Experiences With Wild Pedagogies in Teacher Education in Botswana

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Abstract

Wild pedagogies is gaining resonance in outdoor education. This paper examines wild pedagogies from the worldview of its practitioners, by reflecting on their experiences, as well as from the encounters of student-teachers with nature, by drawing on their written testimonies. The paper is also influenced by the authors' experience of attending a 2019 colloquium in Finse, Norway. With the objective of adding value to teaching and learning, wild pedagogies is evolving within the framework of experiential learning theory and as an extension of outdoor education. The authors used a literature review, their experiences, and student-teachers' experiences to generate data. The study concludes that wild pedagogies enhances environmental education and adds value to practical experiences through varied learning opportunities. By applying wild pedagogical approaches to education, students have more freedom to observe, feel, experiment, reflect, and connect with nature.

Résumé

Les pédagogies de la nature gagnent en popularité dans l'enseignement en plein air. Le présent article examine cette approche du point de vue de ceux qui la pratiquent en se penchant sur leurs expériences, et intègre le récit de rencontres avec la nature de groupes d'étudiants en enseignement en s'inspirant de leurs témoignages écrits. L'article rapporte également l'expérience des auteurs, qui ont participé à un colloque en 2019 à Finse, en Norvège. Les pédagogies de la nature constituent un volet de la théorie de l'apprentissage expérientiel et une extension de l'enseignement en plein air; à ce titre, elles évoluent constamment pour bonifier l'enseignement et l'apprentissage. Les données du présent article proviennent d'une revue de la littérature, du vécu des auteurs et des expériences des étudiants en enseignement. L'étude conclut que les pédagogies de la nature améliorent l'éducation à l'environnement et enrichissent les expériences pratiques en créant des occasions d'apprentissage variées. En éducation, elles permettent aux apprenants d'être plus libres d'observer, de ressentir, d'expérimenter, de réfléchir et d'entrer en relation avec la nature.

Keywords: wild pedagogies, outdoor education, teacher education, Botswana

Mots-clés : pédagogies de la nature, enseignement en plein air, formation des enseignants, Botswana

Introduction

A range of global literature identifies wild pedagogies as one approach to helping humans reconnect with the natural environment, as well as to sensitizing people to the value of more ecological ways of being (Jickling et al., 2018; Mawson, 2014; McDuff, 2010; Payne & Wattchow, 2009; Tosio, 1985; Weston, 2004). In Botswana, located in the sub-Saharan region of Africa (Republic of Botswana, 2014–2018; Republic of Botswana, 2017–2023), there is a heightened ecological awareness among the nation's residents. This paper, focused on Botswana, contributes to the field of environmental education by making wild pedagogical practices more familiar, more understood, and more eye-catching. It aims to inspire transformation in the diverse teaching and learning practices established not only in Botswana but also around the globe. To achieve this, it focuses on a practitioner-oriented approaches to wild pedagogies.

Arguing for the importance of wild pedagogies to the progressive transformation of formal education settings and systems, Jickling et al. (2018) observe that dominant pedagogical ideologies, shared belief systems for the dominant classes, must be disrupted. Relatedly, Barrow (2019) advises that more writing in the area of wild pedagogies is urgently needed. Other writers consider the impact of wild pedagogies on students' learning experiences. Straker et al. (2017), for example, underscore the importance of repositioning to wild pedagogies: "moving to places less familiar and less comfortable often helps students of any age to challenge the status quo. … These diverse sites can help to disrupt our ontological position" (p. 110). This repositioning may influence how students perceive the natural environment. It may also prompt them to reflect on their individual role and, consequently, it may facilitate a change in their behaviour toward the environment.

Wild pedagogies is relevant to educators in a wide variety of settings. It is essential that learners are immersed in the natural world, from whom they learn and with whom they are in dialogue. This immersion enables humans to create and maintain real and significant relationships with nature. Despite the cruciality of immersion to experiential learning, countries around the world vary in the ways in which they integrate outdoor learning into the school curriculum (Comishin et al., 2004; Irwin, 2008; Waite & Pratt, 2011).

The authors of this paper have a breadth of teaching experience in various secondary and post-secondary schools in Botswana. Our lived experiences have led us to understand that learners are being increasingly separated from the natural world as a result of pedagogies that are not invested in experiential environmental education. A variety of studies in Botswana and the sub-Saharan Africa region have also noted this human–nature disconnect (Museka & Madondo, 2012; Velempini et al., 2018). Similarly, at the global level, some studies suggest that concerns about children's safety have led to a reduction of the kinds of challenges and opportunities that are promoted through wild pedagogies (Bilton et al., 2005; Little & Eager, 2010; Palmer, 2006). Dependency

on technology, which affects learners around the world (including Botswana), seems to play a role in this severed connection as well (Louv, 2008).

