University into colleges and put colleges under combined categories of disciplines along the Hard Soft and Pure Applied disciplinary dimensions based on Biglan's (1973a; 1973b) classification. We used purposive sampling technique for selecting the participants. We selected one college administrator from each of the disciplinary dimensions giving a total of four administrators at college level, one administrator from the Directorate of Research and Graduate Training (DRGT) and one from the Directorate of Quality Assurance giving a total of six administrators. We selected two leading academic researchers at the rank of professor or associate professor from each of the combined categories of academic disciplines giving a total of eight academic researchers, altogether making 14 participants.

We conducted face-to-face audio recorded semi-structured interviews with the administrators and academic researchers at Makerere University from February 2017-May 2017.We transcribed audio recorded data manually concurrently with conducting the interviews. This enabled us to familiarize with the data set. Given that our intention was to

explore the conceptualization of KT to interpret, explain and develop understanding rather than to generate theory, we used basic qualitative description and interpretation by giving straight forward accounts of participants' understanding of KT.

In the analysis of data, we were guided by Bryman's four stages of qualitative data analysis (Bryman, 2012; 2016). At stage one, we read through the data set carefully and took notes as we identified major themes emerging from the data. At stage two, we took note of analytic ideas and marked chunks of text with analytic ideas by underlining. At stage three, we coded the data, developed categories and themes and reviewed them. Review of categories and themes entailed cross-case comparisons which helped to eliminate repetitions. At stage four we related general theoretical ideas to the analysis. Bryman (2012) emphasizes the importance of researchers own interpretations.

We used thematic data analysis as the overarching approach of analysing data based on the ideas of Braun and Clark (2012). Specifically we adopted thematic framework analysis; a case and theme based matrix display approach to thematic data analysis developed by Ritchie and Spencer (1994). We aimed at ordering data to facilitate interpretation through structural and pattern coding which helped to identify recurring categories and themes within the data set. We coded data at two levels: at the first level, we coded data inductively using in vivo codes based on the ideas of Glaser and Strauss (1967) which allowed us to use participants' own words to generate codes. Our aim was not to build theory but to generate explanatory understanding of the conceptualization of KT. Therefore, at the second level, we did structural coding where we applied a conceptual phrase or word to represent a particular segment of data with in vivo codes.

Taking on in vivo coding allowed us to use participants' own words to generate categories expressing participants understanding of KT. This allowed findings to emerge from the data. This was ideal for our exploratory study on the conceptualization of KT using semi-structured interviews with multiple participants as suggested by Bryman (2016). Based on our choice of interpretive phenomenology rooted in the tradition of Martin Heidegger (1889-1976) as the school of thought, we allowed our own prior understanding of KT based on literature to influence our interpretations reflexively. Therefore we developed latent themes. This involved interpretive work in relation to previous literature where we examined underlying ideas that shaped participants' accounts of their understanding of KT. We presented the themes for peer-debriefing to enhance trustworthiness of the findings. To ensure confidentiality and anonymity we assigned each participant a pseudonym. AD denotes administrator, AR denotes Academic Researcher. For the disciplinary categorisation, HP denotes Hard Pure, HA-Hard Applied, SP-Soft Pure and SA-Soft Applied.

4. Findings

There was no common institution wide operational definition reflecting the range of activities encompassed in KT adopted in Makerere University. Conceptual confusion on the scope and boundary of the domain of KT was discernible. One category of participants had a broader understanding of KT as a way of making research-generated knowledge accessible, relevant and useful in society, the other category of participants had limited understanding of KT as transforming and simplifying knowledge to enhance reach of knowledge. A distinct pattern of disciplinary variation in the conceptualization of KT was not apparent.

Participants across all disciplinary fields and in the administrative units expressed some difficulty in articulating their understanding of KT. Some of the participants tended to favour the use of alternative terms they consider to be synonymous with KT such as knowledge transfer (ADU1; ADU2; ADHA; ADHP), knowledge sharing (ARSP2), community outreach (ADU1), community engagement (ARHP2), connectedness (ADU2).

