Teaching Advancement at Universities

TAU3 Fellowship Programme (2021/2)

Individual Institutional Project Report

Project Title: Using design-based research to enhance supervised agriculture-based research supervision at UNIZULU

Submitted

By

Prof Melusi Sibanda (PhD)
Cert. ULDP (USB)*; PGDipHE* (UKZN)
Acting Head of Department (HoD): Agriculture
Associate Professor: Agribusiness
University of Zululand
Department of Agriculture
Private Bag X1001, KwaDlangezwa, 3886
www.unizulu.ac.za | SibandaM@unizulu.ac.za
Tel (W): +27 (0) 35 902 6068 | FACEBOOK | TWITTER

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1. Introduction

This document is an individual, institutional Teaching Advancement at Universities (TAU) report on using design-based research to enhance supervised agriculture-based research supervision at UNIZULU. The initial part of the document introduces the contextual issues and rationale for the project. The rest of the report covers the following: aim, processes and methods, achievements, and challenges.

Motivation is a central concept that describes human behaviour concerning biological, cognitive and social parameters (Deci & Ryan, 2008). Motivation has been noted to drive behaviour in all situations, including education (Deci & Ryan, 2000). Student motivation concerns students' goals, interests and drives to engage or participate in learning activities to the best of their abilities (Nukpe, 2012). A motivated student can attain confidence and self-efficacy (capacity to achieve) in their learning process (Bandura, 1997). Various studies have been conducted to understand student motivation as the key to student engagement and participation, thus leading to performance and success (Deci & Ryan, 2008). However, research about student motivation in higher education is fairly new (Kember et al., 2008). Addressing issues on students' motivation in the higher education sector is paramount to encouraging self-efficacy, confidence, quality of work, and academic success of students (Ballman & Mueller, 2008).

Supervision is an advanced form of teaching and learning to nurture students. In research supervision, it is expected that students should be actively involved with their studies and are required to think and apply the knowledge leant in differing situations. Five effective areas of educational practices have been identified, including "academic challenge; active and collaboratively learning; student interactions with faculty; enriching educational experiences; and supportive campus environment." Of concern, especially in South Africa, is that out of the five effective educational practice areas, the "enriching educational experiences" is the least (about 22%) (Strydom & Mentz, 2010). Student success can be enhanced by improving student experiences, quality learning and teaching and social cohesion within the higher education context. This then calls for student engagement and enrichment through extrinsic and intrinsic motivation.

In agriculture, student-supervised agricultural experiences or research projects are usually designed as experiential learning instruments. Students apply classroom knowledge or learned concepts to real-life situations through supervised agricultural experiences or research project-based learning. Project-based learning is highly valued, but student motivation and engagement are sometimes lacking (Retallick & Martin, 2005). The dynamics of student motivation in supervised agricultural experiences have been hardly studied.
Research supervision generally requires students to achieve extrinsic and intrinsic motivation to work independently and achieve academic success. The Department of Agriculture, University of Zululand (UNIZULU), has identified the need for fourth-year finalist students to develop motivational support concerning their supervision experiences.

2. Aim

This educational, developmental project aimed to transform fourth-year finalist students' agricultural-based supervised learning and motivational experiences at UNIZULU.

3. Processes and methods

This educational, developmental project used design-based research (DBR) approach employing selected principles of Flux Pedagogy (Ravitch, 2020) and Slow Scholarship of Teaching & Learning (SoTL) (Leibowitz & Bozalek, 2018) to design interventions to attempt to address the extrinsic and intrinsic motivation issues for supervised agriculture fourth-year finalist students at UNIZULU. These principles should not be seen as 'absolute truths'; instead, they are guiding principles open to critique, iteration and development.

Flux pedagogy entails integrating relational and critical pedagogy into a transformative and responsive approach (Ravitch, 2020). Flux pedagogy combines critical interpersonal frameworks into a transformative pedagogical approach to address numerous problems through fundamental learning and informed action. It is also inquiry-based and shows a leadership mindset adaptive to students and academics during a crisis and challenging times. Ravitch (2020) outlines six primary dimensions of flux pedagogy which are: "1) Inquiry Stance Pedagogy; 2) Trauma-informed Pedagogy, which includes Radical Compassion and Radical Self-care; 3) Emergent Design, Student-Centered, Active Pedagogy; 4) Critical Pedagogy and Storytelling; 5) Racial Literacy Pedagogy, and 6) Brave Space Pedagogy".

