

Strategies for documenting and disseminating indigenous knowledge at a South African university

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Dates:

Received: 18 Jan. 2023
 Accepted: 23 Aug. 2023
 Published: 25 Jan. 2024

How to cite this article:

Buthelezi, S.C., Ocholla, D. & Dlamini, P., 2024, 'Strategies for documenting and disseminating indigenous knowledge at a South African university', *South African Journal of Information Management* 26(1), a1648. <https://doi.org/10.4102/sajim.v26i1.1648>

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Background: Indigenous knowledge (IK) is specific to a community for its economic development. However, the processes involved in the documentation of IK in the university of Zululand are not readily known.

Objective: The study's aim is to find out the strategies used by the University of Zululand (UNIZULU) for documenting, disseminating and accessing IK.

Method: The study adopted both interpretivist and positivist research paradigms where both qualitative and quantitative research methods were used through a case study of the University of Zululand. The study targeted both academic and non-academic staff members where 23 of them were purposely selected and interviewed. In addition, the quantitative research approach using simple bibliometrics was used to collect data from IK-related theses and dissertations from the UNIZULU Institutional Repository between 2009 and 2019.

Results: The study revealed that many departments and faculties across the University of Zululand were involved in the creation of IK-related content led by the Department of African Languages. The multidisciplinary of IK in the university was confirmed for further exploitation. The dominant challenges relate to IK sharing, limited facilities, a lack of policy and inadequate partnership among the stakeholders. The creation and documentation of IK by different departments was another challenge.

Conclusion: This study recognises the existence of IK policy in the country but found minimal implementation of the policy at the university. The authors recommend the development of IK policy, increased awareness, mapping and auditing of IK research and teaching, partnership with stakeholders to be included in the university agenda.

Contribution: This study contributes to the current literature and discourse on indigenous knowledge systems (IKS) and their documentation for policy and comparative studies. The appropriateness of using the socialisation, externalisation, combination and internalisation (SECI) model in similar studies is also confirmed.

Keywords: knowledge creation; indigenous knowledge; tacit knowledge; SECI model; information and communication technology; University of Zululand, South Africa.

Introduction

There is no single way of defining indigenous knowledge (IK). Muchenje and Goronga (2015:540) caution that 'before examining traditional or IK, there is a need to define culture'. They define the concept of culture as a way of life of a given people. The term 'indigenous' means local or native to the country, the people of the society concerned (Claxton 2010). It is emphasised that 'indigenous' refers to things originating from a particular place and native to the place. Ocholla (2021) writing on IK education in Library and Information Studies (LIS) Schools in Africa provide several definitions for IK and categorises the definitions into two: exclusive (narrow) and inclusive (broader) definitions. An inclusive definition of IK by the National Research Foundation (NRF 2014:n.p.) maintains that IK is 'a complex set of knowledge and technologies that exist and have been formed around the specific conditions of inhabitants and communities indigenous to a given geographical location'. The term IK refers to localised forms of knowledge that are unique to a specific culture and community. Indigenous knowledge systems (IKS) refer to localised forms of knowledge that are unique to a given society and community. In essence, these concepts, culture, indigenous lore and tradition are interrelated and complement each other. Furthermore, Lindh and Haider (2010) admit that the two terms, IK and traditional knowledge (TK) are often used synonymously.

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Ocholla (2007) refers to the marginalisation of IK and argues that marginalisation occurred because of, among other factors, the characteristics of IK (e.g. intangible or tacit, local or traditional etc.). Thus, the emphasis on oral transmission has led to distortions in the concept of IK, which is usually unwritten and preserved in the memory of elders. To reap the benefits of IK, the knowledge must be documented and shared. Although IK is largely tacit, local communities, where it is widely used, possess a sophisticated and well-developed knowledge system (Sithole 2007:3) for its access and use. A major concern of intangible or tacit knowledge such as IK is its durability and shareability in time and space. For example, it is argued that a large portion of IK is preserved in the memories of few elders and would eventually be lost as people age and pass away (Dlamini 2016; Lwoga 2009; Ngulube 2002) if not documented.

There is a growing interest in IK for many reasons. For example, it is reported that about 80% of the African population still refer to IK as the knowledge for solving a myriad of problems that modern knowledge cannot solve, particularly concerning traditional or herbal medicine for healing (Mosimege 2005). A World Bank report also noticed that 'IK is unique to a particular culture and society. It is the basis for local decision-making in agriculture, health, natural resource management and other activities'. Indigenous knowledge 'is embedded in community practices, institutions, relationships and rituals. It is a tacit knowledge that is not easily codifiable' (World Bank 1998). Hirwade and Hirwade (2012) acknowledge that appreciating IK contributes to the development of traditional uniqueness and the increased application of such knowledge towards achieving social and improvement goals such as sustainable agriculture, affordable and appropriate public health and biodiversity protection. The two authors admit and concur with other related studies such as those reflected by Ocholla (2021) that local people have acquired extensive skills in growing local food, preserving it and they have a vast knowledge of the different types of harvests to plough, and they are fully aware of the right time to sow and weed, they know the types of plants that are venomous, they also have a vast knowledge of normal common diseases in plants, livestock and humans; they know how to keep the environment in balance; they are familiar with indigenous practices, sciences and technologies and they know how to maintain the environment duplication. Higher education institutions have an important role to play in IK development.

It has been advised (Institutional Advancement Conference 2013) that:

African universities must be used as spaces to reclaim African identity and to aid in decolonising the mindsets of Africans if we are to preserve the accumulated indigenous knowledge during the continent's history. (p. 34)

This concern about IK education was recently echoed by Ocholla (2021) along with the role of university libraries (Ocholla & Ocholla 2020). The Department of Science and Technology (DST 2004:35) proposed the need to develop clear

knowledge validation frameworks that inform the education system and the establishment of IKS Centers within the universities to document and promote IK. How the DST recommendation has been implemented within our universities is not readily known. Based on the gap, we identified a need to investigate the extent of the documentation, dissemination and access to IK at the University of Zululand. The next section discusses what the documentation of IK entails.

It is widely agreed that documentation of IK is essential and important. Documentation of IK means translating it into tangible knowledge for sharing and development. Thus, IK has historically been transmitted orally from one generation to another and this is putting it at risk of extinction if the issue of preserving and documenting is not addressed (Sarkhel 2016). Sithole (2007) attests that documentation serves as a safeguard against exploitation by players other than their real originators. Ngulube (2002), for example, considers documentation as a means of making IK widely accessible to experts in the development sector, in addition to serving the preservation goal. Sithole (2007) suggests that IK should be transmitted in languages that are understood by different cultures to avoid it becoming culturally distinctive and to facilitate access.

