Strategies to Incorporate and Support Indigenous Knowledge into Teacher Training Education: Lessons and Insights for Higher Education Institution's in Namibia

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ABSTRACT

Purpose: The Agenda for Sustainable Development (2030) makes references to indigenous peoples and the significant role indigenous knowledge play in the achievement of Sustainable Development Goals. However, despite significant literature on the benefits of indigenous knowledge, indigenous knowledge is often overlooked in education, most especially in the training of teachers. Teachers are expected to have the greatest appreciation for cultural diversity and to create multicultural teaching materials that take into account their students' cultural backgrounds and work to give marginalized groups a sense of acceptance and belonging and subsequently enable communities to live harmoniously in multicultural society. However, they are not adequately prepared for this during their own training. Therefore, the study aims to explore on how indigenous knowledge can be incorporated effectively in the training of teachers.

Methodology: Qualitative study approach purposively selected 30 peer reviewed articles to draw strategies that could be implemented to acknowledge the indigenous knowledge in teacher education in higher education.

Findings: The study found six areas that higher education institutions can integrate indigenous knowledge into, such as teaching and learning, curriculum, assessment and evaluation, research, and human resources, in order to adequately include and promote it. However, for this to be sustained, there is a need for committed collaborative approach between academics, curriculum developers, communities and administrative staff.

The originality and value of this study: The study underscores the significant role of indigenous knowledge and how it can be integrated into the teacher training programs in various ways.

Keywords: Indigenous knowledge, Teacher training education, Higher Education, Namibian higher education institutions.

1. Background and Introduction of the study

The 2030 Agenda for Sustainable Development makes specific references to indigenous peoples and the significant role indigenous knowledge can catalyze the achievement of Sustainable Development Goals (Sultana et al., 2021). However, literature concludes that indigenous knowledge is often overlooked in education and it has been contrasted and compared with scientific knowledge as traditional versus modern. In the training of teachers is not an exemption. The challenge is that the Namibian curriculum requires teachers to include local or indigenous knowledge (IK) into their classes.
without being trained on how they can mediate the lessons featuring indigenous knowledge. Furthermore, Namibian teachers are expected to appreciate cultures and develop multicultural teaching aids material that accommodates the cultural background of learners and that seeks to create a sense of acceptance and belonging for marginalized groups. The Human Rights and Human Development [UNDP] (2000) reports Namibia’s population to be comprised of nine main indigenous ethnic groups: Aawambo takes 50.0% of the population while Kavango (9.0%), Ovaherero (7.0%), Damara (7.0%), Nama (5.0%) and the rest is distributed among Lozi, San Baster and Tswana population. Surely, these vibrant ethnic and cultural areas contain a significant amount of indigenous knowledge.

Across both national and internal literature, there is a clear dearth of consensus among researchers in terms of the limited integration of indigenous knowledge at various levels of the education system. For example, Seehawer, (2018) finds out that curricula for Grades 4–9 expected teachers to incorporate indigenous knowledge, but only few indigenous knowledges are mentioned in these curricula and they are not included in the exams. The study further concludes that teachers in (South) Africa do not now have the tools necessary to put the theories and policies in place into reality. Therefore, actual experience about how the integration of knowledges can (or cannot) operate in today's African educational systems is needed in addition to theoretical debate, laying the groundwork for long-term educational transformation.

Similarly, the National Policy Options for Educationally Marginalized Children (MBESC 2000) and the Sector Policy on Inclusive Education (MoE, 2013) expects teachers to implement it successfully in making sure no child is left behind.

Yet, the many authors are aware of these restrictions. According to Thaman (2013), teachers are not sufficiently well-prepared during their training. According to Funk & Woodroffe (2023), "teachers who do not know about Indigenous people and their knowledge," it is challenging for educators to work with indigenous students who must balance the expectations of their home cultures with those of their schools.