The present study was influenced by insights gleaned from the book entitled *Wild Pedagogies: Touchstones for Re-Negotiating Education and the Environment in the Anthropocene* (Jickling et al., 2018) and a visit to Finse, Norway in 2019 for a wild pedagogies gathering. This colloquium was attended by practitioners and educators (including one of the authors of this paper) from diverse continents and worldwide institutions of learning.

Building on the insights gained from these sources, the present study queries, "What can we learn about wild pedagogies from the experiences of university students in Botswana who are engaged in outdoor learning?" The paper is arranged as follows: First, it reviews the literature on wild pedagogies. Second, it outlines its methodology. Third, it presents the findings of an analysis of the university students' outdoor learning experiences. Last, the paper discusses these findings and makes recommendations that might enable the implementation of wild pedagogies within sub-Saharan Africa education.

Literature Review

Wild pedagogies is perceived as both a project and a concept. As a project, it represents the ongoing work of a broader cross-section of international scholars who consider education as an agent of change in these times of heightened ecological awareness: "In a wild pedagogy the subject matter includes the subjects themselves" (Jickling et al., 2018, p. 3). Therefore, wild pedagogies is designed for far more than passive learning or the transmission of taken-for-granted assumptions and ideas. Indeed, wild pedagogies calls for reclamation, reimagination, and reintroduction of self-responsibility in educational practice.

As a concept, wild pedagogies challenges "dominant cultural ideas about control—of each other, of nature, of education, and of learning" (Jickling et al., 2018, p. 3). It disrupts traditional pedagogies by freeing learners from a set of previously determined learning outcomes—particularly during an educational excursion or visit. Teachers who embrace wild pedagogies deploy a learner-centred approach that enables learners to discover themselves and their role in the natural world. A learner-centred approach views students as

> active participants in the learning process rather than meek recipients of ready-made factual knowledge from the teacher. The pedagogy is seen as democratic since it demands a relationship between teachers and students in which dialogue is an important means of learning. (Tabulawa, 2003, p. 9)

It is hoped that through the deployment of learner-centred wild pedagogies, students will become agents of change, that is, social transformers and drivers of positive human agency in environmental and sustainability education. This is because wild pedagogies entails spending more time in outdoors with the

more-than-human world. It requires actively listening, making space for different narratives to emerge, and fostering a sense of what it means to be "entangled with other beings and species" (Blenkinsop et al., 2016, p. 207).

Outdoor educators are concerned with making learning relevant to places in which they live, and doing so in a manner that celebrates action (Straker et al., 2017). Outdoor education and wild pedagogies thus promote critical thinking and reflection "through positive multi-dimensional outdoor experiences whereby [learners] will have the opportunity to engage with and to reflect upon themselves and others as part of the natural world. They will then be encouraged to develop a stronger sustainability consciousness" (Straker et al., 2017, p. 109). Stronger sustainability consciousness entails a sense of human agency among learners and hence inspires them to take action to protect the natural environment. This action is marked by a change in behaviour toward the natural world. What all these points illustrate is the importance of experiential learning, that is, *learning by doing* (Kolb, 1984, 2015; McLeod, 2017).

Experiential learning outdoors entails active learning, which is focused on engaging students in high-level thinking and applying knowledge and skills to their learning in order to deepen their understanding of the natural world. It places greater responsibility on students to develop their personal understanding, as well as to apply and transfer knowledge and skills through an activity. Engagement in an activity in the wild may also promote attitudinal change through reflection. Therefore, wild pedagogies in environmental education provides an ideal opportunity for active learning. Straker et al. (2017) posit that "making the journey through wilder places can be an effective way for developing stronger sustainability consciousness among students" (p. 109). They also point out that the "diversity of experiences that wilder environments can generate is expansive. Positive, fun, active, and even nostalgic experiences can comprise students' journeys of awakening" (p. 109).

Jickling et al. (2018) offer "six touchstones for wild pedagogies in practice." First, the touchstone of *nature as co-teacher* emphasizes learning from the natural world; "it includes learning with and through [nature] as well; and thus, its myriad beings become active, fellow pedagogues" (Jickling et al., 2018, p. 81). Both students and teachers have the opportunity to reflect on and understand how natural features and beings play a role in nature as co-teacher. Natural features are active, self-directing, and vibrant pedagogical aids. During this study, time was spent outdoors through excursion to two natural places: the Kgetsi ya Tsie (KyT) organization in Tswapong hills,[1] which are about 325 kilometres from the main campus of the University, and the Mokolodi Nature Reserve, which is closer to the university (about 20 kilometres away). The nature reserve is home to a variety of mammals, including some rare and endangered species, and a diverse array of reptile, amphibian and bird species (Mokolodi, 2020). The reserve is also rich in plant diversity. In both locations, by considering nature as co-teacher, students had the opportunity to learn from a voice other than a human teacher and experience more independent and place-interactive learning.