Dlamini and Ocholla (2016) emphasise the critical role of information communication technology (ICT) tools in collecting, storing and disseminating IK during the management process. They acknowledge that while technologies for documenting IK change rapidly, modern digital technologies are widely used; thus, the use of electronic and non-electronic resources and technologies is quite prevalent. World Intellectual Property Organization (WIPO 2017) emphasises the need for documentation as a component of an overall strategy for the protection of IK. In addition, WIPO (2017) notes that IK documentation can take a variety of forms, including textual registries and files, video, photos and audio recordings; in indigenous and/or other languages; and utilising current or more traditional technologies (digital vs. written filing). Panday, Mittal and Sharma (2017:3) observe that there are insufficient or no transcribed records of such information's recording and transmission, although such knowledge systems are critical for progress. Furthermore, they emphasise the importance of supplementing IK gathering and storage with proper dissemination and exchange among interested parties via newsletters, journals and other relevant media. Documentation is extremely useful in practically every aspect of human existence, including physical well-being, animal health, livestock management, food, husbandry and forestry, to name a few.

There are genuine concerns about the uncontrolled documentation of IK. Knowledge holders may be wary of documenting and disseminating their expertise for fear that it will be misused against them, particularly when the moral and material gain from IK is illegally appropriated. In this context, WIPO (2017) recommends the engagement of the legal framework, for example, intellectual property rights (IP) to

govern the use of IK like other kinds of Western knowledge. In such a legal framework, it is argued that IP rights may be included but not limited. Indigenous knowledge holders can ensure that they preserve exclusive IP rights on the use of their cultural heritage if they record and document their cultural heritage with the WIPO. Holders of TK have a strategy in place at WIPO to help them identify and protect their IP interests when their knowledge is documented or captured in any other way. In the next section, we contextualise IK.

This study focused on the University of Zululand. The University of Zululand is an inclusive institution of higher education that offers around 252 authorised degrees, diplomas and certificate courses through its four Faculties of Education, Commerce; Administration and Law; Humanities and Social Sciences; Science Agriculture and Engineering. Based on the University of Zululand's (2020:4) facts and figures it consists of 17230 students, which include 15542 undergraduates and 1688 postgraduates including 10036 female and 7194 male students, majority (17133) of whom are African students. The University of Zululand's IK is generated through research; teaching and learning that involve students, academic staff and support staff. The University Research Committee in general coordinates and promotes research within the university while the university library contributes through collecting, storing and disseminating information that includes IK, largely located at UZulu Collection and UNIZULU Institutional Repository, particularly in the form of theses and dissertations. Unfortunately, the IK activities of the university are not widely known. The government through the DST (2004:33) earlier affirmed the critical role of information centres such as libraries in promoting local knowledge. The University of Zululand library plays an important role in IK access and use. Through its mission, the University of Zululand Library's mission is to support the University of Zululand's teaching, learning and research functions, as well as the needs of the community in its immediate vicinity, which can benefit from the library without jeopardising its primary clientele's privileges (University of Zululand 2010:28). The materials containing content related to IK are available across the library, but particularly at the UZulu Collection section and in the UNIZULU Institutional Repository. The UZULU collection hosts material relating to Zulu studies, theses and dissertations, the land, people and history of KwaZulu-Natal, as well as additional material used to preserve and share this type of knowledge. This is a restricted-access area for material preservation. In the UNIZULU Information Repository (IR), a specialised database for university theses and dissertations is preserved and disseminated through open access (OA).

The documentation and access to IK is currently drawing much attention in tertiary institutions in South Africa, yet the status of such activity at the University of Zululand is not readily known. We acknowledge that there are activities on the documentation of IK at the University of Zululand at the moment. Notably, there are IK-related documents in the university library, but it is not clear how documentation takes

place and which departments or disciplines are involved in the documentation and what challenges they face. Moreover, it also seems that there is no proper policy in place at the University of Zululand, regarding the documentation of IK. Hence, the University of Zululand's IKS strategies are not known. The level and extent of access to and use of IK at the university are unknown. Also, how IK is created, documented and shared is unknown. This study recognises the fact that limited studies are focusing on IK development within universities in South Africa, despite the advice that the African university must be used to reclaim African identity (Institutional Advancement Conference 2013). Most recent related studies focused on IK education in LIS schools (Ngulube 2017; Ocholla 2021) in Africa with no focus on documentation of IK within Higher Educational Institutions (HEIs). It is recognised that knowledge of the documentation of IK within HEIs could be anchored in critical theory, dependency theory and Africology epistemology, which propagate and support emancipation, a transformation that is important for reducing dependency and contributing to the decolonisation of the higher education debate in several ways (see Ocholla 2021). The fundamental research question is what documentation and dissemination mechanisms are in place at the University of Zululand for IK. Hence, the study aims to explore the strategies for documenting, disseminating and accessing IK at the University of Zululand. On that note, this study responds to the following particular research questions:

1. How is IK developed or created at the University of Zululand?
2. What is the extent and status of documenting IK at the University of Zululand?
3. How is IK information accessed and shared at the University of Zululand and externally?
4. What are the challenges that are experienced by the University of Zululand in documenting IK?
5. What strategies need to be developed for the documentation of IK by the University of Zululand?

Conceptualisation or theoretical framework

According to Nonaka's (1994) SECI model of knowledge creation, knowledge is constantly transmitted, combined and converted as users practice, interact and learn. This strategy has the advantage of being extensively implemented in businesses and in rural communities (Dlamini 2017). Simply stated, by showing that knowledge is a form of personified or private or distinct knowledge that cannot be expressed, these researchers pave the way for recognising knowledge as a form of knowledge with immense potential and value in a corporate organisational setting (Adesina & Ocholla 2019). There are four components to this model: socialisation, externalisation, combination and internalisation. This strategy is frequently used in organisations or institutions and communities to ensure the management or documentation of tacit knowledge such as IK (Nonaka 1994).

A model's usefulness is determined by how well it accomplishes the targeted outcome. In this study, the Knowledge Creation Model (KCM) is relevant as it allows for the documenting of personal knowledge. Tacit or IK is widely regarded as a resource that must be managed and preserved to avoid extinction, which is possible if proper steps are not taken to protect it (Dlamini 2017). Because it is in the minds of the elderly, it is necessary to handle IK according to theories of knowledge management (Lwoga, Ngulube & Stilwell 2010).

Indigenous knowledge can be documented, managed and integrated into other knowledge systems with the use of knowledge management models (Dlamini 2017; Lwoga & Ngulube 2008; Ngulube & Lwoga 2007). As a general rule, the knowledge production model has been shown to be an efficient theoretical model for figuring out how tacit information is transformed into explicit information and back again. The philosophy of knowledge generation suggests that IK should be encoded into information so that it may be effectively managed (Dlamini 2016). The combination and externalisation of elements is typically used to accomplish this. Utilising theories such as knowledge creation in IK documentation, Maponya and Ngulube (2007) claim that one of the benefits of using KM theories such as knowledge creation is that it provides techniques for getting relevant knowledge to key stakeholders in an effective manner.

A method known as externalisation can be used by companies and institutions to document IK using the knowledge production theory. Externalisation is a process in which the person who holds tacit information (the knower) converts it into any secondary form (e.g. paperwork, photographs or rock painting) so that another person can retrieve it even if the person who is representing it is no longer there. Sharing skills, feelings, experiences and/or local knowledge by rural communities and institutions and organisations dealing with its documentation since the emergence of the knowledge production theory and specifically the externalisation factor as the externalisation process has made it possible for people from various backgrounds to communicate and share their previously tacit knowledge, Nonaka and Konno (1998) make the following argument; Using externalisation as a method to record one's own experience is a useful approach to documenting. Internalisation, according to the researcher, is a critical component of this research as it facilitates the learning and storage of previously recorded and stored knowledge. According to Ngulube (2003), the process of internalisation happens when a person uses information gleaned from other sources, such as books, databases and artifacts, to develop new knowledge that may be shared with others. The process of assimilating shared bodies of knowledge is impossible without internalisation (Nonaka 1994).