According to Saurombe (2018), the difficulty with indigenous knowledge stems from the conceptualization of the phrase itself because there isn't a single, widely accepted definition because it is heavily influenced by context; there is both an African and a eurocentric definition. The goal of the Eurocentric scholars is to comprehend it more as an unfamiliar cognitive system. Traditional knowledge (TK), also known as indigenous knowledge (IK), is a term used to refer to a body of knowledge that has been passed down from generation to generation yet has not altered over time. The African context does not view it this way. According to Moyo and Kizito (2014), the indigenous knowledge system (IKS) is a complex collection of skills, knowledge, and technologies that have been developed in response to the unique characteristics of the local population and communities. As a result, it encompasses the knowledge that members of a particular community have accumulated over time and continue to develop. It is clear that these two definitions are at odds with one another. The Eurocentric approach exclusively focuses on indigenous peoples' knowledge, customs, and methods, documenting their local names and compiling information about them.

As a result of this cognitive process, indigenous knowledge instruction is biased. African research has just begun to delve further into an investigation that supports this bias. In addition to seeking information, many academics today work to make sure that the African perspective is heard. It has
become crucial to comprehend that African problems must be seen in the perspective of African solutions and the teaching profession can be seen as the key catalyst of this change. There are numerous studies that justify why incorporating indigenous perspectives is important for example by introducing indigenous perspectives in teaching, student teachers develop an increased respect and understanding of other culture thereby creating an ability to think more broadly when exploring social and environmental problems. In addition through the sociology lenses it create an awareness of the relationship between people and their environment. It also allows a better underrating of the country indigenous history. Globally, the United Nation acknowledged that traditional knowledge could be the answer to the most pressing global problems being experienced such as discrimination, exploitation, dispossession and colonization (The United Nations Inter-Agency Support Group (IASG), 2014).

Despite of various literatures supporting the need and the significance of indigenous knowledge there are limited study that looks into how indigenous knowledge could be incorporated in the training of teachers. Studies such of Siseho (2018, p. ii) recommended for the “that institutions of higher education should train teachers on how to integrate indigenous knowledge in the curriculum”. When teachers are not adequately trained to native learners who feel separated from their environment. Literature provided the danger of this paradox such as; they face the challenge of existing in a couple of worlds indigenous and non-indigenous (Handayani, Wilujeng, and ZuhdanPrasety (2018).

Therefore, the study aims to explore on how indigenous knowledge can be incorporated effectively in the training of teachers. This paper argues that all student teachers requires to be only professionally qualified, but also culturally competent as cited by Thaman (2013). In order for teachers to more effectively impart their knowledge to students, Suarta et al. (2022) recommended that academics and school administrative organizations give the appropriate teacher training and development facilities on indigenous knowledge. Hence the need for on indigenous knowledge related studies to improve the teacher’s training and education.

Methodology

Preliminary study was conducted to evaluate teacher-training practices in Namibian higher education institutions to determine the degree to which teacher education reflected and/or incorporated elements of particular cultures and their knowledge and value systems, a study was then launched to look into how to effectively incorporate the intricate indigenous knowledge in the training of the teachers. In order to critically evaluate teacher education practices and teacher training strategies, a qualitative approach of examining 30 peer-reviewed studies was carried out.“Indigenous knowledge” was used as a search term in the Ebscohost Discovery database to collect the 30 peer reviewed articles across the globe.

2. Data Presentation and Discussions

Ebscsosearch produced results that included articles, journals and reports, as well as worldwide works on the integration of indigenous knowledge which could be incorporated effectively in the training of teacher’s process.

The table below shows the themes and category that emerged from the articles reviewed.