Slow SoTL resonates with Boyer's notions that SoTL offers reconceptualising teaching and learning opportunities. Cited in Leibowitz and Bozalek (2018), Boyer emphasises the scholarship of discovery (knowledge), integration (connectedness including inter-disciplinarily), application (how knowledge is applied, why knowledge matters and the intersection between theory and practice), and the scholarship of teaching (intellectual engagement of the teacher and transformation and extension of knowledge). The perspective of Slow SoTL challenges the dominant notions of neoliberalism, Eurocentric and managerialism in university contexts. The significance of Slow SoTL lies in the intellectual thought in teaching, the teacher as a scholar and learner, and collaborative and transformation practices as alternatives to dominant modes of neo-liberalism. Based on this premise, slow SoTL is envisaged to foster an engaged student-centred supervision approach. Slow SoTL supervision practices allow students to discuss problems, concerns, and issues concerning their supervised experiences in a platform like a seminar. Students, therefore, are encouraged to take ownership and responsibility for their learning.

Indeed Flux pedagogy and Slow SoTL principles were appropriate for this design research because these two concepts intend to bring about transformational equity in the education system. The following principles were developed 1) A social, communal and educational transformation tool that is more critically informed can be acquired through collaborative research projects that support an inquiry stance (Ravitch, 2014), 2) Trauma-Informed Pedagogy to make literacy and learning relevant and engaging for students is characterised by safe learning environments that create a safe and inclusive framework for discussions (Cramer, 2018). Critical pedagogy offers a problem-solving strategy in learning through methods that allow dialogue and interaction between teachers and students and between students and other students (Muhammad and Muhammad, 2019). The emergence of a global crisis like Covid-19 (which necessitates flux pedagogy) and dormant neoliberal practices (which SoTL is against) necessitated a comprehensive approach to enact critical design strategies to enhance agriculture fourth-year finalist students' supervision experiences. The design-based research project borrowed these dimensions of flux pedagogy and slow SoTL as

strategies that support critical pedagogy, peer inquiry groups, student-centred, active pedagogy, and brave space pedagogy.

The initial phase of the DBR approach involved collecting perspectives for enhancing the supervised experiences of fourth-year finalist agriculture students through an Academical Motivation Scale (AMS) questionnaire as used by Chong and Ahmed (2012) and Utvær and Haugan (2016) and interviews with students and supervisors, respectively. Other stakeholders, for example, the library division and the Teaching and Learning Centre (TLC) Writing Centre, were also consulted. Design principles embedded in collaborative research projects, seminars, and research capacity training workshops, have been iteratively implemented to enhance student engagement and supervised experiences in 2021/2.

4. Achievement and challenges

Design principles (see section 2) embedded in collaborative research projects, seminars, and research capacity training workshops were iteratively implemented in 2021/2.

Muhammad & Muhammad (2019) suggested integrating critical pedagogy in the learning process to allow a dialogue method of interaction between teachers, students, and themselves. Critical pedagogy was integrated through collaborative research projects. Students were paired into groups for their research projects. Pairing students resembled a critical pedagogy approach and appeared to help students learn from each other and make linkages in knowledge with societal problems. This design principle also provided opportunities for connecting learning with real-life situations and problem-solving through out-of-book experiences, such as reflective examples and demonstrations concerning diversity and socio-economic perspectives that students could relate with.

As Ravitch (2014) postulated, we facilitated critical dialogic engagement and authentic collaborations that stimulated conversations and learning through seminars to cultivate knowledge and skills that support an inquiry stance. Online seminars (during Covid-19 lockdowns) and face-to-face discussions after the Covid-19 lockdowns offered a platform to foster critical dialogic engagement and authentic collaborations that stimulate conversations and learning – what Ravitch & Carl (2019) refer to as a 'brave space pedagogy'. Presentation seminars appeared to offer safe learning and inclusive environments for discussions. Students presented their research project proposals and reports to their peers. Presentation groups were assigned discussants who had a role in engaging their peers meaningfully and critically. This design principle also made presentations fun and interesting.

An attempt to make literacy and learning relevant and engaging for students was facilitated through capacity-building workshops on research and supervision aspects. For example, Cramer (2018) proposed providing multiple ways of engagement that could be more relevant, unthreatening, and safe to build academic confidence. Again, Leibowitz & Bozalek (2018) support capacity building as a starting point for Slow SoTL. In collaboration with the Teaching and Learning Centre (TLC) Writing Centre and the Library Division, students were capacitated in various research aspects such as basic academic writing, plagiarism, searching databases and referencing, including e-referencing tools. This training promised to be a starting point for Slow SoTL to enhance learners' supervision experiences.

Despite the promising outcomes from the described design principles, some challenges were also observed. For example, a few groups reported that their research partners were not contributing or contributing less to the research project (out-of-class activities) and communication challenges. During the Covid-19 lockdowns, bandwidth (data) was a major challenge in implementing online discussion sessions (seminars). Concerning the training (capacity building), not all students participated in the training/ workshops despite the numerous invitations. This educational and developmental project is ongoing. The effect of the interventions on improving the supervision experiences of fourth-year finalist agriculture students still needs in-depth qualitative investigation and interpretation to come to more solid findings regarding the design-based research process that was put into practice.

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