Those who are interested in IK can also benefit from internalisation because it allows them to learn by doing. To put it another way, the more information a person has, the more likely they are to participate in any given activity. When it

comes to dance, for example, local people perform their own dances, while others watch and eventually join in. For one thing, Ngulube (2003) argues that internalisation keeps explicit information from becoming stale and irrelevant. As a result, new information is generated through the combination of tacit and explicit knowledge. Research shows that knowledge-management models such as the knowledge creation theory recognise that information is a valuable resource and that it should be shared.

Literature review

Documenting TK is now widely discussed as a way of guaranteeing the social, cultural and economic interests of indigenous peoples and local communities. It has emerged as a tool that can help impede further loss of TK, maintain TK over time, support and benefit knowledge sharing between holders of TK and those who use it and ultimately protect TK from unwanted uses (WIPO 2017). Notably, during the documentation period, TK is collected and organised coherently, following planned actions and activities.

The documentation of African Indigenous Knowledge (AIK) has become an unavoidable topic of discussion. Consequently, many studies and initiatives in the field of knowledge management have resulted. Various authors have proposed a variety of ways for properly documenting AIK. However, as various studies have revealed, the majority of these methods, particularly in the poor world, remain on paper. According to recent studies, the procedures for recording AIK are more applicable and successful in industrialised countries. Warren, Von Liebenstein and Slikkerveer (1993) add that AIK studies have been archived at national and worldwide centres in the form of databases in the industrialised world, such as the United States. The data in these databases are organised in a methodical manner. Warren et al. (1993) go on to say that the collection and storage of IK should be complemented by effective distribution and exchange among interested parties through newsletters, journals and other media.

Attempts to document and maintain IK have focused on the documentation and dissemination of best practices that can be transferable across cultures and groups. When IK ceases to be regionally particular, it is critical to document and communicate it in languages understood by other communities. While the process of documenting and communicating IK is thought to be theoretically straightforward, it can be time consuming, costly and occasionally unsatisfactory. The necessity of documenting and disseminating IK is to ensure that communities are not deprived as a result, much as the planet requires species of genetic variety (Labelle 1997; eds. Traore, Sotunsa & Ojo 2016).

Most significantly, recording and communication of IK are critical because they provide an accepted method for validating it and safeguarding it against biopiracy and other sorts of abuse. Indigenous knowledge should be recognised and commercialised in today's age of globalisation and

knowledge societies. The documentation demonstrates that indigenous groups are the custodians of a sophisticated knowledge system. As a result, documentation methods should establish the source of knowledge and the rights of indigenous groups to profit from the commercialisation of items generated from their communication.

As previously said, IK has been a critical component of development in poor countries. This has been particularly noticeable in the fields of medicine and agriculture. Farmers' wisdom, according to Tabuti, Dhillion and Lye (2004), has been crucial for enhancing agricultural productivity and guaranteeing food security in nations such as Swaziland, Tanzania and Zimbabwe for millennia. In a related trend, numerous studies advocate that AIK be documented and disseminated through ICTs (Dlamini 2017). Information Communication Technology tools were found to be one of the most effective instruments for recording or capturing IK. Dlamini and Ocholla (2018:27) define efficacy as the amount to which ICT tools, such as the internet, intranet, social media, television, mobile phones and others, are used to communicate IK and reach a targeted or intended audience. The ICT tools transmit IK globally, whereas word of mouth is limited to regions where custodians of IK reside; young people no longer have an interest in IK because they consider it outdated, and the number of holders of the knowledge is dwindling because of their being affected by old age and incurable diseases, posing a threat to the knowledge's continued existence (Dlamini & Ocholla 2018:147).

The use of ICTs in developing nations, according to Dlamini (2017), Lwoga and Ngulube (2008), is critical in facilitating the management and integration of indigenous and external knowledge. Dlamini and Ocholla (2018:149) consider the application of ICT for IK management to be a relatively broad area of study. In this regard, they observe that there may be gaps in specific areas such as the Internet, social media and digitisation that should be anticipated and addressed. Other components that have been mentioned include the importance of ICT awareness in public domains and the importance for ICT owners to actively access and utilise the technologies that are available. As Dlamini (2018:149) and Ocholla (2018:150) demonstrate, there are a number of issues and obstacles that ICT users and custodians of IK are confronted with as a result of the lack of readily available ICT tools for managing IK. Other examples related with the problems described include, but are not limited to, the fact that ICT tools are expensive to purchase and maintain; a lack of awareness of appropriate tools; a shortage of energy in IK holding communities and a variety of other factors.

However, Aluma (2010) offers a completely different perspective on AIK documentation. He points out that documentation of IK relating to medicinal plants, herbal concoctions and the ailments treated (both human and cattle), crop protection and food preservation has been continuous, but in haphazard ways. He also mentions that a significant amount of basic data have been gathered, 'as is' from the

practitioners' perspective, with witness-backed evidence of IK that has worked. However, no funding has been found to allow these to be published and shared with others (Aluma 2010). This brings the discussion over AIK documentation into the open, as various authors have differing opinions on how AIK should be managed. However, the majority of important AIK documentation initiatives, according to the literature examined, are taking place in the developed world. Some centres have become interested in looking at IK as a fundamental component of sustainable agricultural methods, while others have been in charge of investigating and cataloguing existing IK, according to the Center for Indigenous Knowledge for Agriculture and Rural Development (CIKARD). The latter is shown by Iowa State University's CIKARD, which was founded in 1987. The CIKARD, a non-profit organisation established in the United States, 'focuses its work on documenting and safeguarding indigenous knowledge'.

It is also critical to consider the level of IK management that is carried out. It is necessary to examine AIK that has already been documented in order to confirm its efficacy and utility. This helps to dispel any concerns regarding the effectiveness of this IK that might have arisen. Several potential users of traditional medicine, for example, are dissuaded from doing so because they are sceptical about the efficacy and safety of the treatment. In the process of developing and promoting IK through documentation and validation, we run the risk of losing a significant source of IK meaningfulness for the local people, and as a result, IK in the community (Ngulube 2002). This is in accordance with the findings of Lwoga et al. (2010), who found that it was necessary for the key stakeholders to act in support of IK documentation and preservation by adopting the finest current ways by documenting it in a permanent form and making it accessible to the public. The following are examples of those who may be considered stakeholders:

- Government and Non Governmental Organisations (NGO) should adopt community-based resource centres that can enhance the flow of IK.
- Focus on an urgent need to apply readily available traditional and modern technologies that respond to local culture.
- Focus should be on tools that promote oral interaction such as audio-visual technologies.