The second touchstone focuses on *complexity, the unknown, and spontaneity*. In this touchstone, wild pedagogies aims to open up possibilities for enabling intricacy and improvisation in ways that call for renegotiating educational practices. According to Jickling et al. (2018), complexity is understood to be dynamic and unpredictable and is best described in situations that do not have fixed boundaries. There is a need for both educators and learners to reconceptualize their association with nature, embrace complexities in places and practices, and allow for emerging themes that may be unpredictable and unplanned.

The third touchstone focuses on *locating the wild*, whereby learners are engaged in exploring what they have not previously noticed, even in cities or rural settings. This touchstone has at its core a conviction that the wild is everywhere. Some of the questions that educators may ask about this touchstone might include: 1) What might be next steps toward making transformation in pedagogy?; and 2) how does it become possible for learners to have encounters with the wild?

The fourth touchstone focuses on *time and practice*. In this touchstone, time is an essential resource for learning from and with the natural world. Time is important for planning purposes, visiting natural features, and evaluating the learning process. This touchstone upholds that it is essential to have a deeper self-reflexivity about transformative practices, as they do not occur instantly. Self-reflexivity entails having an ongoing conversation with one's whole self about what one is experiencing. And for researchers, it takes time to identify what hidden assumptions may underpin their research practices (Nagata, 2004; Nicholls, 2009). In this touchstone, Jickling et al. (2018) advise teachers to develop practices that deepen rapport with local communities and places. They also call on teachers to be passionate about rethinking, rewriting, and reworking their own pedagogies in order to inspire transformative learning. As Jickling et al. (2018) note, "developing new practices will require reflection, risk taking, experimenting with possibilities, examining successes and failures, and then repeating this process over and over" (p. 96). The fifth touchstone, with its focus on *socio-cultural change,* builds on this notion of transformative learning by promoting the belief that education is a major player in enabling change. Learners need to be prepared for an unclear and unknown future as we all engage in the process of disruption in education (Jickling, 2005).

Last but not least is the sixth touchstone—*building alliance and the human community*. This touchstone suggests that wild pedagogies should seek to enable alliances and build community with others. This should take place not only in the natural environment, but also with people and activist associations across the world.

In this paper, we attempt to draw lessons from these touchstones and use them as a theoretical framework; we believe that they strengthen research methodologies that are grounded in a dedication to transformative change (Waite & Pratt, 2011) by inspiring original analysis and drawing researchers

to novel conclusions. Framed by the six touchstones, this paper documents how post-secondary learners and their instructors engaged in experiences of outdoor learning in Botswana to create a sense of place through wild pedagogies. According to Worster and Abrams (2005), "sense of place" implies having ecological knowledge, social knowledge, and attachment to community (human and non-human) about and in a particular place. Frisch et al. (2010) suggest that sense of place is multifaceted and it is much like environmental education. In order to have a sense of place, one must have acquired knowledge about it, developed a positive affection for it, and honed skills that facilitate being a part of it.

Methodology

This study followed a qualitative research design (Patton, 2002; Stake, 2010). The method employed was a case study (Stake, 1995). The study presents practical experiences and observations (Creswell, 2013) in conducting outdoor teaching and experiential learning practices in Botswana's natural places. The practical experiences were conducted at Kgetsi ya Tsie (KyT), a community-based organization (CBO) in Lerala village, situated in a remote and hilly area of rural eastern Botswana. Lerala is the main village and headquarters of KyT in Tswapong hills. At KyT, women harness traditional and Indigenous knowledge as they harvest and market a range of natural resource products, such as jam, oil, soap from *marula*[2] fruit, and various herbal remedies (Ketlhoilwe & Jeremiah, 2015). The other practical experience was conducted in the Mokolodi Nature Reserve, home to a variety of mammals, endangered species, reptiles, amphibians, and a variety of plant species (Mokolodi, 2020). Conservation and education are at the core of the reserve's existence (Campbell, 2004.

Analysis

We analyzed all submitted excursion reports from the students' trip to KyT. These students to KyT comprised the 2018 cohort (n = 13) and the 2019 cohort (n = 21). The one-day trip to the Mokolodi Nature Reserve was also conducted in 2018, with a total of 18 students (15 females and 3 males). All reports submitted by the students were analyzed. We engaged in a lengthy process of line-by-line manual analysis (i.e., open coding), reading, and re-reading the data (students' reports). We noted codes and themes that align with prominent practices of wild pedagogies (Kvale & Brinkmann, 2009). Simultaneously, we exercised reflexivity by thinking about how the students' reports contribute to wild pedagogies. The reports were graded as part of continuous assessment.