Majority of the participants understood KT as a way of making knowledge generated through research relevant and useful in society:

From my point of view, KT means investigation and serious study to derive where possible new knowledge so that this knowledge that you derive could be useful in society…KT means ability to derive knowledge where possible new knowledge that can be relevant for society. (ARSP1)

KT, the way I look at it, I would think how the knowledge which is generated from research is put to use by the end users, that is, when research is done, results are got and then those results should be put to use by the end users, that is, whatever comes out of research should be used by the people, by the end users. (ADHP)

I think that knowledge we generate should be able to make a difference in terms of the way we do business. So to me, once it has been adopted, it has been used and it is creating that difference, then I think it would have been translated. (ARHA2)

This category of participants had a broader understanding of the scope and boundary of the domain KT. They depicted KT as encompassing user engagement through partnerships, collaboration and interdisciplinary and transdisciplinary work. ARSP2 understood KT as encompassing the creation, dissemination and evaluation of use of knowledge and underscored the importance of working with communities in translating knowledge to have impact in society:

It encompasses knowledge generation and then looking at knowledge sharing, especially with communities and working with the communities to adopt the recommendations that you have put in place from the research and then later evaluating whether the changes in terms of new policies, new actions have made any significant difference in the communities and people you are focusing on.

According to ARHA2, KT starts right from problem identification and entails working closely with end users; ADSP equally depicted KT as encompassing collaboration with users:

It starts right from how you identify your problem, the level of engagement you have with users when you are identifying the problem is critical. So in my view other than the understanding of what it is, the entire process of how you do research, the level of engagement and the level of understanding of the context is critical. (ARHA2)

It implies that the research I do needs to be developed collaboratively with practitioners...being able to work closely with those who would consume the research findings and going through all the stages of data collection and finalizing the research and at the end of the day having tangible outputs out of the research. (ADSP)

These participants underscored the importance of end-user engagement and co-production of knowledge as aspects of KT. The ultimate goal of KT in this respect is for knowledge to have demonstrable impact in society.

Some of the participants defined KT in terms of transformation or simplification of knowledge. ADHA expressed that: "when you say you want to translate knowledge you will acquire products from the learning process and transform them into that which works for you to fulfil your desires, enhancing the ingredients of human life". Similarly, ARSA2 considered knowledge translation as a way of transforming knowledge: "it means transforming the knowledge you have got through research to influence policy and practice on the ground. That is what I think it is all about. I wouldn't say that I know much about that". ADU2 equally looked at KT as a way of transforming knowledge to enhance access to knowledge by the end users:

The translation is because the knowledge bases have been put in or located in places where they can't be accessed or they have been put in those places but in languages people can't read, again it is access, they can't be accessed because they are technical, technical documents so the user of this knowledge and the producer are different...so, the translation comes in to bridge the gap between the user of the knowledge and the producer of the knowledge, that's the translation. (ADU2)

This category of participants had a narrow understanding of the scope and boundary of the domain of KT. Their understanding of KT was limited to transformation and simplification of knowledge:

First of all you can put it in into usable, easily understandable format, it must be understood, that is, you have to remove most of these technical jargons which are used more especially by scientists, so you have to translate it, make it simple enough, you simplify it, when you simplify, then, the people should be able to understand it...it should be able to move from the scientist who has produced it and it goes out to others, others must know that this kind of work has been done and there are these results. (ADHP)

In this respect, transforming and simplifying knowledge to enhance access to knowledge was seen as the ultimate goal of KT. Two common patterns of meaning were therefore evident in participants' conceptualization KT: KT as a process of making research relevant and useful in society and KT as transformation and simplification of knowledge.

4.1. KT as a Process of Making Research Relevant and Useful in Society

Majority of the participants understood KT to mean a way of making research relevant and useful in society. They used phrases such as making research "relevant", "useful", "meaningful", "creating a difference in society", "impact human life" to explain what KT means. This is typically crowned by the expression made by ADHA that: "what does it benefit me to have a lot of facts and data about something but then it cannot trickle down to any of those spheres of influence of people's lives?". The expression made by ARSP1 further illustrates participants' understanding of KT as a way of making knowledge relevant and useful in society:

KT means investigation to derive where possible new knowledge so that this knowledge that you derive could be useful in society, the kind of knowledge that can be translated into meaningful scientific findings that can impact on human life...