In addition to preservation, documentation and dissemination of agricultural indigenous practices provide an effective tool for research and innovation. Perhaps this is the primary role of special libraries. Lwoga et al. (2010), on the other hand, observed that research libraries have been relatively inactive in recording AIK. Nakata and Langton (2005) underline the need of libraries considering IK as a contemporary body of important knowledge, not only as a historical archive.

The International Institute of Rural Reconstruction (IIRR 1996) also reported that AIK could be documented in the form of descriptive texts such as reports, inventories, maps, matrices

and decision trees; audio-visuals such as photos, films, videos or audio cassettes as well as dramas, stories, songs, drawings, seasonal pattern charts, daily calendars and so on. Indigenous knowledge could also be stored in local communities, databases, card catalogues, books, journals and other written documents, audio-visuals and museums (IIRR 1996). All this is the work of libraries and documentation centres.

Therefore, as IK is essential to development, it is often suggested that it must be gathered and documented coherently and systematically (Brokensha et al. 1980; Warren et al. 1993). Indigenous knowledge can therefore be easily tapped and accessed by individuals from various sectors such as health and agriculture. It has been observed that more studies related to IK have become available and therefore its relevancy to development will have inevitably become self-obvious.

Methodology

Firstly, the study was guided by Nonaka's (1994) SECI model, which depicts four key elements: socialisation, internalisation, combination and externalisation that have been used to base the study upon as briefly discussed in recent related studies (Adesina & Ocholla 2019; Dlamini 2015). Nonaka (1994) further identifies tacit knowledge as the type of knowledge that is not codified while explicit knowledge is a documented type of knowledge when describing the SECI model. Socialisation is accomplished when tacit knowledge is turned into explicit knowledge. Thus, Nonaka (1994) defines socialisation as the method by which shared experiences result in the formation of communal implicit knowledge. Nonaka (1997) and Sarayreh, Mardawi and Dmour (2012) propose that 'combination' can be used to communicate explicit knowledge after it has been made explicit. Internalisation is an important aspect of the learning process according to Nonaka (1994). Externalised knowledge is transformed into tacit knowledge that is shared among the company's employees according to Nonaka and Konno (1998), Marley (2012) and Sarayreh et al. (2012).

Secondly, the study adopted both interpretive and positivist research paradigms. A combination of both qualitative and quantitative research methods was used during a single phase of data collection. The qualitative research approach through the case study method was applied through open-ended questions, which were embedded in the semi-structured interviews. The interviews were conducted with 18 academic staff members and five support staff members. In selecting and identifying academic staff and non-academic staff members involved in the documentation of IK, purposive sampling was used. Thus, a small subset of the population that is most likely to have the information needed to answer the research question and possessed more knowledge on the documentation of IK that we wanted to find was purposively selected for the study. We selected academics who were only teaching or conducting research on IK-related content, while we also considered non-academics who were assisting academics to ensure that IK-related content was created and stored in the University of

Zululand's institutional repository. The sample for the study was drawn from academics, librarians, researchers and IK coordinators who comprise the workforce. An in-depth literature review, interviews and document analysis formed part of the qualitative content analysis. The quantitative research approach based on the case study was used to collect data from IK theses and dissertations from the University of Zululand Institutional Repository between the years 2009 and 2019. Content analysis schedule (Microsoft Excel) was used. The desirable data were captured in the content analysis schedule that was designed using research questions. The scope of data collected from the institutional repository was based on keywords such as isiZulu, IK, Zulu, heritage, isiSwati, to mention a few, to identify theses and dissertations with content related to IK. The research window was chosen arbitrarily. The study analysed data using thematic and content analysis. For the thematic analysis, data were presented in the form of tables with themes and narrations from the participants where direct quotations were captured where necessary. The following section discusses the findings.

Ethical considerations

An application for full ethical approval was made to the University of Zululand research ethics committee and ethics consent was received, 2018. The ethics approval number is UZREC 171110-030 PGM 2018/503.

Results

This section profiles the study participants and departments and reports on the results based on the research objectives.

This section reports on the participants profile.

As summarised in Table 1, more males compared with females participated in the study. Most participants were from the Faculty of Arts (now called Humanities and Social Sciences) and the faculty that participated least in the study is Education (4.35%). A large number (43.5%) of participants were senior lecturers, with a Librarian, a Senior laboratory assistant and a senior officer. The study showed that 60.85% held a PhD, while bachelor's graduates were the fewest (lecturers at the university must have at least a master's qualification). Those between the ages of 40 and 49 were in the majority (43.5%) and those between 18 and 29 and 60 and above were in the minority (4.35% each). A large share of survey participants (13% each) was based in the Departments of African Languages and Botany.

Departmental profile

It was important to know the departments that were involved in the documentation of IK in the University of Zululand. Table 2 summarises the results.

As shown in Table 2, the number of the participants from other departments in the table was one, except three from African Languages and Botany, and two from Geography, Environmental Studies, Information Studies Recreation and Tourism, and Research Administration.

TABLE 1: Demographic profile of the participants.

Variables	Frequency	Percentage
Gender		
Male	13	56.5
Female	10	43.5
Total	23	100
Faculty		
Arts	10	43.5
Science and Agriculture	9	39.0
DVC	3	13.0
Education	1	4.0
Total	23	100
Ranking		
Senior lecturer	10	43.5
Lecturer	8	34.75
Admin and coordinator	2	8.7
Librarian	1	4.35
Senior Laboratory assistant	1	4.35
Senior Officer	1	4.35
Total	23	100
Highest qualification		
PhD	14	60.85
Masters	6	26.10
Honours	2	8.70
Basic degrees	1	4.35
Total	23	100
Age		
18–29	1	4.35
30–39	3	13.0
40–49	10	43.5
50–59	8	34.8
60 and above	1	4.35
Total	23	100

DVC, Deputy Vice Chancellor.

TABLE 2: Departmental profile of the participants ($N = 23$).

Variable	Frequency	Percentage
African Languages and Culture	3	13
Botany	3	13
Geography and Environmental Studies	2	8.7
Information Studies	2	8.7
Recreation and Tourism	2	8.7
Research Administration	2	8.7
Agriculture	1	4
Anthropology and Development Studies	1	4
Consumer Sciences	1	4
Creative Arts	1	4
History	1	4
Library and Information Services	1	4
Nursing	1	4
Physics	1	4
Social Sciences in Education	1	4
Total	23	100

How is indigenous knowledge created at the University of Zululand?

It was important to know if the study participants were involved in the creation of IK content. The creation of IK could lead to the documentation of IK. The study found that 20 (86.9%) academics were involved in creating IK, three (13%) non-academic participants indicated that they were not directly involved in IK creation. Instead, they deal with

TABLE 3: Ways of creating indigenous knowledge.