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<th>Key areas</th>
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Table 1: Strategies to integrate indigenous knowledge in the teacher education program
Curriculum

- Contextualize the curriculum based on citizen’s culture, knowledge, and languages
- Designing of inclusive curricula using pedagogies that reflect the changing needs of African society
- Development of Curriculum local materials to support learning
- Application of Bottom-up approach in special cases when IK is formally not acknowledged

Teaching and learning

- Conducive learning environment
- Embracing of indigenous research in native languages
- The teacher assisting learners, and lecturer creating the opportunity for students to assist or translate for one another.
- Contextualize learning
- Use the teacher support materials Eg: Development of worksheets, lesson planning and the use of technology

Assessment and evaluation

- Design reflective assessments
- Design collaborative evaluation techniques

Research

- Encouraging ethnographic studies research and collaborative research

Human resources

- Recruitment of aboriginal staff
- Inviting guest speakers/visiting parents

2.1 Curriculum

Indigenizing curriculum refers to the integrating of indigenous knowledge into the curriculum (Moyo & Kizito, 2014), incorporating inaudible native voice (Acton, Salter, Lenoy, & Stevenson, 2017). Curricula towards using inclusive, contextual and practical content and pedagogies that reflect the changing needs of African society. Higgs (2016, p. 7) points out that “questions such as; what should be learnt? and how knowledge should be organized for teaching?” plays a major role in education. Hence, authors such as Apple (2017) argues that the decision to define some groups’ knowledge as the most legitimate, as official knowledge, while other groups’ knowledge hardly sees the light of day, says something extremely important about who has power in society.’

A curriculum should be contextualized to take into account the knowledge, languages, and learning/teaching practices of the citizens. According to Hunter (2015, p.79), a relevant pedagogy necessitates that teachers consider and modify their curricula in order to better serve the needs of the students in their classes. Thus, integrating culture into teacher education curricula is a crucial component of having a successful culturally relevant teacher education program. Significant, and engaging impact on all students' learning, teacher’s educators must employ a variety of resources to redesign approaches to accomplish curriculum objectives.

Higher education institutions should therefore encourage teachers to create worksheets, design lessons, and employ technology while considering indigenous knowledge. Given that the current lesson plans
include provisions for English reading and writing as well as HIV/AIDS integration, an element of indigenous knowledge can also be introduced.

In spite of the fact that the South African science curriculum explicitly encourages knowledge integration, it hardly contains any indigenous knowledge and there are no widely accessible teaching materials, Seehawer (2018) reports a lack of relevant and appropriate resources, both human and material, to help those who wish to better contextualize their work, whether it be in teaching, curriculum planning, or policy development. According to Higgs (2016), a curriculum created using indigenous African epistemologies is primarily concerned with giving teachers and students pride in their unique perspectives on the world and a sense of self-confidence in their own skills. Therefore, Morrison et al., (2008) asserts that diverse student learning can be supported through the use of culturally relevant resources and instruction that are related to the students' cultures as well as by activating past knowledge. The integration was also found to have improved the learner's academic performance as a result of integrating culture into the curriculum through effective instructional strategies Morrison et al., (2008). In science classes for example; Thaman, (2013) argues that incorporating indigenous knowledge into science lessons can help learners learn in meaningful ways and bridge the gap between what they learn in school and what they experience in their day today lives in their communities. In diverse communities like Namibia teachers will be expected experience degrees of conflict between the expectations of different indigenous cultures and those of western adopted for schools hence student teachers should be trained to carry out difficult task of mediating the interface between the different cultural systems of meanings and values that continue to exist in schools.