Prior to our departure from the university campus, students were given guidelines for writing and completing their reports on their practical experiences. Some of the guidelines for the practical experience in KyT were as follows:

1. Assess status of production (quantity of products per season and tools utilized to make the products).
    a. In order to respond to this guideline, students were to make observations on-site (i.e., in the factory), conduct informal semi-structured interviews with rural women, and supplement their results with document analysis about KyT.
2. Discuss challenges and opportunities facing KyT, situated as it was in a remote, rural, and hilly area.
3. Write three recommendations to KyT on how sustainability practices can be effective in natural resources management.

As part of the KyT experience, student-teachers volunteered to take the following leadership roles: 1) passenger overseer in the bus to ensure all registered participants were present; 2) bus conductor to ensure that there was enough fuel in the university shuttle bus and to determine where to stop on the way; 3) on-the-ground fieldwork supervisor to ensure directions are available to the village communal meeting place (*Kgotla*[3]) to meet with the village Chief and directions to the KyT factory; 4) fieldwork report writer; and 5) volunteer to oversee financial payment to KyT.

Some of the guidelines for the practical experience trip in the Mokolodi Nature Reserve were as follows: 1) identify social and environmental changes to the landscape on the way to the Mokolodi Nature Reserve; and 2) write down observed issues, crises, and risks encountered at the Mokolodi Nature Reserve. The analysis of the student-teachers' reports from the practical experience in KyT and the Mokolodi Nature Reserve helped the authors of this paper to induce practices of wild pedagogies and to make inference about the insights made by these practices. The authors, who are lecturers for the student-teachers, acted as adults in this practice. In a related article titled, "Experiencing the Wild Woods: The Impact of Pedagogy on Children's Experience of a Natural Environment," Mawson (2014) remarks on the importance played by adults in outdoor practices through their interaction and collaboration with learners, facilitation, and interpretation within the natural environment. The above collaboration and partnership facilitated the creation of a community of practice that was based on a shared, effective pedagogy for the outdoor environment.

The outdoor practical experiences in KyT and the Mokolodi Nature Reserve were part of the learning activities for all students in the Environmental Conservation Education Strategies course offered at the University of Botswana. Travel fees and entrance fees were paid for by the office of the Dean in the Faculty of Education, who also granted travel permits for the excursion. The coordinator of KyT and the education office in the Mokolodi Nature Reserve also agreed to the visit by the student-teachers and their lecturers.

Illustrations from practical experiences in KyT

> As part of our EEL401 class we had to go on a visit to the KyT community-based organization in Lerala. The objective of the visit was to allow us to discover some of the natural resources produced and their purposes. This trip was a chance for us to evaluate what women produce in their factory and what really goes on in the rural parts of the country.

The above statement was written by a student from the Seychelles Islands[4] who is studying at the University of Botswana. The student explained that the objective of the experience in the KyT factory was intended to uncover how wild resources were utilized, to observe what local people do in helping the community, and to evaluate the production process that takes place.

Another statement from one of the students during the same experience read as follows:

> We took an excursion as University of Botswana environmental education students. The purpose of the trip was to look into what KyT women community trust is all about, what they are producing, which strategies they use in order to conserve the environment in which they collect raw materials from and the opportunities of the trust as well as the challenges experienced.

Another student-teacher wrote as follows:

> Our first stop at Lerala village was at the Kgotla. We were ushered into the Chief's office by the founding member of Kgetsi ya Tsie. The Chief was happy to see us. He gave a historical overview of the village. He told us that his people originate from the Bapedi tribe in South Africa and that people in Lerala village used to stay on the other side of the hill. He told us that they moved from where they originally stayed in 1952 due to shortage of land.

Another student teacher reported as follows: "In order to get the discussion started, I learned about the emblem which is 'Pula Kgetsi ya Tsie pula,' which means 'rain, rain,' and the response from the women is 'let it rain.'"

Next is a report about changes to the vegetation on the way to the destination place for practical experience: "Before I could arrive at Kgetsi ya Tsie I noticed that the type of vegetation in that area changes. There were trees like mophane[5], but the area had a lot of the Mokoba[6] tree."

Again, one of the student-teachers from Seychelles wrote as follows in relation to vegetation change:

> It was quite an interesting experience for me since I am an international student. In Seychelles, I do not normally travel such long hours to another community. I was fascinated by how dry the land was; the trees appeared dry but in between, I would see that there was at least one or two that was green. I found myself wondering how that could be. I recall also seeing animals such as donkeys, cattle, chickens as well as goats.