Participate	Response
PA1	'[T]he department is involved in creating IK only through research where students write a thesis and also make publications from the work they have done.'
PA2	'As a department, we create IK through research and publications.'
PA3	'IK was created only through research.'
PA4	'It is created through research, community engagement, teaching and learning and collection of data from surrounding communities.'
PA5 and PA6	'Through research, teaching and learning.'
PA7	'Through research and ethnography observation.'
PA8	'We collect data from owners of IK and write thesis and dissertations as well as publishing from what we got from rural communities.'
PA9	'Empirical research and experiments.'
PA10	'Community engagement and research.'
PA11	'We collect data from rural people who have rich knowledge of IKS and write thesis and dissertation.'
PA12	'IK was created only through research.'
PA13	'We work together with students on research topics that relate to IKS, and we collect data from owners of indigenous knowledge and produce thesis and dissertations. Thereafter, we publish the findings through journals and book chapters.'
PA14	'Some of us in the department write thesis and dissertations based on what rural people shared with us during data collection.'
PA15	'We visit owners of IK to collect content related to IKS and write research projects, thesis and dissertations.'
PA16 and PA19	'IK was created only through research.'
PA17	'We observe nature and write research on that.'
PA18	'We create IK through the content we collect from rural people by writing thesis and dissertations. Some of us have registered research projects on IKS.'
PA20	'Visiting and inviting owners of IK to perform and record what they know.'
PNA21	'Supporting the creation of IK through training and funding.'
PNA22	'A library has to ensure that all thesis and dissertations from the departments are kept in the library digitally and on shelves. Supporting the creation of IK through training and funding.'
PNA23	'We ensure that students and academics receive funding for IKS projects.'

IK, indigenous knowledge; IKS, indigenous knowledge systems; PA, participant academic; PNA, participant non-academic.

the support aspect of the development of IK. For instance, the library provides access to different kinds of information, including that of IK. The non-academic participants highlighted that their involvement was based on supporting academics to ensure IK's efficient creation. These findings concurred with Gumbo (2021) who also reported that higher institutions in South Africa are fully behind the creation and documentation of IK. Nonaka's (1994) KCM also supports the creation and documentation of tacit knowledge (IK) in all organisations and information centres. This means that documentation of IK in institutions of higher learning is crucial. A follow-up question was asked from the participants to state how IK was created in their departments. The participants were categorised as follows: PA1–PA20 were meant for academics and PNA21–PNA23 were meant for participants who were not academics. Twenty (86.6%) participants answered this question.

The narratives are summarised in Table 3.

Table 4 shows that IK-related content was created through research for masters and PhD or doctoral qualifications. As observed in Table 3, some departments were creating IK-related content through research and publication in mainstream academic journals by community engagement projects and by collecting data from owners of IK. Some participants said: 'We collect data from owners of IK

TABLE 4: Master's and doctoral studies with indigenous knowledge content (2009–2019).

Year	Masters' studies		Doctoral studies	
	Frequency	Percentage	Frequency	Percentage
2009	7	14	10	27.78
2010	4	8	3	8.33
2011	4	8	2	5.56
2012	7	14	6	16.66
2013	5	10	3	8.33
2014	4	8	1	2.78
2015	10	20	1	2.78
2016	4	8	5	13.89
2017	3	6	3	8.33
2018	2	4	1	2.78
2019	0	0	1	2.78
Total	50	100	36	100

and write theses and dissertations as well as publishing from what we got from rural communities'. Noticeably, there were 86 masters and PhD graduates who were involved in IK-related content research across the University of Zululand where 50 were pursuing master's projects and 36 were pursuing PhD. Generally, the study's findings from academics and non-academics as well as content analysis show that the University of Zululand is involved in the creation of IK content. These findings concurred with Nonaka's (1994) KCM where externalisation is considered crucial in ensuring that tacit knowledge such as IK is recorded in the form books, articles and by using technology. A study by Gumbo (2021) also found that in some South African universities, the content related to IK is documented in different formats. However, the output by discipline is insignificant. This suggests that greater intervention is required to promote IK. For example, as also observed by some study participants (Table 3), IK should be taught by all departments or schools in tertiary institutions, as IK is multidisciplinary and may not be offered satisfactorily by a single discipline (Ocholla 2021).

Area of indigenous knowledge systems speciality of each department and faculty created in the University of Zululand

The knowledge of the area of IK speciality of each department and faculty was important to capture. Only those participants who indicated that they were involved in the creation of IK responded to this statement. There were 22 (95.6%) participants who responded to this question. The responses obtained from the participants were recorded in Table 5 as follows.

Table 5, Table 6 and Table 7 represent the IK-related content that was created by different departments at the University of Zululand. There is evidence that IK-related content is created by the departments with different quantities and variety. For example, IK related content to African languages, plants, natural resources, traditional medicinal and food plants, cultural anthropology, geology and stars in the IK

TABLE 5: Area of Indigenous Knowledge Systems speciality of each department and faculty created in the University of Zululand.

Participant	Response
PA1	'Regarding the content of IK, the department deals with the use of plants.'
PA2	'Conservation of natural resources.'
PA3	'The department is focusing on Medicinal and food plants.'
PA4	'I am dealing with researching on IK history and decolonisation of IK.'
PA5 and PA13	'African languages, Arts and History.'
PA6	'Cultural Anthropology, rural IK, food and security.'
PA7	'My involvement is focusing on History.'
PA8	'Collecting all types of IK.'
PA9	'Growth of plants and animal production' and agronomy.'
PA10 and PA12	'Geology and Stars in the context of IK.'
PA11	'Food Innovation and Interfacing Traditional and Western Knowledge.'
PA14	'It is through heritage and folklore.'
PA15	'I focus on conservation of the environment through IKS.'
PA16	'The relationship between pharmacology, medicinal plants and indigenous medicine as well as food plants.'
PA17	'It is through IK General Information Conservation and Dissemination.'
PA18	'It is created through Music, speech drama, production of Arts Teachers.'
PA19	'The focus was on the indigenous food and traditional medicine.'
PA20	'Conservation of natural plants, Ecology, Agronomy and Medicinal and food plants.'
PNA21	'Funds and training were provided for academics and students researching on IKS, and we also fund projects on IKS.'
PNA22	'Our responsibility as a library is to ensure that we collect and disseminate thesis and dissertations on IKS.'
PNA23	'Providing support, e.g. training and funding to students and staff members researching IKS.'

IK, indigenous knowledge; IKS, indigenous knowledge systems; PA, participant academic; PNA, participant non-academic.

TABLE 6: Distribution of indigenous knowledge documents by departmental or discipline or subject content ($N = 87$).

Departments	Frequency	Percentage
African Languages and Culture	43	49.4
Recreation and Tourism	12	13.79
Botany	7	8.04
Criminal Justice	7	8.04
Biochemistry and Microbiology	4	4.59
Zoology	3	3.4
Information Studies	2	2.29
Social Science Education	2	2.29
Creative Arts	2	2.29
History	2	2.29
General Education	1	1.14
Philosophy	1	1.14
Psychology	2	2.29
Total	87	100

area, just to mention a few, was created by different departments (see Table 5). Some participants stated: 'Our department is focusing on Medicinal and food plants'. Participants from African Languages said: 'We are specialising in African languages, Arts and History'. The document analysis on the content related to IK corroborated the findings received from the academics and non-academics that most of the content related to IK was produced in the departments of African Languages and Culture, Recreation and Tourism, to mention a few (see Table 6). The study results also showed that keywords represent a variety of IK terms in both English and IsiZulu as well as place names linked to the terms. Keywords that were produced numbered

TABLE 7: Keyword analysis ($N = 414$).