Participants who understood KT to mean making knowledge relevant and useful in society commonly used descriptors such as: "engagement with end users", "bridging the gap between knowledge users and producers", "knowledge sharing", "collaboration with end users", "working closely with users", "having local partners" to explain what is encompassed in KT. These codes depict participants' understanding of KT as encompassing co-production of knowledge. This mirrors the concept of integrated KT, the KT process in which there is collaboration and engagement between researchers and knowledge users during the research process. The expression made by ADSP crowns this understanding:

It implies that the research I do needs to be developed collaboratively with practitioners...being able to work closely with those who would consume the research findings and going through all the stages of data collection and finalizing the research and at the end of the day having tangible outputs out of the research. (ADSP)

In this context, participants depicted KT as a pathway to research impact and had a broader outlook in regards to the scope and boundary of the domain of KT.

4.2. KT as a Process of Transformation and Simplification of Knowledge

Other participants depicted KT as a process of transforming and simplifying knowledge generated through research. The common phrases they used to explain what KT means and what is encompassed in KT were: "remove jargons", "make it simple", "put in understandable format", "transform it", "simplify it" and "make it accessible". Such understanding of KT depicts researchers and end-users as separate entities, knowledge needs to be transformed or simplified and moved to knowledge users. This understanding mirrors the end-of-grant KT process in which sharing of research evidence occurs after a

research project is completed. This represents a narrow understanding of KT limited to enhancing reach of knowledge as expressed by ADHP:

>   You put it into easily understandable format, it must be understood, you have to remove most of these technical jargons which are used more especially by scientists...so you have to translate it, make it simple enough, you simplify it, when you simplify, then, the people should be able to understand it...it should be able to move from the scientist who has produced, others must know that this kind of work has been done.

Two themes emerged to explain the conceptualization of KT in Makerere University: KT as a pathway to broader impact and KT as a way of enhancing reach of research knowledge. This is a pointer to conceptual confusion on the scope and boundary of the domain KT. We provide detailed interpretation and discussion on the implications of such understanding of KT on KT strategy and practice in the following section.

5. Discussions

We explored participants understanding of what KT means and what is encompassed in KT. There was no concrete operational definition of KT adopted in Makerere University. The scope and boundary of the domain of KT remained unclear to participants. This depicted conceptual confusion on the scope and boundary of the domain of KT. This corroborates the works of Hugman (2012), Kitson & Bisby (2008) and Mckibbon et al. (2010) that highlighted the need for conceptual clarity on the scope and boundary of the domain of KT. We argue that conceptualization of KT either as a pathway to broader research impact or as a way of enhancing reach of knowledge have implications for KT strategy and practice and the consequent range of outcomes.

5.1. KT as a Pathway to Broader Research Impact

The dominant view expressed by the participants depicted KT as a pathway to broader research impact. Engagement with end users in co-production of knowledge was seen as a prerequisite to making knowledge relevant, accessible and impactful in society. Thus, embedding KT in research, teaching and learning would enable translation of knowledge products into livelihood and social competence of people and society. Participants believed developing research collaboratively with practitioners, having local partners, and working closely with those who would consume the research in all the stages of the research process would culminate into having tangible outputs of research. Evaluating the impact of research was seen to be part of the process.

Such understanding of KT epitomizes the engagement paradigm in which researchers and knowledge users work closely together in the production, exploitation and assessing the impact of research (Bowen & Graham, 2013). The research-policy-practice gap is perceived as a knowledge production problem. The belief is that research knowledge goes unused not so much because of a failure in dissemination or transfer of knowledge but because of failure by researchers to address the most critical problems facing policy makers and practitioners. Therefore, addressing problems of dissemination and transfer is too late if questions addressed by researchers are not relevant to the needs of end users as Bowen and Graham suggest.