The above reports from student-teachers primarily inform readers about the purpose of the practical experience and the students' arrival at the wild destination. The reports below refer to the experiences of student-teachers at the KyT factory:

> We observed how to operate machines used to process veld products until the release of oil. The machine is called hydraulic compressor. It is hand operated. I had the opportunity see oil produced from the veld product—marula—and they mentioned that the first oil from marula is called virgin oil. They mentioned that the nuts can be processed into cooking oil, soap, and facial oil. We were given the marula oil so that we can taste and experience how it feels.

The report below indicates the experience gained by student-teachers in another village, Sefhare, which is also in the remote part of rural eastern Botswana. Sefhare is also one of the 27 village centres where KyT activities are spearheaded by rural women:

> We went through Sefhare village to visit women who have started a business of moulding pots using different types of soil. There are 3 ladies who are involved in doing this job and amongst them there is an expert who started moulding in 2002. The expert in the job is now teaching the other two ladies how to mould the pots. According to these ladies they collect different types of soils used for making pots. They pound the soils, mix with water and start moulding a pot of any shape they want. When they have finished shaping the pots, they let them dry and heat them again for colour change and strength. One of the challenges they experience is that they get soil from far away. The other challenge is that sometimes when the pot is too heavy it cracks and breaks when they heat it up. Amongst these ladies there was the one who was multitalented. She told us that she was using paper which she gathers from the environment to make ornaments like vases. We had the opportunity to observe some of the products she makes from paper. As a student of Environmental Education I found this to be very impressive. As she collects paper to produce her products she cleans the environment in the process. The same lady was also selling seedlings, something which is also very good for environmental conservation.

The student-teachers made a number of recommendations to KyT. For example, one said, "They need to have proper workshops with teachers as well as students." Another said,

> They need to initiate school-community collaborations so that practices of managing natural resources are passed on. … In that way, teachers will be able to devise lessons whereby they infuse whatever they have learned in their teaching. The students' understanding of sustainability and conservation will be widened in the sense that they get to obtain hands-on information.

Engaging in practical experiences of wild pedagogies has both opportunities and challenges. Below is one of the challenges a student experienced during their practical experience:

> On the way we had a challenge. As we reached Mahalapye[7] there was a traffic police road block. One officer from the immigration department got inside our bus and asked all passengers to produce national identity cards. We all managed to produce them except two students from Seychelles. They were asked to produce their study permits but they did not have them because they had left them in Gaborone. We wasted a lot of time there pleading with the officer to allow us to go but she was reluctant to do so. However she ended up releasing us after giving us a warning. We ended up reaching Lerala village later than the expected time of arrival.

Last, it is important to present the report from the student-teacher who said, "The trip was a learning curve for us as students doing environmental conservation education strategies course. We learned some of the strategies they use to conserve natural resources such as each member planting five marula trees per year."

In the section below we describe the students' practical experience in the Mokolodi Nature Reserve and present excerpts from the students' reports.

Practical experiences in the Mokolodi Nature Reserve

Our first educational excursion following the 2019 Finse colloquium was to the Mokolodi Nature Reserve, located about 20 kilometres outside the University of Botswana's host city. The one-day excursion was taken by a group of students-teachers training to be secondary school educators. Below, we present some of their reports on their experiences, as well as the findings, based on their final excursion reports. From the excursion, we noted that wild pedagogies was both a concept and a project (Jickling et al., 2018) to enhance content in teaching and learning.

The student-teachers who were engaged in the excursion found the activity to be interesting; they also found that it enhanced their classroom learning. One student said:

> I've learnt outdoor teaching and learning methods through our guide. I've learned that when in a field excursion, I as the educator should make sure that my students are in a line so that I am able to keep track and see what everyone is doing or if there is anyone missing. If the class is too big then I can arrange students in two lines. I also learnt not to take frequent stops as most students would get tired. The other thing I've learnt is that a circle should be created around an object of discussion at stops so that no one would be left behind and would all see and hear what is being discussed.

Yet another student-teacher found the excursion to be an amazing outdoor learning experience, remarking that, "As a teacher, I will have an idea on how to teach students and which methods to use. I familiarized myself with a student's perspective on outdoor classes in Environmental Education. I made observations like environmental issues, risks, crises and concerns."