IK-related terms	<i>F</i>	(%)	Zulu IK related terms	<i>F</i>	(%)
Zulu	17	4.11	Izifundo	1	0.242
IsiZulu	14	3.5	Izingqinamba	1	0.242
KwaZulu-Natal	12	2.9	Izinkomo	1	0.242
South African	11	2.7	Izinyoni	1	0.242
AmaZulu	10	2.5	Izithakazelo	1	0.242
Culture	9	2.2	J. Mngadi	1	0.242
Traditional	9	2.2	Juvenile	1	0.242
Isizwe	7	1.8	Kenya	1	0.242
Plants	7	1.8	King Cetshwayo	1	0.242
Ulimi	7	1.8	KwaBulawayo	1	0.242
African	6	1.5	KwaMhlabyalingana	1	0.242
Isiko	6	1.5	Laypersons	1	0.242
Heritage	5	1.3	Leadership	1	0.242
Indigenous	5	1.3	Leafy	1	0.242
Knowledge	5	1.3	Learners	1	0.242
Language	5	1.3	Limpopo	1	0.242
Management	4	1.0	Lwebele	1	0.242
Amagama	3	0.8	M.E. Ngcobo	1	0.242
Circumcision	3	0.8	Mafikeng	1	0.242
Inhlonipho	3	0.8	Makhadzi	1	0.242
Northern	3	0.8	Mbabane	1	0.242
Politics	3	0.8	Medicine	1	0.242
Zululand	3	0.8	Melanophloeos	1	0.242
Administration	2	0.483	Microbial	1	0.242
Amalungelo	2	0.483	Mngadi M.J.	1	0.242
Amasiko	2	0.483	Mngoma	1	0.242
Conservation	2	0.483	Mntanami	1	0.242
Dance	2	0.483	Morija	1	0.242
English	2	0.483	Motor	1	0.242
Ezikoleni	2	0.483	Mourning	1	0.242
Healing	2	0.483	Mpumalanga	1	0.242
History	2	0.483	Mpungose	1	0.242
Improvement	2	0.483	Mthaniya	1	0.242
Izinkondlo	2	0.483	Mtubatuba	1	0.242
Justice	2	0.483	Municipality	1	0.242
Literacy	2	0.483	Nation	1	0.242
Male	2	0.483	National	1	0.242
Maputaland	2	0.483	Ndaba	1	0.242
Medicinal	2	0.483	Ndwedwe	1	0.242
Oyo	2	0.483	Nigeria	1	0.242
Phenotypic	2	0.483	Novels	1	0.242
Policies	2	0.483	Ondini	1	0.242
Ritual	2	0.483	People	1	0.242
Rural	2	0.483	Phenomenological	1	0.242
Sheep	2	0.483	Philosophy	1	0.242
Treatment	2	0.483	Physical	1	0.242
Tribe	2	0.483	Play	1	0.242
Ukuchaza	2	0.483	Polygamy	1	0.242
Ukufunda	2	0.483	Practices	1	0.242
Ukufundisa	2	0.483	Prepubescent	1	0.242
Ukuqanjwa	2	0.483	Proficiency	1	0.242
Ukuqeqesha	2	0.483	Psychologist	1	0.242
Abantwana	1	0.242	Psychosis	1	0.242
Abesifazane	1	0.242	Radio	1	0.242
Abstinence	1	0.242	Rams	1	0.242
Afrocentric	1	0.242	Rapanea	1	0.242
Aggregation	1	0.242	Realism	1	0.242
Amabangaphansi	1	0.242	Reclusion	1	0.242
Amamboza	1	0.242	Reed	1	0.242
Amanazaretha	1	0.242	Relations	1	0.242
Umkhosi	1	0.242	Resilience	1	0.242

Table 7 continues on the next column →

TABLE 7 (Continues...): Keyword analysis ($N = 414$).

IK-related terms	<i>F</i>	(%)	Zulu IK related terms	<i>F</i>	(%)
Inhlalisuthi	1	0.242	River	1	0.242
Antibacterial	1	0.242	Rumen	1	0.242
Antidiabetic	1	0.242	School	1	0.242
Antidiarrheal	1	0.242	Seclusion	1	0.242
Anti-Hypertension	1	0.242	Semen	1	0.242
Antimicrobial	1	0.242	Sexuality	1	0.242
Anti-Platelet	1	0.242	SiSwati	1	0.242
Arts	1	0.242	Sociological	1	0.242
Astronomy	1	0.242	Sores	1	0.242
Barolong	1	0.242	South	1	0.242
Batswana	1	0.242	Stick	1	0.242
Blouberg	1	0.242	Swaziland	1	0.242
Bridal Price	1	0.242	Systems	1	0.242
Burial	1	0.242	Tanneferous	1	0.242
C T Msimang	1	0.242	Technology	1	0.242
Caregiving	1	0.242	Tourism	7	0.242
Curriculum	1	0.242	Toxicology	1	0.242
Death	1	0.242	Trafficking	1	0.242
Diabetic	1	0.242	Training	1	0.242
Dispensation	1	0.242	Trauma	1	0.242
Dowry	1	0.242	Tugela	1	0.242
Dramatic Art	1	0.242	Ubuncikomlomo	1	0.242
Dynamics	1	0.242	Ubunkondlo	1	0.242
Economy	1	0.242	Ujamengweni	1	0.242
Education	1	0.242	Ukufa	1	0.242
Emakhathini	1	0.242	Ukugonqa	1	0.242
Emphakathini	1	0.242	Ukugoya	1	0.242
Esinsundu	1	0.242	Ukumumusha	1	0.242
Esizulwini	1	0.242	Ukukhula	1	0.242
Ethnicity	1	0.242	Ukulalela	1	0.242
Ethnobotanical	1	0.242	Ukulobola	1	0.242
Ethnopharmacological	1	0.242	Ukuncunca	1	0.242
European	1	0.242	Ukungcwaba	1	0.242
Extensive	1	0.242	Ukuphehla	1	0.242
Ezithakazelweni	1	0.242	Ukuqhakambisa	1	0.242
Ezolimo	1	0.242	Ukusentshenziswa	1	0.242
Fibrolitic	1	0.242	Ukusoka	1	0.242
Fighting	1	0.242	Ukuthuthuka	1	0.242
Health	1	0.242	Ukuzila	1	0.242
Herb-Drug	1	0.242	Ukwethiwa	2	0.242
Herbivores	1	0.242	Ukwethula	1	0.242
Human	1	0.242	Umchwayo	1	0.242
Ibomvu	1	0.242	Umdlalo	1	0.242
Idealism	1	0.242	Umlhanga	1	0.242
Idlozi	1	0.242	Umlathuze	1	0.242
Imfuyo	1	0.242	Uhulumeni	1	0.242
Imigubho	1	0.242	Umkhosi	1	0.242
Imilozi	1	0.242	Umlalazi	1	0.242
India	1	0.242	Umlandi	1	0.242
Infections	1	0.242	Umndeni	1	0.242
Information	1	0.242	Umsamo	1	0.242
Inkulumobuthule	1	0.242	UThungulu	1	0.242
Insika	1	0.242	Vegetables	1	0.242
Intando	1	0.242	Virginity	1	0.242
Interaction	1	0.242	Voices	1	0.242
International	1	0.242	Women	1	0.242
Ishashalazi	1	0.242	Wounds	1	0.242
Isibaya	1	0.242	Xhosa	1	0.242
Isindebele	1	0.242	Yabantu	1	0.242
Isintu	1	0.242	Zikahulumeni	1	0.242
Isithembu	1	0.242	Ongoye	1	0.242

IK, indigenous knowledge.