Finally, higher education institutions should train teachers to develop curriculum materials that instruct teachers to use the local environment and cultural resources as a foundation for all learning by utilizing techniques for promoting experiential, inquiry-based pedagogy (Barnhardt, 2014). On the other hand it is also important to understand that some governments that have not yet acknowledged or integrated IK in curriculum Chepchirchir, (2017.p 36) for example reports that technically the Government of Kenya continue to fight for a redesign its official curricula in order to integrate the various indigenous ways of knowing into the established educational system and aid students in building a sense of self-worth based on their own genuine cultural systems of knowledge formation. While academics, parents, students, elders, and traditional healers cannot change the educational system from the top down, they may start the process of decolonization from the bottom up. Student teachers must be trained for instance to incorporate IK into their lessons, and encourage student enthusiasm. Seehawer (2019) suggests for creative approaches that allow for the incorporation of indigenous knowledges without having to deviate from the curriculum, without wasting teaching time, or even without explicitly mentioning IK in the curriculum. Indigenous knowledge can be the subject of student teachers' thesis, academics' research projects on integration, and teacher educators' inclusion of IK in teacher preparation. Ngcoza, (2018) explains that in South Africa for example the bottom–up approach has been practiced in science related curriculum where a Xhosa elder’s worked with science majors at Rhodes University on how to make the local brew umqombothi. Although this could have been argued not to be part of the curriculum a projects allows for an Indigenous knowledge integration. There is a lot that the higher education institutions can do to with bottom-up approach that traditional educational discourses should benefit from.
3.2 Teaching and learning
The study identifies knowledge and practice gaps as well as discrepancies between dominant western and indigenous pedagogies. According to Murphy (2009, p. 35), the term "pedagogy" refers to the interactions and relationships between teachers, students, the learning environment, and the learning activities. It outlines the strategies and techniques teachers employ to aid in students' learning. Alexander (2008) outlines the contrasts by emphasizing that teaching is an act while pedagogy is both act and discourse. The seemingly autonomous act of teaching is connected to culture, structure, and social control mechanisms through pedagogy (p. 6). In addition to defining the practice of teaching, pedagogy also reflects social and cultural values in the context of the learning relationship and in institutional settings where teaching and learning take place (Willis, 2012). Indigenous pedagogies, also known as Native pedagogical space, are crucial for teaching and learning to occur, just like western pedagogies. A setting that is "culturally safe, respectful, and conducive to shared learning" and is impacted by "formal and informal cultural learning" is necessary for lecturers and student teachers (Biermann & Townsend-Cross, 2008, p. 150). Moreover, (Hunter, 2015) argues that lecturers need to create a setting where all students feel appreciated, at home, and comfortable in order to promote a culturally inclusive classroom.

Leroy-dyer (2020) explains that aboriginal pedagogy values localized and traditional knowledge; it emphasizes storytelling and respectful listening in a safe environment, allowing for a new kind of learning. Instead of a lecture and a lesson, lecturers perform interactive workshops with yarning and yarning circles to help students connect what they are learning to their communities (Leroy-dyer, 2020). The teacher assisting learners, and lecturer creating the opportunity for students to assist or translate for one another. Handayani et al. (2018) note that it can be difficult for educators and researchers to support curricula and courses that are in synergy with contemporary needs without sacrificing regional values. As indigenous knowledge and classroom scientific knowledge can be synced and support one another, it is important for students' teachers to be aware of this (Regmi & Fleming, 2012), especially in the sciences.

Academics should strengthen student teachers' contextualization skills so they can better contextualize their own teaching and serve as better role models for student teachers since information is very contextual and directly tied to the lives of native people. According to Thaman's (2013) research, most higher education institution personnel were either unable or unwilling to seriously consider the cultural backgrounds of their students when choosing course content, teaching strategies, and evaluation methods.