The student-teachers appreciated the excursion program, which included such activities as a nature walk. The goal of the nature walk was to enable

student-teachers discover, identify, and ask questions about anything in the wild environment that they did not understand. It also provided student-teachers with opportunities to share their prior knowledge. During the nature walk, they learnt that they were supposed to minimize noise in order to avoid scaring wild animals, who might think they are being attacked. Student-teachers also learned about different plant species, their properties, and their uses and how they are conserved. The most popular plant they learned about was the buffalo thorn tree. One student said, "the tree is believed to protect us from lighting and is used for medicinal purposes like healing pimples and the small leaves can be prepared like spinach. The seeds can be roasted to make a coffee substitute." The second most popular plant they learned about was the Tambotie (morukuru[8]) tree, which is one of the protected trees in Botswana. One student-teacher described the tree as having

> a toxic substance to plants and animals. One factor that was also astonishing was that the area around the tree was bare except for small plants that grew around the steam. Apparently, when it rains the toxic substance is dissolved from the leaf and falls on the vegetation beneath it killing other plants. … In the olden days, people used to make poles from the tree because of its toxic property. The Tambotie poles are not destroyed by termites and other pests. A piece of heart wood from Tamboties tree was used as a pest repellent in grain and seeds storage to protect them.

The above narrative suggests that the nature walk offered an opportunity for students to learn about a tree that they knew existed but had never paid attention to its properties and uses. They learned through experience. They learned about different plants and their uses, as well as about traditional folklore about the plants. For instance, one student said that buffalo thorn tree leaves

> have three veins. Those veins represent three relationships, between oneself, the environment and people. This means as people we have to have a good relationship with the environment because we depend mostly on the environment to survive. The tree leaves can also be used for medicinal purposes to treat boils and it also provides fruits. It was very interesting to realize that plants are very important besides that they give us food and oxygen. They can also help us to live a better life.

Student-teachers were also engaged in a game-drive visit to the reptile park and sanctuary. This visit brought them closer to wild animals and helped them to appreciate the beauty of the wildlife and the need to conserve biodiversity.

Wild pedagogies facilitated the students' appreciation of nature. This was echoed by a student-teacher during a visit to Mokolodi Nature Reserve, who posited the following:

> Learning in an outdoor environment allows learners to interact with the elements around us and helps them to gain an understanding of the world we live in. They can experience animals in their own surroundings and learn about their habitats.

This statement is evidence that exposing students to a natural environment can deepen their knowledge of and understanding about the world they live in. Student-teachers appreciated that people are part of nature. One student teacher saw the purpose of the excursion as follows:

> Students become aware that man is part and parcel of the environment. Man needs to recognize the importance and role of the environment in order to protect it and to get protection from it, hence the need for environmental education. Nature is beautiful and very essential to our day-to-day activities.

Similarly, wild pedagogies prioritizes individual, subjective learning rather than strictly objective, controlled learning. Students were placed in the wild and given the opportunity to learn through experience. Though all the students were on the same nature excursion, feelings and experiences were different amongst the individual learners. One student said:

> I am very ecstatic for I had the opportunity to visit a beautiful place where I was able to learn about wild animals and plants, some of which are rare and endangered. The outdoor learning was fun and interesting because one has to explore the wild environment and at the same time learn about it.

Another student teacher explained how to prepare for learners for an excursion:

> I learned a lot of things that will assist me on how to handle and control my learners whenever we have an outdoor teaching exposure that is similar to the game reserve trip. I will be able to know that it is important to give out steps on how we are going to carry out the tasks before we can do that, not to make too much noise as that disturbs the animals, that is, it may scare them.

The wild pedagogies approach to these excursions placed the responsibility for learning on the students themselves. They had to observe, feel, appreciate, and reflect—and make their own conclusions (that is, learn) based on their experiences (Kolb, 1984, 2015). This was brought up by one of the student-teachers:

> My observation about the place of Mokolodi Nature Reserve is that the place is recovering from environmental stress caused by human activities. The most environmental issue that is visible there is soil erosion because the nature reserve was a farming field. The farming activities performed before are the ones that elevated the level of soil erosion. I also saw some people cutting down trees inside the nature reserve. This practice also contributes to soil erosion. To try and combat the level of soil erosion, the nature reserve is fenced to restrict movement of wild animals, domestic animals and to avoid unmonitored movement of people in and out of the reserve. The nature reserve operators saw it fit to grow vegetation in areas that were heavily eroded. This process had its flaws. First, bird species would eat the seeds before they germinate. Second, varieties of animals graze on the seedlings

> before they can mature. Besides these setbacks I think the initiative is necessary to eradicate soil erosion as trees provide ground cover. I also observed that the nature reserve provides rehabilitation and medical care to animals that are endangered as I saw some vultures that were under medical attention and later would be released to the wild after successful treatment.

The excursion to the nature reserve provided an opportunity for an active learning approach, and this was appreciated by one student-teacher who said, "I believe that if ever the government of Botswana could adopt this kind of experiential learning most of students will pass and it is not easy to forget as compared to the classroom." The student-teachers found that the wild pedagogies approach accommodated their learning goals and helped them to feel comfortable to ask any questions about these wild spaces. Student-teachers also felt that if people knew more about the environment, they would find ways to protect natural resources and avoid pollution and erosion. One student noted, "Learning by experience should be practised in schools and we as people should keep moderate domestic animals because they cause over grazing hence soil erosion. Let's learn and save for the future."