414 across faculties at the University of Zululand (see Table 7). The disciplines and terms also project multidisciplinary IK. This suggests that IK cannot be restricted to a single discipline or subject area. For example, Panday et al.'s (2017) findings reveal that IK comprises African languages, traditional medicinal knowledge, indigenous food and animal husbandry. According to Nonaka (1996), tacit knowledge is available in all cultures and it needs to be documented to benefit future generations. Khanyile and Dlamini (2021) also highlighted the fact that there are different forms of IK found in Africa and these forms are not limited to indigenous plants and food plants. Okorafor (2010) revealed that IK is also available in languages of the community, rituals, artifacts, dance, praise songs, moonlight tales, proverbs and alliteration.

What is the extent and status of documenting indigenous knowledge at the University of Zululand?

Participants were asked how the University of Zululand documented and recorded IK-related content. The aim behind this question was to identify those ways of documenting and recording IK-related content.

Essentially, all participants agreed that they were aware of the documentation and recording of IK-related content at the University of Zululand. It was found that IK-related content was documented and recorded in theses, dissertations, journals, online institutional repositories, CDs and videos with content related to IK (see Table 8). It was observed that non-academic participants also had to ensure that all documented and recorded IK-related content was submitted to the office of research and the library for future use and consultation. The results from academics and non-academic participants concurred with document analysis findings that showed that there was content created from different departments, which had specific titles on IK, TK and cultural knowledge. Nonaka (1997) also reported that technology plays a useful role in ensuring that tacit knowledge like IK is transferred through documents, e-mails and databases as well as other tools. A study conducted by Dlamini and Ocholla (2018) on the documentation of content linked to IK revealed that IK can be documented in a variety of ways using ICT. Similarly, WIPO (2017) stated that documentation can be a beneficial instrument when used in conjunction with an overarching plan for the protection of IK. According to WIPO (2017), IK-related content is typically documented in a variety of formats. These include written registries and files, videos, images and audio recordings, in a traditional indigenous language or other languages; and using modern or more traditional technology (digital vs. written filing). Panday et al. (2017:3) have found that written papers on content linked to IK are beneficial in the documentation of IK, which was supported by their research.

TABLE 8: Ways in which the University of Zululand documents and records content related to indigenous knowledge.

Participant	Response
PA1	'Theses were used to obtain the contents related to IK content are kept in the library.'
PA2	'There was of an idea that the university uses journals to document the content related to IKS.'
PA3	'IK related contents were documented through theses and dissertations.'
PA4	'The University of Zululand uses the institutional repository to keep documented content related to IK.'
PA5	'IK related content that is related to IKS is documented through theses and dissertations.'
PA6	'The University of Zululand uses the institutional repository to keep documented content related to IK.'
PA7	'The University of Zululand uses the institutional repository to keep documented content related to IK.'
PA8	'The University of Zululand stores documented contents related to IK and videos on IK in the audio-visual section.'
PA9, PA15 and PA12	'Documented content of IK is recorded using thesis and dissertations as well as CDs.'
PA10	'All documented research projects like thesis and dissertations as well as CDs are kept in the library.'
PA11	'The University of Zululand stores documented contents related to IK and videos on IK in the audio-visual section.'
PA13 and PA17	'IK Centre in Richards Bay keeps the documented and recorded content of IKS.'
PA14	'Some of us in the department write thesis and dissertations based on what rural people shared with us during data collection.'
PA16	'We have an IK Centre in Richards Bay which is responsible for recording and storing IKS videos, but thesis and dissertations are kept in the university library.'
PA18	'It is our university library that keeps what we research and find from rural communities.'
PA19	'We as a department produce thesis and dissertations, and then the library keeps what we produce.'
PA20	'The produced thesis and dissertations are sent to the library to be kept.'
PNA21 and PNA23	'They are kept in the library.'
PNA22	'The library encourages all departments to bring all produced thesis and dissertations as well as CDs to be brought in the library to be accessible to everyone.'

IK, indigenous knowledge; IKS, indigenous knowledge systems; PA, participant academic; PNA, participant non-academic.

How is indigenous knowledge information accessed and shared at the University of Zululand and externally?

The response to this question was addressed only by the participants who revealed that they access the contents related to IK. There were approximately 65% of the participants who mentioned that they were accessing and sharing IK-related content. The results are summarised in Table 9.

It was found that the IK-related content was accessed in many different ways by the University of Zululand community, including academics and non-academic staff. The documented and recorded content related to IK was accessed through departmental, national and international conferences, the institutional repository, on shelves, in the audio-visual section in the library, workshops and seminars on IKS, databases and journal publications (see Table 9), which are common ways for sharing knowledge (Nonaka 1997; Sarayreh et al. 2012; Warren et al. 1993). Vividly, the most commonly accessed types of contents related to IK were plants and their genetics, traditional medicine, the history of

TABLE 9: Ways of accessing and sharing indigenous knowledge-related content.

Participant	Response
PA1	'The content is accessed through national and international conference presentations.'
PA2	'IK was made available to the community through the institutional repository.'
PA3	'IK content made available through theses and dissertations through the institutional repository.'
PA4	'IK was made available to the community through the institutional repository.'
PA5	'It is available in both printed and online.'
PA6 and PA7	'IK content made available through theses and dissertations.'
PA8	'They access the content through national and international conference presentations.'
PA9	'Open access and thesis format.'
PA10	'Accessed to the IK content is through the library and in workshops as well as seminars organised by different departments.'
PA11	'Through the library, conferences and workshops.'
PA12	'IK content was accessed through the national and international conference presentation.'
PA13 and PA15	'IK content made available through theses and dissertations.'
PA14	'Accessed to the IK content is through the library and in workshops as well as seminars organised by different departments.'
PA16	'Accessed to the IK content is through the library and in workshops as well as seminars organised by different departments.'
PA17, PA18 and PA19	'IK was made available to the community through the institutional repository.'
PA20	'IK content was accessed through the national and international conference presentation.'
PA21	'Accessed to the IK content is through the library and in workshops as well as seminars organised by different departments, institutional repository and research office.'
PA22	'IK was made available to the community through an institutional repository, library and research office as well as open access.'
PA23	'The content was accessed through the national and international conference presentation, library and online.'

IK, indigenous knowledge; PA, participant academic.

the Zulu nation, cultural heritage and traditional marriage, local music and local farming. The document analysis also supported what academics and non-academic participants revealed concerning the types of content related to IK they were accessing. For example, one academic staff member, PA1, said 'I always access IK related content involving the uses of plants and their genetics'. While another academic staff echoed 'We normally access IK related content of traditional medicine and traditional farming'. Another academic staff member, PA13, evidenced that 'I always access IK information on the history of the Zulu Nation, Zulu and Boer war, cultural heritage and traditional marriage'.