The goal of KT held by such a view is for knowledge to have broader impact in society. Thus, co-production of knowledge is seen as a solution to addressing the research-policy-practice gap. This entails collaborative multi-disciplinary, inter-disciplinary and trans-disciplinary co-production of knowledge. As such, transcending disciplinary boundaries and the binary between research and practice becomes indispensable (Isobell et al., 2016). Focus shifts to building reciprocal relationships between researchers and knowledge users for co-production of knowledge (Anderson & McLachan, 2015).

In agreement with Phipps et al. (2016), we contend that co-production at each stage in the research process comes with benefits of expediting the impact of research. Co-production at the stage of knowledge creation ensures that knowledge is relevant to end-users because of their input into the research questions, methods and interpretations. At the dissemination stage, co-production ensures research products are tailored to meet the needs of the knowledge users. We maintain that KT needs to be understood as an integral part of the research process that addresses issues of both reach (transfer/dissemination) and significance (relevance) of research. Co-production of knowledge should be seen as a central aspect of KT. Therefore, we uphold that understanding KT as a pathway to broader impact holds the potential to optimize KT in Universities.

5.2. Enhancing Reach of Knowledge

Some of the participants were of the opinion that research outputs are often put in places where they can't be accessed or are in technical language or in formats which are difficult to comprehend by people who use the knowledge in policy and practice. To them, KT was a way to transform, simplify and transfer knowledge in order to enhance reach of knowledge.

We argue that such understanding of KT reinforces the gap between researchers and knowledge users. The assumption is that knowledge is first produced and stored somewhere, users of this knowledge need to be identified, and then efforts to transform or adapt the knowledge to meet the needs of knowledge users are made after research has been done. The research-policy-practice gap in this context is seen as a knowledge transfer problem (Bowen &Graham, 2013). KT is thus seen as a prerequisite to effective transfer of knowledge through transformation and simplification of knowledge.

Understanding KT in terms of transformation and simplification of knowledge typifies the transfer paradigm, the traditional linear approach in which research is first conceptualized, conducted and then disseminated. This implies unidirectional flow of knowledge. The knowledge transfer paradigm assumes that research questions are entirely driven by researcher curiosity (Bennet & Jessani, 2011; Lavis et al., 2006). The major challenges to uptake and use of knowledge relate to the way knowledge is communicated and user gameness and capacity to take up new knowledge (Bowen & Graham, 2013). It is assumed that effective strategies and practices of dissemination of knowledge could enhance uptake and use of knowledge.

The goal of KT held by such a view is limited to reach of knowledge. This portrays a narrow understanding of the scope and boundaries of the domain of KT and a disengaged orientation where knowledge creation is viewed as the exclusive purview of the researcher (Isobell et al., 2016). We argue that such a narrow conceptualization of KT risks missing opportunities to translate knowledge as engagement with end users tends to be de-emphasized. KT activities may not be prioritized in such contexts and researchers may assume limited responsibility for KT embedded within traditions of academic merit based on publications in high impact journals.

6. Conclusions and Recommendations

The apparent conceptual confusion on the scope and boundary of the domain of KT necessitates common understanding of KT in particular contexts. How KT is conceptualized could shape the actions taken or not taken by researchers or universities as a whole. We conclude that conceptualizing KT narrowly presents a barrier as it suggests KT efforts may be limited to reach of knowledge. Researchers may assume very little responsibility beyond reporting their findings through traditional pathways. KT needs to be understood as a pathway to broader research impact. Understanding of KT as a pathway to broader impact holds the potential to optimize KT through co-production of knowledge.

We affirm the need for universities to institutionalize learning around KT through capacity building seminars, workshops and training programmes for staff development. Such training should communicate an understanding of KT as arange of activities spanning across the production of knowledge to the application and evaluating the impact of use of research-generated knowledge. These include but not limited to co-creation of knowledge, adaptation of knowledge, multi-dimensional knowledge dissemination, commercial valorisation and exploitation of intellectual property (IP) and research impact assessment. Such learning would buttress understanding of KT as a pathway to broader research impact, the activities required to attain broader impact of research and give guidance on how to plan and manage activities in the broader impact pathway.

7. Acknowledgement

8. Statement of no Conflict of Interest

We the authors of this paper hereby declare that there are no competing interests in this publication.

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