Student-teachers also noted that wild pedagogies enhances active learning. Student-teachers were actively engaged during both a nature walk and a drive around the reserve, viewing wild animals and plants. Both the nature walk and the game drive were administered in the form of a mobile mini-lecture. One student described this as

> very interactive. We had discussions about nature such as erosion and the natural process of it and conservative measures of the reserve. This gave me a lot of knowledge and awareness about the environment and how as a future teacher I can employ different ways of teaching outdoor by learning how to conduct field work as well.

Active learning can lead to self-discovery. One student-teacher said the excursion made her realize the beauty of nature and "at the same time [understand] how difficult it is to recover the environment from the human impacts (e.g., overgrazing). All of these made me realize all the efforts that the reserve makes to maintain the place." The student-teacher described the activity as "very enlightening and inspiring."

Wild pedagogies can also help educators offer learners an opportunity to appreciate the natural world. One student noted the following:

> During the nature walk we had to make various stops in order to enjoy the walk and to learn about the place. Many times during the walk, I would find myself listening to the sounds of birds which made me develop a strong relationship with nature. The first stop that we made was by the tree called a buffalo thorn.

One student teacher showed appreciation for the environment when they said, "the tour was very interesting. I enjoyed the view and it was amazing to see beautiful vegetation without litter around. I like the simplicity of the reserve

and I wish to work there someday." The above sections presented findings from the practical experiences in KyT in rural eastern Botswana and the Mokolodi Nature Reserve. The next section discusses the findings in relation to student-teachers' experiences.

Discussion

Wild pedagogies offers opportunities for a variety of innovations in teaching and learning. The importance of wild pedagogies for educators cannot be overemphasized. Educators are always on the lookout for opportunities to improve and transform teaching and learning (Jickling et al., 2018; Straker et al., 2017). In this paper, we emphasized how wild pedagogies can enhance the following: content knowledge and understanding; appreciation of the natural world; and diversity in pedagogical approaches to environmental education. Synchronously, we employed the six touchstones of wild pedagogies as our theoretical framework.

Enhancing content knowledge and understanding

The wild experience enhances content knowledge and understanding of nature in a relaxed environment (Jickling et al., 2018; Kolb, 2015; McLeod, 2017; Straker et al., 2017). Student-teachers learned about diverse vegetation (on the way to KyT and in the Mokolodi Nature Reserve) that they had always seen but to which they had never paid close attention. They also appreciated the presence of animals and their conservation. When referring to what they had witnessed as a way of rehabilitating unproductive land, one student-teacher expressed a positive feeling towards nature: "the excursion taught me … how to handle our natural environment so that it become more valuable to our nations."

Appreciation of the natural world

Wild pedagogies encourages educators to seek opportunities where learners can appreciate the natural world (Mawson, 2014; McDuff, 2010). One student said they, "enjoyed and learnt about nature" during the walk; another noted, "Many times during the walk I would find myself listening to the sounds of birds, which made me develop a strong relationship with nature"; yet another commented, "I enjoyed the view and it was amazing to see beautiful vegetation without litter around."

These statements demonstrate that wild pedagogies is a viable and enriching approach to outdoor education (Jickling et al., 2018). The students appreciated being given the opportunity to spend more time with other "beings" in the natural world. During the students' excursion to the Mokolodi Nature Reserve, they were able to locate the wild and employ nature as co-teacher by learning with and through the park's natural surroundings.

Diversity in pedagogical approaches to environmental education

With its critical emphasis on immersion in the natural world, wild pedagogies can enhance experiential and active learning. Wild pedagogies entails a disruption of passive learning and the transmission of unchallenged assumptions (Jickling et al., 2018). Wild pedagogies is a way of freeing learners by deploying learner-centred approaches to understanding about and from the natural world. Interestingly, wild pedagogies entails being "entangled with other beings and species" (Blenkinsop et al., 2016, p. 207). This was demonstrated in our study by engaging student-teachers in active experiential learning through their observations in the KyT factory and their nature walks. On this subject, one student-teacher noted the following in their report: "I've learnt outdoor teaching and learning methods through our guide."

Student-teachers also described how they would organize and manage learners during a field excursion in their own role as educators. Interestingly, they mentioned that learners would be given more time to discover things and ask questions based on their practical discovery in the natural world, rather than always expecting questions from the teacher. We take this as one of the six touchstones of wild pedagogies in practice, in which a free learning environment is promoted and in which building a relationship with nature demands adequate time and practice. One student-teacher claimed that active learning in the natural world "made me realize the beauty of nature." This demonstrates the value of wild pedagogies as a transformative approach to teaching and learning. Furthermore, environmental relationships and engaging experiences outside appear to develop more positive attachment.