The sharing of IK content is mentioned by the research participants as reflected in the table. The study demonstrated that IK-related content was shared with other people through publications in accredited journals, at faculty and departmental conferences, national and international conferences, through e-mails, teaching and learning and through seminars and workshops. For example, one academic staff member said:

'The IK related content that I have collected from owners of IK is shared through thesis and dissertations as well as journals. I also attend national and international conferences where I share the knowledge with a wider audience.' (PA12)

These findings agreed with Nonaka's (1994) KCMM that tacit knowledge that has been made explicit should be shared through databases, journals and other publications. Priya and Rabindra (2010) concur that certain activities such as seminars, workshops, debates, lectures and exhibitions are appropriate platforms for sharing IK-related content.

What are the challenges that are experienced by the University of Zululand in documenting indigenous knowledge?

Many challenges were identified. Among them were, for example, a lack of incentives for owners of IK, experiencing a high crime rate, owners of IK not being interested in sharing their knowledge with strangers, the local language being a barrier, shortage of proper tools for recording and capturing IK, owners of IK reluctant to share their knowledge for fear of abuse of their knowledge, lack of proper IK facilities at the University of Zululand and a lack of proper training to capture and record IK content. For example, one academic staff said:

'It is a lack of incentives to give it owners of IK for spending their time with us when asking them questions. These people need payment and if you do not give them what they want, just forget that you will get any rich information.' (PA17)

Another academic staff articulated that 'There is a high crime experienced when visiting rural communities to collect data from IK holders'. The challenges spelt out by the participants were also germane to those revealed by Makinde and Shorunke (2013) confirming that IK researchers confront many challenges in the field such as language barriers, the unwillingness of the community to talk to them, politics, power, culture, conflicts, resistance, religious beliefs and government policies. Other factors that affect IK documentation are a lack of proper skills, a lack of reliable technology for recording and capturing IK and a lack of funds (Okorafor 2010).

What strategies need to be developed for the documentation of indigenous knowledge by the University of Zululand?

The findings of the study revealed several strategies for the documentation of IK by the University of Zululand. For example, according to the participants, the University of Zululand should take pride in IKS and encourage academics to research the subject, and the University of Zululand should have a formal awareness day for IKS, where owners of IK are invited to showcase their local knowledge to the university community. It was also revealed that there should be a partnership between the University of Zululand and rural communities and that the IKS centre should be brought back to the main campus where research on IK is undertaken; the University of Zululand should have a committee for IKS

that will always work hand in hand with the community and the academics that are involved in IKS research. The strategies that have emanated from participants were confirmed by Chisita (2011) whose study also stressed that IK documentation centres should be fully committed to conducting thorough research on IKS and have an adequate budget for IKS and collaboration with owners of IK.

Conclusions

The study demonstrated that there are several departments at the University of Zululand involved in the creation of content related to IK although not in the same quantity. For example, the Department of African Languages and the Department of Recreation and Tourism were most active in the Faculty of Humanities and Social Sciences while the Department of Botany was most active in the Faculty of Science Agriculture and Engineering largely. The IK is multidisciplinary, and the content is diverse; therefore, the diversity should be exploited for the development of focused research in the domain. For example, there is evidence of IK variety as revealed by the keyword analysis, with place names and cultural terms being most dominant. The partnership between various stake holders is essential for bringing knowledge and diversifying IK development in the University. For example, the DVC research, the University Research Committee and the research office are responsible for research policy, research development, management or administration and coordination within the university as a whole and this responsibility includes IKS. Also, the library plays a crucial role in ensuring the creation, maintenance and the development of UNIZULU IR where university research output such as theses and dissertations are received and preserved for access and dissemination.

The study found numerous challenges facing IK documentation. Among them was IK owners' lack of interest in sharing their knowledge with strangers, the local language as a barrier, a shortage of proper tools for recording and capturing IK, a lack of office space or facilities for IKS on the campus of the University of Zululand, a lack of incentives for owners of IK to support IK research and development and a lack of proper training to capture and record content related to IK. Some of the challenges are also echoed by Makinde and Shorunke (2013), which include the unwillingness of the community to talk, politics, power, culture, conflicts, resistance and religious beliefs.

This is a case study that reflects on the University of Zululand's situation. The reviewed literature, however, provides content that enables the comparison of this study with related studies with interest in IK elsewhere. Future work should extend the study to other Higher Education Institutions in South Africa and perhaps elsewhere in Africa. This study adds value to related studies in the domain some of which have been cited in this article. For example, WIPO (2017) has emphasised the need for documentation as a component of an overall strategy for the protection of IK, while the IK policy in South Africa (Mosimenge 2005)

requires and encourages universities to participate actively in IK development. This study has demonstrated that a university IK research can be documented and shared while dealing with recurring challenges for IK development rigorously.

This study makes some important recommendations as follows:

- There is an urgent need for an IKS policy to guide strategies of IK development. Such a policy is likely to be informed by the existing IK policy in the country.
- Indigenous knowledge should be promoted by encouraging academics to be fully involved in the creation, documentation and dissemination. A mechanism for mapping and auditing IK research and teaching at the university should be put in place.
- Indigenous knowledge systems awareness day at the University of Zululand should be established. This can be carried out through workshops, seminars, exhibitions and fairs, public lectures and demonstrations of local talents, knowledge and ingenuity.
- Collaboration between the University of Zululand and owners of IK. The study recommends an urgent need for collaboration between the University of Zululand and the owners of IKS. The study maintained that if lines of collaboration could be opened, this could also be another avenue for researchers from the University of Zululand to have a strong relationship with its rural communities and more research can be conducted with minimum hindrances.

Acknowledgements

The authors would like to express their sincere gratitude to all those who contributed to the success of this project such as the University of Zululand through funding, the data collection participants and the reviewers of this paper.

This article is based on S.C.B.'s dissertation entitled 'The strategies used by the University of Zululand for documenting, disseminating and accessing indigenous knowledge' for the degree of Master in Library and Information Science, University of Zululand in 2021, with supervisor Prof. D.N. Ocholla and co-supervisor Dr. P.N. Dlamini. It is available at <https://uzspace.unizulu.ac.za/server/api/core/bitstreams/9c3c66ea-2a9b-444e-84ce-122e15ceea5c/content>.

Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

All three authors contributed equally in writing the article. Mr S.C. Buthelezi was responsible for crafting the topic of the study and data collection as well as data coding and analysis of data. Prof D. Ocholla is the second author of the article, and

was responsible for monitoring and proofreading the whole article. Dr P. Dlamini was responsible for guidance in writing the introduction of the article, problem statement, discussion of results, conclusion and recommendations as well as references.

Funding information

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by the University of Zululand.

Data availability

The data that support the findings of this study are openly available at the University of Zululand, Humanities and Social Sciences, Library and Information Studies at <https://uzspace.unizulu.ac.za/handle/10530/2365>.

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The opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors, or the publisher.

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