3.3 Assessment and evaluation
The curriculum has to be more current, culturally suitable, and supported by effective pedagogy and evaluation techniques. (2021; Preston & Claypool) study highlights that despite adequate literature is presented on indigenous yet the knowledge of what methods and approaches to assessment are most compatible with and supportive of educational success for Indigenous students is under researched. Person and Hayward (2020 p.167) described student assessment as "an ongoing process of gathering evidence to determine what students know, understand and can do". Nelson-Barber & Trumbull, 2007; Fleet & Kitson, 2009 argues that many assessments methods used is, Western including among others written quizzes, tests, and exams which are primarily foster academic development through activities.
that are logical, sequential, and accountable. These assessment neglects not only the physical, but emotional and spiritual needs of students as concerned with achieving instructional objectives. A fair assessment practices are described to be giving student’s equitable opportunities to demonstrate learning, "represent the complete learning experience of content, process, and purpose," While Biermann & Townsend-Cross (2008, p150), who go on to add that assessments need to promote reflectiveness and avoid individual merit, indigenous education is based on the primacy of other’s group. However, Trumbull and Nelson-Barber (2019) explained that for both Indigenous and non-Indigenous students, many common assessment practices are ineffective and sometimes even detrimental (Preston & Claypool, 2021). Indigenous knowledge studies have highlighted the difficulties in measuring accomplishments in the form of life experiences through examinations and exams. Yet, because they frequently contradict with the values that the school is attempting to promote, the assessment methods utilized should take into account the values of the students' home cultures, which are typically neglected, de-emphasized, and discouraged (for example, competition versus collaboration). For example, schooling and the educational bureaucracy rely on universalism and impersonality, indigenous education systems rely on specific contexts and interpersonal relationships. Student teachers should be trained to assess both indigenous learners and non-indigenous learners as the majority of assessments are ruled by a Western perspective rooted in individuals and completion for example the linguistic assessment procedures harm indigenous students, and standardized examinations that are based on a particular language or culture are frequently biased.

As a result, Riley and Johansen (2019) contend that higher education institutions ought to advocate for more collaborative evaluation techniques, like group work and recreated real-life situations. Such an assessment may take the form of a comprehensive or project-based assignment, similar to what is offered at cultural or outdoor education camps. (Preston, 2017). These initiatives misrepresent assessment as something useful and pertinent. Tests could take the form of an oral exchange between student teachers and academics.

3.4 Research

Research has been recognized as being essential to the integration of Indigenous knowledge, both from lectures to do indigenous research to be able to be reflective practitioners and also academic research projects of students.

Thaman, (2013) argues against the current unilateral assumptions of a universal model of research controlling how knowledge should be produced. Thaman adds that despite adopting Western or global knowledge as a benchmark, the majority of researchers have learned that these European-derived systems and frameworks of research lack the concepts necessary to accurately express, define, describe, and comprehend their experiences and realities. If indigenous information was included in some courses, like education, it typically had a minor place in comparison to that of western knowledge. Research helps decolonize education and gives subalterns the power to create their own models and frameworks for development, especially for teaching and learning, reducing reliance on the ideas and skills of people who frequently do not understand the cultural contexts of the communities in which they work. Thaman adds that despite adopting Western or global knowledge as a benchmark, the majority of researchers have learned that these European-derived systems and frameworks of research lack the concepts necessary to accurately express, define, describe, and comprehend their experiences and realities. If indigenous information was included in some courses, like education, it typically had a minor place in
comparison to that of western knowledge. Research aids in the decolonization of education and empowers subalterns to develop their own models and frameworks, particularly for teaching and learning. This lessens reliance on the knowledge and abilities of people who frequently do not comprehend the cultural contexts of the communities in which they work.

3.5 Human and supporting Resources

Chinsembu and Amunyela (2015) listed among others unskilled person power, lack of documentation and different cultural background of lecturers and students are key barriers to effective integration of indigenous knowledge. (Jackson et al., 2016. p.510)’s study finds that “teachers who are not knowledgeable about indigenous knowledge (thus having an under-developed pedagogical content knowledge) become demotivated to incorporate indigenous knowledge into their teaching. Hence the recruitment of aboriginal people is identified central to the integration of indigenous knowledge in higher education institutions in absence of such right candidates, inviting or visiting parents as guest speakers provides as an alternative to the aboriginal people. Thaman, (2013) supports that indigenous people are essential to protecting and sustaining natural processes because of their behavior, which is reflected in rituals or beliefs. In this instance, it cannot be said that education just took place in the realm of formal education, which is not only limited to the classroom but also includes the entirety of nature and all of its phenomena. To achieve many of their educational goals, especially those connected with Education For All principles, the curriculum needs to contain culturally inclusive curriculum and instruction.