The experiences of these student-teachers also confirmed the touchstone of *complexity and the unknown* when excursion members to KyT were stopped by immigration and police authorities. The touchstone of *socio-cultural change* emerged as well, illustrated when student-teachers stated that they now have ideas about how to teach students through outdoor practices, while taking into consideration environmental risks, crises, and concerns.

Conclusion and Recommendations

There is a need to rethink and revamp practices of teaching and learning in Botswana and other sub-Saharan Africa nations. Wild pedagogies is gaining prominence in environmental and sustainability education. This paper has reflected on the practices and experiences of a group of practitioners and has testified to the viability of wild pedagogies in teacher education.

Drawing from student-teachers' experiences, the authors conclude that wild pedagogies can enhance experiential learning in practice and add value to teaching and learning. In so doing, wild pedagogies can improve environmental education. Learning through experiences, as demonstrated in KyT and the

Mokolodi Nature Reserve, may be more valued by learners as they are not constrained by predetermined learning outcomes. In the study described above, the students were allowed the space to observe, feel, experiment, reflect, and connect with nature on their own. These experiences allowed them to discover, re-connect with nature, and form opinions about the environment, without being controlled by the teacher. Some students were also able to confirm their prior knowledge about different components of the environment.

Based on these findings, we strongly recommend that wild pedagogies should be an integral part of teacher education. In particular, and based on the student-teachers' experiences as well as our own, we strongly regard wild pedagogies as an integral part of disruptive pedagogical transformation that can add value to learner-centred teaching and learning. As Straker et al. (2017) posit, exposure to different sites can help to challenge the status quo and disrupt our ontological positions. Environmental and sustainability education could adopt wild pedagogies to promote effective learning and influence a change in attitude toward the environment. Extended field trips to nature-based sites, such as forests and game reserves, may enable both students and teachers to draw on wild pedagogies in order to enhance their practice-based experiential learning.

Limitations of the Study

As this was a qualitative case study, the findings are not generalizable to either all cohorts of student-teachers at the university or every natural resources management site and nature reserve. The study was limited to one natural resource management site in the eastern part of Botswana and one nature reserve in the southern part of Botswana. The study may not have provided an adequate basis for making inferences about wild pedagogies in other wild sites of Botswana; however, this study does have credibility. Transferability should rest with the reader.

Notes

1 Tswapong Hills Cultural Landscape, is located in the eastern part of the Central District near the town of Palapye in Botswana. The landscape stretches over a 70km magnificent range of the Tswapong Hills. The Tswapong Hills are about 15km wide and rise 400m above their surroundings. The rocks of Tswapong Hills were formed some million years ago within a sedimentary basin (UNESCO World Heritage Centre, 1992-2021).

2 Marula, is a medium-sized deciduous tree, Indigenous to the miombo woodlands of Southern Africa, the Sudano-Sahelian range of West Africa, and Madagascar (Wikipedia, 2021).

3 Kgotla is a word in Botswana meaning a public meeting or traditional law

court of a Botswana village. It is usually headed by the village chief or headman, and community decisions are always arrived at by consensus. Anyone is allowed to speak (Ngwenya and Kgathi, 2011).

4 The island nation of the Seychelles, in the western Indian Ocean, comprises about 115 islands, with lush tropical vegetation, beautiful beaches, and a wide variety of marine life. Situated between latitudes 4° and 11° S and longitudes 46° and 56° E, the major islands of Seychelles are located about 1,000 miles (1,600 km) east of Kenya and about 700 miles (1,100 km) northeast of Madagascar (Britannica, undated).

5 Colophospermum Mopane, commonly called mopane, mopani, balsam tree, butterfly tree, or turpentine tree, is a tree in the legume family (Fabaceae), that grows in hot, dry, low-lying areas, 200 to 1,150 metres (660 to 3,770 ft) in elevation in Africa (SA National Biodiversity Institute, undated) .

6 Mokoba, the knobthorn (Senegalia nigrescens), is a deciduous African tree, growing up to 18 m tall, that is found in savanna regions from West Africa to South Africa. The tree is resistant to drought, not resistant to frost and its hard wood is resistant to termites (SA National Biodiversity Institute, undated).

7 Mahalapye, is located in the Central District of Botswana. It is positioned along the main road between Botswana's capital city, Gaborone, and the city of Francistown (Botswana Tourism Organisation, 2021).

8 Tambotie or Morukuru, is a medium-sized, semi-deciduous tree with a round crown, which is especially renowned for its wood. The tree is also known for its toxic milky latex that exudes from all parts of it. Common throughout Southern Africa region and it can grow up to 18 m high (Random Harvest, undated).

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