Higher education institutions should focus not only on the PCK (Pedagogical content knowledge) but cultural competence as important attributes for graduate teachers, therefore, it is crucial that educators are aware of both the contrasts and similarities among various cultural views. Also, student teachers must comprehend their position and constantly reevaluate it as well as theorize their own education in order to identify strategies for incorporating the various cultures that have influenced their growth. It cannot be overstated how important teachers are to reviving learning in all schools. The higher education institutions that train teachers must consider the serious ramifications of this and according to Hunter (2015), the foundation of indigenous knowledge is a teacher who respects cultural identity, creates the learning environment, and decides on the pedagogy used in the classroom. For this reason, teachers must be trained to have a conceptual understanding of indigenous knowledge that is relevant to the area in which they operate in order to effectively teach (Chepchirchir, 2017).

Thaman (2013) found that a strong force of globalization discouraged Pacific teachers and students from recognizing, valuing, and studying their own indigenous knowledge systems out of concern that they would be labeled as archaic, romantic, or even racist. A number of researchers have looked into the factors that influence a successful integration of the curriculum. According to their intrinsic value system, some teachers, Jackson et al. (2016) add, do not value the transmission of indigenous knowledge systems (affective domain) Because some teachers believe that indigenous knowledge is pseudoscience, as demonstrated by the study of Mothwa (2011), Jackson et al. (2016) draw the conclusion that teachers may lack cultural sensitivity beyond their own deeply embedded mental models.

Since student teachers will be expected to establish a positive correlation between what learners encounter in the classroom and their lives outside of the classroom in order to ensure the cultural sustainability, indigenous knowledge integration should also include a change in attitude, knowledge, and skill aspects. The attitudes of student teachers can also be changed through training and
development, after providing indigenous knowledge professional teacher intervention training to teachers (Jackson et al., 2016, p.510) reports that “it is clear that there has been a general shift towards a more nuanced understanding of indigenous knowledge among teachers”. A number of teachers progressed from an uninformed view of indigenous knowledge, to a partially informed view. Several teachers also progressed from a partially informed, to an informed view. The attitude or perceptions of teachers may be informed by limited information and ignorance hence higher education institutions can provide workshops to student’s teachers to provide to ensure they understand indigenous knowledge and subsequently to lead to a change in the attitudes and perceptions. Furthermore, a careful examination of the literature shows that students benefit from teachers spending more time building relationships with them based on their social, cultural, and historical backgrounds and cultural identities, as well as from providing high-quality instruction based on cultural competencies.

4 Conclusion

The paper argues that integrating indigenous knowledge is vital that it should be among the knowledge necessary to training teachers that are have awareness and able to related to the environment. Curriculum, teaching and learning, assessment procedures, resources, and supporting structures are crucial for the successful integration of indigenous knowledge. To fill up the gaps and connect the spaces that exist in students' minds, it is necessary to integrate indigenous knowledge. Indigenous science encourages students to consider themselves as life's defenders and guardians of culture and nature against exploitation. The findings suggest the necessity of decolonizing indigenous knowledge systems through a collaborative approach with communities since they are the indigenous knowledge holders as well as the allocation of funds for indigenous research and resource development in order to achieve the goals of the Sector Policy on Inclusive Education (MoE 2013) and the National Policy Options for Educationally Marginalized Children (MBESC 2000).

5. Implications

Firstly the study raise awareness to higher institutions to integrate the IK as a pedagogy or as an area of study considering the significant role teachers are expected to take up in the profession. Secondly, it catalyst achievement of the Sector Policy on Inclusive Education (MoE, 2013) and the National Policy Options for Educationally Marginalized Children (MBESC 2000) by suggesting a collaborative approach of decolonizing indigenous knowledge with involve among others the collaboration with indigenous communities as custodians of their own knowledge and therefore, the institutions should budgeting of indigenous research is preliminary and crucial for archiving these polices.

6. Limitations

Considering that this a study is systematic review on indigenous knowledge, it may not be feasible to comprehensively explore all potential strategies nor their effectiveness because most enriching data could have been presented in indigenous language which the researcher is unfamiliar with.

References

PUBLIC POLICY, 12, 267–286


